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## **Assessment of the Mental Health Funding Marketplace in Rural vs. Urban Settings**

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## **Executive Summary**

According to data from the National Comorbidity Survey Replication, lower quality of mental health care is provided to residents living in rural areas, defined as non-Metropolitan Statistical Areas, compared to urban areas (Wang et al, 2005). This is partly due to inadequate supply of mental health specialists (Gamm et al, 2003; Merwin et al, 2003) and lower rates of insurance coverage (Eberhardt et al, 2001). To improve the delivery of care to this population, it is necessary to document how this care is financed in rural vs. urban areas to best target finance-based interventions and policies that would have the highest probability of improving the quality of mental health care in rural areas and reduce or eliminate urban-rural disparities in mental health care. Data from the 2004 Medical Expenditure Panel Survey are used to delineate sources of payment for mental health services across the urban-rural continuum. Rural residents are less likely to have mental health services funded through private insurance and more likely through public sources than urban residents, suggesting that targeting policies through public funding sources could be the most effective method to reduce urban-rural disparities in mental health care.

## INTRODUCTION

According to the most recent data from the National Comorbidity Study Replication (NCS-R), rural individuals with mental health problems are significantly less likely to receive any mental health care for their disorder than individuals in urban or suburban areas (Wang et al., 2005).

When rural patients do receive mental health care, they are significantly less likely to receive specialty mental health services and most likely to receive it from the general medical sector, where adequate mental health care is provided substantially less often (Wang et al., 2005).

Primary care providers usually do not have the training or resources necessary to provide evidence based psychotherapy or the time for adequate counseling, and twenty percent of rural counties completely lack mental health services, compared to 5% in urban counties (Gamm et al., 2003). Thus, the rural disparity in guideline-concordant mental health treatment appears to be largely due to a reliance on primary care providers necessitated by a low supply of mental health specialists (Merwin et al., 2003).

In addition to the lack of mental health specialists, rural individuals with mental health problems face additional barriers to receiving care. For example, most managed care organizations that deliver evidence-based treatments for mental health problems only provide services to enrollees living in urban areas, especially those populations covered by employer-sponsored insurance (Rost et al., 2002). However, when rural residents do receive specialty mental health care, they are actually *more* likely to receive adequate care than urban counterparts and this care is provided at lower cost (Wang et al., 2005; Rost et al. 1998), suggesting that rural mental health care may be more efficient.

Providing the appropriate incentives to encourage better mental health care coverage and increase the supply of mental health specialists in rural areas would likely require changing reimbursement for mental health services in rural areas. The limited research that exists regarding rural mental health services suggests that insurance coverage is lower among rural persons (Eberhardt et al., 2001), having health insurance is associated with better outcomes and entry to care (Rost et al., 2002), and that health plans are more likely to rely on enrollee cost-sharing strategies, such as copayments, deductibles, and limits on benefits, for rural enrollees than supply side strategies, such as altering provider reimbursement (Fortney et al., 2003; Slifkin et al., 1998; Slifkin et al., 1996). Taken together, rural individuals are less likely to receive care as a result of lack of coverage and potentially more likely to pay more out-of-pocket for medical care than urban individuals. This points to the need for policy changes to improve the delivery of mental health care in rural areas. Prior to making policy changes to the reimbursement system to provide the necessary incentives to disseminate extant evidence-based mental health treatment and increasing the number of mental health specialists in rural areas, it is first necessary to understand how mental health services are financed in rural areas relative to urban areas.

The objective of this study was to assess sources of funding for mental health services and whether these sources significantly differed between urban and rural settings. Given that rural areas are poorer (Eberhardt et al., 2001) and have higher rates of unemployment (Eberhardt et al., 2001) and therefore less likely to have employer-sponsored health insurance, we hypothesized that a greater proportion of mental health treatment in rural areas would be paid for through public sources such as Medicaid and a lower proportion would be paid for through private insurance than in urban areas. Also, because previous research has shown that health

plans are more likely to rely on demand side cost containment strategies for rural enrollees than supply side strategies (Fortney et al., 2003; Slifkin et al., 1998; Slifkin et al., 1996), we hypothesized that a greater proportion of mental health payments would be self pay in rural areas compared to urban areas. Additionally, the reliance on the general medical sector for mental health treatment led us to hypothesize that urban-rural differences in funding source will be more pronounced for medications than for psychotherapy or mental health counseling. We are unaware of any recent study that delineates differences in funding sources for mental health care between urban and rural areas.

