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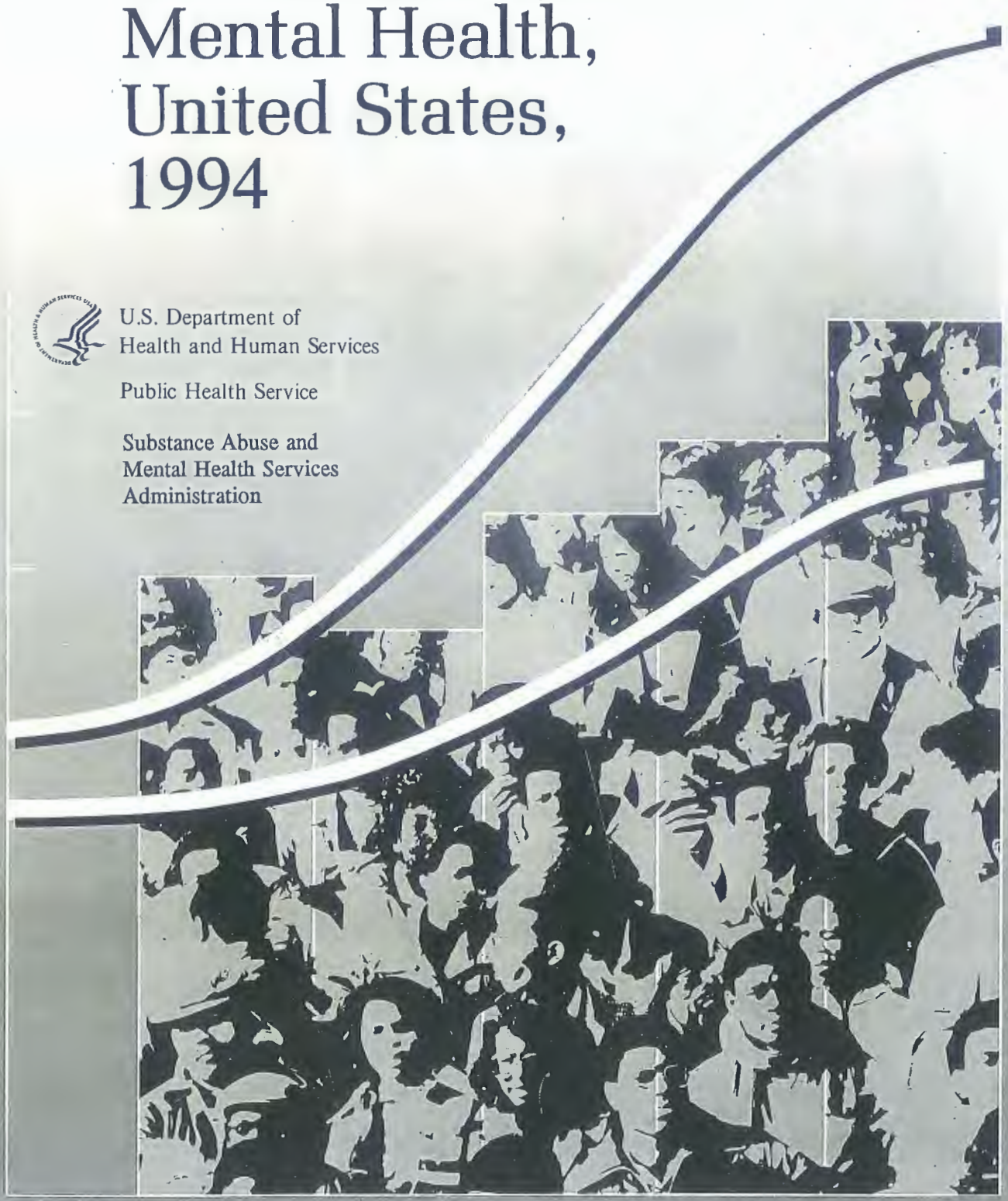

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Chapter 7

The Ecology of Mental Health Facilities in Metropolitan and Nonmetropolitan Counties

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Introduction

The distribution of mental health facilities is of more than routine interest. With reform of the health care system achieving a position of national prominence, accurate data on the organization of the mental health system -- the number and kind of facilities -- is of great importance when developing plans for the allocation of resources. It is particularly important to consider the special distribution, the ecology, of mental health facilities. For some time, it has been recognized that an inequity or imbalance exists in the distribution of mental health and related human facilities in this country (Baumheir et al. 1973; Flax et al. 1979). Wagenfeld et al. (1994) provide a recent update. This chapter will examine and evaluate the ecology of specialty mental health facilities in the United States using two recent data sets. We will be examining the distribution within this urban/rural imbalance framework.