## **METHODS**

### **Data**

This study uses data from the 2004 Medical Expenditure Panel Survey (MEPS), a nationally representative survey sponsored by the Agency for Healthcare Research and Quality (AHRQ) that is conducted annually. The MEPS employs an overlapping panel design collecting data for individuals over a two-year period through a baseline interview and five follow-up interviews and can be used for cross-sectional or longitudinal analysis. The MEPS Household Component (HC) collects detailed information on health care utilization and expenditures, health status, health insurance coverage, and demographic information and is designed to produce annual estimates of these measures, which are used in this study. There are up to twelve funding sources listed for each health care event included in MEPS: private insurance, Medicaid/SCHIP, Medicare, VA, Tricare, Workers Compensation, self-pay, other private, other federal, other state/local, other public, and other unclassified source. The MEPS HC sample is drawn from a subsample of households included in the previous year's National Health Interview Survey.

There are a total of 34,403 observations on individuals included in the 2004 MEPS HC. The data in the MEPS 2004 HC are described in detail at [www.meps.ahrq.gov](http://www.meps.ahrq.gov).

## **Measures**

Individuals With Mental Health Conditions - Individuals with mental health conditions were identified using the MEPS medical conditions file. The medical conditions file contains an observation for each self-reported medical condition the individual experiences during the year. During each interview, respondents were asked about medical conditions that were experienced during the four or five months since the previous interview. Thus, all conditions are self-reported by respondents. Self-reported conditions were mapped onto 3-digit *International Classification for Diseases, 9<sup>th</sup> Revision* (ICD-9) codes by AHRQ coders. We classified conditions with ICD-9 codes of 290-314 as mental health conditions. In the 2004 MEPS, there were 4,687 individuals with at least one self-reported mental health condition.

Medication for Mental Health Conditions - All psychotropic drugs were identified from the MEPS Prescription Drug File. The Prescription Drug File includes one observation for every prescription filled by each MEPS respondent during the calendar year. The File includes a variable to identify the therapeutic drug class of the prescribed medication, as well as variables corresponding to the total cost for the prescription and the amount paid from each of the funding sources (defined below).

Psychotherapy or Mental Health Counseling - Psychotherapy or mental health counseling visits were identified using the MEPS Outpatient Visit File and the MEPS Office-Based Medical Provider Visits File. The 2004 MEPS Outpatient Visit File includes data on 4,902 visits and the 2004 MEPS Office-Based Medical Provider Visits File contains data 23,223 visits. These files contain one observation for each self-reported visit to a hospital-based outpatient clinic or office-

based medical provider. For each visit, the respondent was asked which category best described the care provided during the visit. One possible category of response was “Psychotherapy or Mental Health Counseling”. All visits described as a psychotherapy or mental health counseling visit were referred to as a “psychotherapy/counseling” visit.

Other Mental Health Visits – In addition to psychotherapy and mental health counseling visits, other mental health visits were identified from the Outpatient and Office-Based Medical Provider Files. All visits to either a psychiatrist, psychologist, or social worker were identified as a mental health visit, as well as all visits to other providers where the respondent identified the visit as being for a mental health condition. Inpatient stays and emergency room visits for mental health conditions, as identified by the respondent, were also counted as a mental health visit.

Funding Source – Annual total expenditures for mental health services and medications by respondents with mental health conditions were calculated and the proportion of those services paid for by each of the funding sources identified in the MEPS was calculated. The funding sources identified in MEPS are private insurance, Medicaid/SCHIP, Medicare, VA, Tricare, Workers Compensation, self-pay, other private, other federal, other state/local, other public, and other unclassified source. The proportion of expenditures paid for by each funding source is calculated by dividing the amount paid by the funding source for all mental health services and/or medications by each respondent during the year by the total expenditures for those services and/or medications during the year. Because of limited sample size by funding source, the payment categories were collapsed to three categories. The categories are private insurance, public insurance, and self-pay. The private insurance category includes the categories of private insurance, other private, and workers compensation; the public insurance category includes

Medicaid/SCHIP, Medicare, VA, Tricare, other federal, other state/local, and other public; and the self-pay category includes self-pay and other unclassified source.

Rurality – Rurality was measured using Rural Urban Continuum Codes (RUCC), developed by the U.S. Department of Agriculture. The RUCC classification scheme distinguishes urban counties by the size of the metropolitan area and nonmetropolitan counties by degree of urbanization and adjacency to metro area or areas

(<http://www.ers.usda.gov/briefing/rurality/ruralurbcon/>). There are nine RUCC categories: (1) counties in metro area with population greater than 1 million; (2) counties in metro area with population between 250,000 and 1 million; (3) counties in metro area with population below 250,000; (4) counties adjacent to metro area with urban population of 20,000 or more; (5) counties not adjacent to metro area with urban population of 20,000 or more; (6) counties adjacent to metro area with urban population between 2,500 and 19,999; (7) counties not adjacent to metro area with urban population between 2,500 and 19,999; (8) counties adjacent to metro area that are completely rural or with urban population less than 2,500; and (9) counties not adjacent to a metro area that are completely rural or with urban population less than 2,500. Because there are no FIPS or zip codes available in the MEPS public use file, analyses were conducted at the MEPS Data Center and FIPS codes were matched to RUCC to create the measure of rurality used in these analyses. Because of limited sample size, the RUCC categories of 7, 8, and 9 were combined into a single category representing the most rural counties. Sample size by RUCC are shown in Table 1.

### **Demographics**

Race/ethnicity was represented by four mutually exclusive groups: Caucasian, African American, Latino, and Other. Age was specified as <18, 18 to 34, 35 to 64, and 65 and over.

Marital status was defined as married, widowed, divorced/separated, or never married. Education attainment was measured as either less than a college education or college education or greater. Income was measured by percent of the federal poverty level (FPL) and was categorized as poor (< 100% FPL), near poor (100-125% FPL), low income (>125-200% FPL), middle income (>200-400% FPL), and high income (> 400% FPL).

### **Health Status**

To understand potential differences in health status of individuals in urban vs. rural areas, several measures of health status were compared by RUCC category. These included self-reported health and mental health status, with each being rated as excellent, very good, good, fair, or poor. The MEPS also includes respondent health status as measured by the SF-12 (Ware et al, 1996). The 12 questions included in the SF-12 are (1) limitations in performing moderate physical activity; (2) limitations in climbing several flights of stairs; (3) extent to which pain interferes with normal work; (4) whether less work or physical activity is accomplished due to physical health; (5) whether the types of work or other activities are limited due to physical health; (6) how often felt calm or peaceful; (7) how often felt downhearted or blue; (8) whether less work or physical activity is accomplished due to emotional problems; (9) whether work or other activities were not accomplished carefully due to emotional problems; (10) how often felt energized; (11) how often physical or emotional problems interfered with social activities, and (12) overall rating of health from excellent to poor. Specifically, the physical component score (PCS) and mental component score (MCS) are used. The PCS weights responses to the first 5 items more heavily, while the MCS weights responses to items 6 through 9 more heavily.

### **Statistical Analysis**

Nationally representative estimates of the proportion of funding for mental health services by payer source and rurality as measured by RUCC were first estimated using the survey procedures of Stata (2007), which allow for nationally representative estimates and standard errors that correctly account for the complex survey design. Specifically, the proportion of funding for all mental health services, for mental health medications, and for psychotherapy paid for by private, public, and self-pay for each of the seven RUCC categories were calculated.

## **RESULTS**

Demographics of the sample by RUCC are shown in Table 2. The proportion of enrollees with each type of health insurance varied significantly by RUCC. Individuals in RUCC 1 were the most likely to have private insurance, while those in RUCC 6 had the lowest probability.

Individuals in RUCC 1 were the least likely to have public insurance while individuals in RUCC 5 were the most likely. The lowest rate of uninsured was in RUCC 4 while individuals in RUCC 6 had the highest rate.

### **All Mental Health Services**

On average, 42% of expenditures for mental health services were paid for by private insurance in the most urban areas compared to 37% in the most rural areas (Figure 1). An average of 21% of expenditures were paid for by public sources in the most urban areas compared to 25% in the most rural areas. Overall, there were little differences in the proportion of expenditures for mental health services paid for out-of-pocket, with an average of 37% of expenditures for mental health services paid for out-of-pocket in the most urban areas compared to 38% in the most rural areas.

### **Medications**

When examining only expenditures for psychotropic medications (Figure 1), 42% of expenditures are from private insurance sources in the most urban counties while 38% of expenditures are from private insurance sources in the most rural counties. Public insurance, on the other hand, funds 18% of expenditures for psychotropic medications in the most urban counties and 21% of expenditures in the most rural counties. The proportion of expenditures for psychotropic medication paid for out-of-pocket increases from 40% in the most urban counties to 42% in the most rural counties.

### **Psychotherapy and Mental Health Counseling**

When examining expenditures specifically for psychotherapy or mental health counseling (Figure 1), 39% of expenditures were from private insurance in the most urban counties compared to 34% in the most rural counties. Of note, the proportion paid for through private insurance was lowest for RUCC categories 5 and 6, which represent counties with urban populations of 20,000 or more but not adjacent to a metro area and counties with urban populations of 2,500-19,999 that are adjacent to metro areas, where only 28-30% of expenditures were paid through private insurance. Public insurance paid for an increasing proportion of psychotherapy the more rural the county, with 31% paid through public sources in the most urban counties compared to a high of 60% in RUCC category 5. The proportion dropped back down to 34% in the most rural counties. The proportion of psychotherapy and mental health counseling services paid for out-of-pocket was similar between the most urban and most rural counties (30% vs. 32%), but was significantly less in RUCC categories 5 and 6 where 12% and 16% of expenditures were paid for out-of-pocket.

## **DISCUSSION**

The results of this analysis demonstrate that funding sources for mental health services vary between urban and rural settings, although the variation is not substantial. As hypothesized, overall, funding for mental health services in rural areas is somewhat more reliant on public funding sources and somewhat less reliant on private insurance than more urban areas. It is interesting to note, though, that this study shows that even in the most rural areas, about three quarters of the funding is through a combination of private insurance and self-pay (see Figure 1). Although the funding trends are seen for both medication and psychotherapy, the largest differences in funding source appear to be with public funding for psychotherapy, with the largest differences actually occurring in more heavily populated rural areas and in very small counties that are not adjacent to urban counties (see Figure 1). In the most rural counties, funding for psychotherapy is fairly evenly split between public sources, private insurance, and self-pay (see Figure 1). This would suggest that interventions designed to improve the quantity and quality of treatment for mental health conditions in rural areas and/or reduce urban-rural disparities in treatment should explicitly incorporate stakeholders in both the public and private sectors. The greater reliance on public funding sources for psychotherapy in rural areas (see Figure 1), as shown in this study, also suggests that there may be limited access to mental health specialty care by individuals with private insurance, as the majority of this care is accessed by individuals in rural areas with public insurance. Contrary to our hypothesis, rural residents did not pay a higher proportion of their mental health costs out of pocket compared to urban residents. However, the proportion of funding paid for out of pocket is quite high overall, suggesting that there are likely financial barriers to receiving mental health services across the

urban/rural continuum, especially since demand for mental health services is more sensitive to out of pocket price than general medical services (Manning et al, 1986).

The observed differences in funding sources between urban and rural areas, although not substantial, suggest the financial incentives and insurance-based programs to improve access to and quality of mental health care should be tailored specifically for rural vs. urban areas. Given the well documented shortage of mental health specialists in rural areas (Merwin et al, 2003), and the greater reliance on public funding shown in this study, creating financial incentives for mental health specialists to practice in more rural settings either through increased Medicaid payments for mental health specialty care provided in rural settings or other state or federal incentive programs (e.g. loan repayment programs) may be the best strategy for increasing access to mental health care in rural areas and reducing urban-rural differences in the adequacy of mental health care.

There are some limitations to this study that should be considered when interpreting the results. One limitation is the reliance on self-report to identify individuals with mental health conditions. It is possible that people with mental health conditions did not report those conditions or that people who did self-report having those conditions did not meet the clinical criteria for diagnosis. If the likelihood of reporting mental health conditions given an individual's symptoms varied by rurality, this could potentially bias the results. However, we are not aware of any studies that have shown this phenomenon to occur, and it is not likely to be a significant issue with this data. Another limitation of the study was that RUCC categories as well as payment categories had to be collapsed in order to obtain stable estimates from the MEPS data. This prevented us from determining if specific funding sources (e.g. Medicaid, VA, Medicare) were responsible for the observed differences in public funding and whether there were

significant differences in sources of payment among the three most rural categories of the RUCC.

Although these limitations exist, this study represents the first study that we are aware of to assess how funding sources for mental health services varies between urban and rural settings. Furthermore, by using a more sensitive measure of rurality than non-metropolitan statistical area, this study was able to show if funding sources varied along the entire range of the rural-urban continuum. Given the differences in funding source along this continuum, these findings suggest that a one size fits all approach to policies, especially financially-based policies, are unlikely to reduce disparities in mental health care between urban and rural communities.

**Table 1**  
**Sample Size by RUCC**

| RUCC  | All MH Services | MH Medication | Psychotherapy |
|-------|-----------------|---------------|---------------|
| 1     | 2849            | 2354          | 965           |
| 2     | 1316            | 1113          | 419           |
| 3     | 620             | 528           | 183           |
| 4     | 346             | 291           | 86            |
| 5     | 207             | 171           | 61            |
| 6     | 414             | 366           | 89            |
| 7     | 343             | 306           | 78            |
| Total | 6,095           | 5,129         | 1,881         |

RUCC = Rural Urban Continuum Codes. RUCC category 7 in this table is the combination of RUCC categories 7-9 (see page 8-9 for description of RUCC). Data are from the 2004 Medical Expenditure Panel Survey and are limited to individuals with self-reported mental health conditions.

**Table 2**  
**Demographic Characteristics by RUCC**

|                           | RUCC |      |      |      |      |      |      |
|---------------------------|------|------|------|------|------|------|------|
|                           | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
| <b>Race (%)</b>           |      |      |      |      |      |      |      |
| White                     | 63.9 | 71.3 | 74.6 | 83.8 | 65.4 | 83.3 | 84.4 |
| Black                     | 14.8 | 9.8  | 9.1  | 5.7  | 6.0  | 7.6  | 11.2 |
| Latino                    | 23.0 | 14.0 | 11.3 | 5.9  | 18.4 | 6.3  | 0.7  |
| Other                     | 6.3  | 5.9  | 5.0  | 4.6  | 10.2 | 2.8  | 3.7  |
| <b>Age (%)</b>            |      |      |      |      |      |      |      |
| < 18                      | 14.6 | 15.8 | 15.9 | 14.6 | 15.4 | 14.0 | 15.4 |
| 18 to 34                  | 21.4 | 20.9 | 22.9 | 20.0 | 18.3 | 19.5 | 18.9 |
| 35 to 64                  | 51.6 | 47.8 | 49.0 | 45.8 | 52.1 | 49.4 | 49.7 |
| > 64                      | 12.4 | 15.5 | 12.2 | 19.6 | 14.2 | 17.1 | 16.0 |
| <b>Marital Status (%)</b> |      |      |      |      |      |      |      |
| Married                   | 43.4 | 43.6 | 45.2 | 42.5 | 39.6 | 49.7 | 44.0 |
| Widowed                   | 7.0  | 7.9  | 6.9  | 11.0 | 6.1  | 9.2  | 9.4  |
| Divorced                  | 13.7 | 14.9 | 15.3 | 15.9 | 18.3 | 14.0 | 14.5 |
| Never Married             | 35.9 | 33.6 | 32.6 | 30.6 | 36.0 | 27.1 | 32.1 |
| <b>Education (%)</b>      |      |      |      |      |      |      |      |
| College Grad              | 24.2 | 20.4 | 21.2 | 17.4 | 15.4 | 12.2 | 13.3 |

RUCC = Rural Urban Continuum Codes. RUCC category 7 in this table is the combination of RUCC categories 7-9 (see page 8-9 for description of RUCC). Data are from the 2004 Medical Expenditure Panel Survey and are limited to individuals with self-reported mental health conditions.

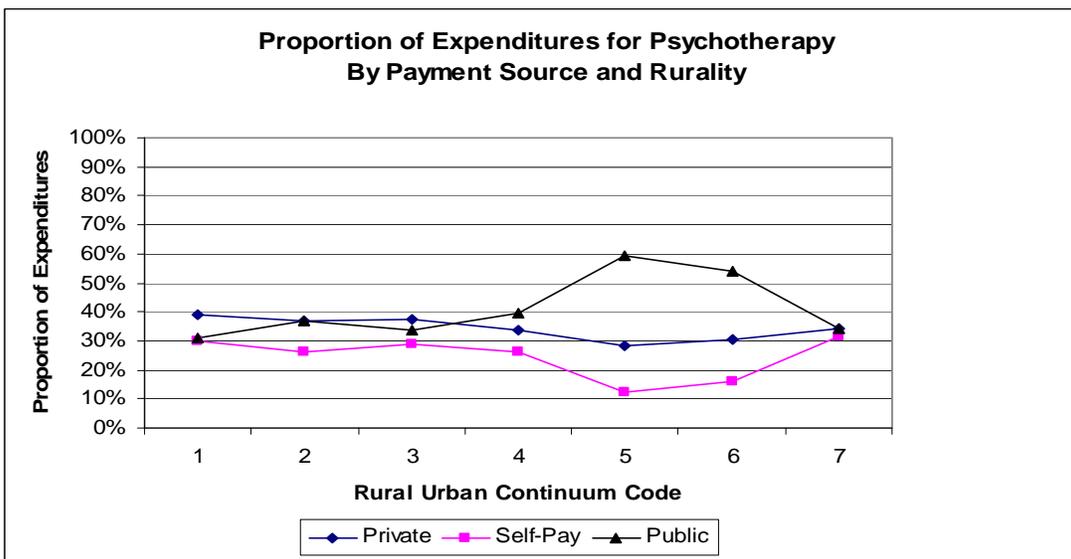
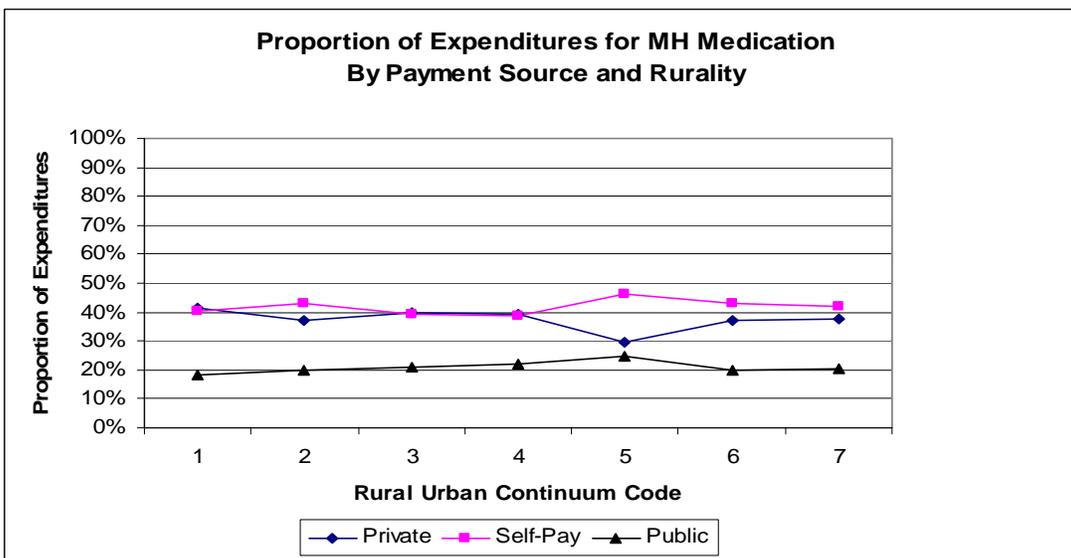
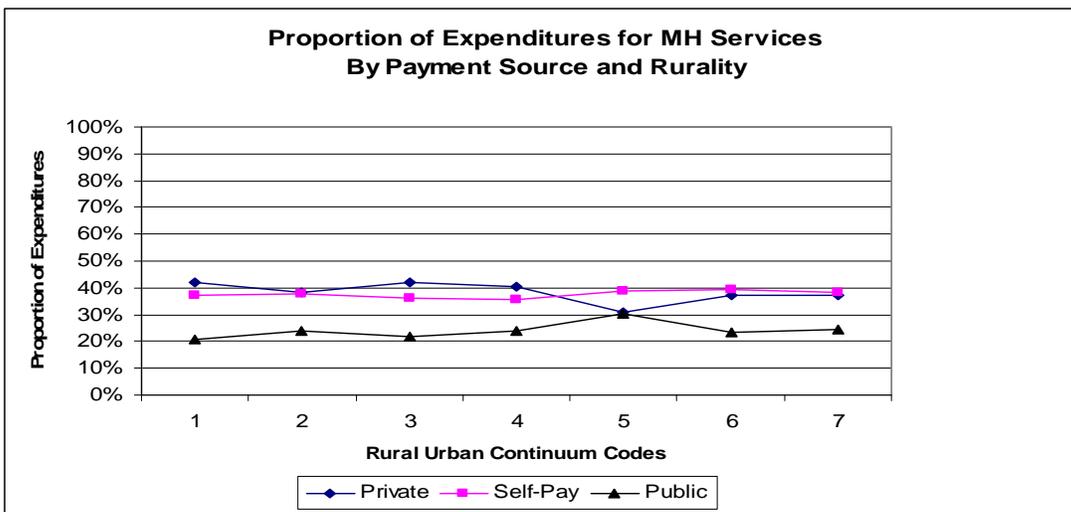
**Table 2 (Continued)**

RUCC = Rural Urban Continuum Codes, SMI = Severely Mentally Ill (schizophrenia, bipolar

|                                | RUCC |      |      |      |      |      |      |
|--------------------------------|------|------|------|------|------|------|------|
|                                | 1    | 2    | 3    | 4    | 5    | 6    | 7    |
| <b>Income (%)</b>              |      |      |      |      |      |      |      |
| Poor                           | 21.4 | 24.8 | 22.3 | 24.0 | 29.2 | 30.2 | 26.2 |
| Near Poor                      | 6.6  | 7.3  | 8.1  | 9.7  | 7.0  | 10.7 | 8.1  |
| Low Income                     | 14.3 | 15.7 | 15.3 | 18.4 | 21.0 | 18.8 | 19.5 |
| Middle Income                  | 26.6 | 27.4 | 28.4 | 25.7 | 25.7 | 24.1 | 28.0 |
| High Income                    | 31.1 | 24.8 | 25.9 | 22.2 | 17.1 | 16.2 | 18.2 |
| <b>Insurance Type (%)</b>      |      |      |      |      |      |      |      |
| Private                        | 59.9 | 58.1 | 57.6 | 54.8 | 47.6 | 46.5 | 51.4 |
| Public                         | 28.5 | 31.9 | 32.0 | 36.2 | 41.6 | 36.0 | 35.5 |
| Uninsured                      | 11.6 | 10.0 | 11.4 | 9.0  | 10.8 | 17.5 | 13.1 |
| <b>Health Status (mean)</b>    |      |      |      |      |      |      |      |
| PCS                            | 35.1 | 33.9 | 33.9 | 33.5 | 33.3 | 31.3 | 32.6 |
| MCS                            | 33.1 | 32.0 | 33.1 | 32.9 | 33.7 | 31.8 | 32.2 |
| <b>Mental Illness Type (%)</b> |      |      |      |      |      |      |      |
| SMI                            | 6.3  | 7.3  | 6.5  | 7.9  | 7.0  | 8.4  | 8.5  |

disorder, major depression), PCS = Physical Component Score of SF-12, MCS = Mental Component Score of SF-12 (see pages 9-10 for descriptions of SF-12, PCS, MCS) . RUCC category 7 in this table is the combination of RUCC categories 7-9 (see pages 8-9 for description of RUCC). Data are from the 2004 Medical Expenditure Panel Survey and are limited to individuals with self-reported mental health conditions.

Figure 1



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The WICHE Center for Rural Mental Health Research was established in 2004 to develop and disseminate scientific knowledge that can be readily applied to improve the use, quality, and outcomes of mental health care provided to rural populations. As a General Rural Health Research Center in the Office of Rural Health Policy, the WICHE center is supported by the Federal Office of Rural Health Policy, Health Resources and Services Administration (HRSA), Public Health Services, grant number U1CRH03713.

The WICHE Center selected mental health as its area of concentration because: (1) although the prevalence and entry into care for mental health problems is generally comparable in rural and urban populations, the care that rural patients receive for mental health problems may be of poorer quality, particularly for residents in outlying rural areas and (2) efforts to ensure that rural patients receive similar quality care to their urban counterparts generally requires restructuring treatment delivery models to address the unique problems rural delivery settings face. Within mental health, the Center proposes to conduct the research development/dissemination efforts needed to ensure rural populations receive high quality depression care.

Within mental health, the Center will concentrate on depression because: (1) depression is one of the most prevalent and impairing mental health conditions in both rural and urban populations, (2) most depressed patients fail to receive high quality care when they enter rural or urban treatment delivery systems, (3) outlying rural patients are more likely to receive poorer quality care than their urban counterparts, (4) urban team settings are adopting new evidence-based care models to assure that depressed patients receive high quality care for the condition that will increase the rural-urban quality chasm even further, and (5) urban care models can and need to be refined for delivery to rural populations.

The WICHE Center is based at the Western Interstate Commission for Higher Education. For more information about the Center and its publications, please contact:

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