The distribution of mental health facilities in terms of an urban/rural or a metropolitan/nonmetropolitan classification of residential areas in the 1970's, has been presented several times (Bachrach 1973, 1974a,b; Jones et al. 1976; Jones et al. 1974; Longest et al. 1978; Redick 1976; and Tweed et al. 1977). The broad conclusion from this early research is that urban or metropolitan areas tend to have more and, perhaps, better, facilities, as well as staff with higher levels of education and training. Specifically, Longest et al. (1978) demonstrated that "adequate comprehensive facilities" were most likely to be found in the most urban parts of metropolitan areas and least likely to be found in the most rural and isolated nonmetropolitan areas or in the fringe or suburban parts of metropolitan areas. Parenthetically, Bachrach (1985) pointed out that not only was it likely that fewer mental health facilities existed in rural or nonmetropolitan areas, but rural or nonmetropolitan populations are also less likely to utilize the facilities available to them. Stated differently, the percent and volume of mental health facilities are expected to increase as county urbanization increases. Wagenfeld et al. (1988, 1993), using data from the 1983 Inventory of Mental Health Organizations (IMHO) and the 1983 Inventory of General Hospital Mental Health Facilities (IGHMHS), have shown that these conclusions held in 1983 for inpatient facilities (24 hour care in a hospital setting) when the county was used as the unit of analysis. While the analyses of Wagenfeld et al. generally supported the expectation of a direct relationship between level of urbanization

and the percent and volume of mental health facilities, their analyses were limited to inpatient facilities. This chapter extends these analyses in several ways. It explores, for the first time, the extent to which the stated expectation (i.e., increased urbanization is associated with increased availability of mental health facilities) is reasonable when not only inpatient facilities, but all overnight and ambulatory facilities are included. In addition, more recent data sets -- the 1990 IMHO and IGHMHS (hereafter collectively referred to as "IMHO") are utilized. Two variables will be explored: The distribution of counties with mental health facilities and the average number of mental health facilities in counties.

Methods

The earlier studies of the distribution of mental health resources that we mentioned above were hampered by the unit of analysis: catchment area (CA). These CAs were population-based aggregates of counties, census tracts, minor civil divisions, or census county divisions. As such, they did not always conform to recognized census geography. A CA might be described as "urban" or "rural" or "mixed," but these designations were, at best, crude. As a result, metropolitan areas could not precisely be separated from nonmetropolitan areas, nor could urbanization be reasonably estimated (see Goldsmith et al. 1988, and Wagenfeld et al. 1988). Equally important, since catchment areas were based on different types of geopolitical units, they were of radically different sizes. From a demographic and statistical point of view (i.e., Duncan et al. 1961), the wide variation in internal homogeneity that results from this situation makes comparisons across these units problematic. As a result, the data were relatively crude. In 1981, CAs were discontinued as a unit of geography for which NIMH collected facility and service information.

More recent work on mental health resource allocation (Goldsmith et al. 1988; Wagenfeld et al. 1988, 1993) have utilized a more useful unit of analysis: the county. It is a recognized geopolitical unit and the only geographical unit for which large amounts of accurate data are available for all parts of the nation. In addition, it is generally sufficiently small and homogeneous to provide uniform information about urbanization, metropolitan status characteristics. (Hewitt 1989; Makuc et al. 1985). Accordingly, the use of county as the unit of analysis in the present paper permits a more precise designation of the metropolitan status and urbanization level for small areas.

The classification of counties as either metropolitan or nonmetropolitan, as well as their degree of urbanization, was assessed using a scale first presented by Hines et al. (1975). The scale was updated by Calvin Beale (Beale 1994) to take into account commuting patterns and the 1980 and 1990 designation of counties as metropolitan or nonmetropolitan. For simplicity, we will refer to the scale based on 1990 decennial census data as the 1990 Beale Urbanization Scale.

The scale has been widely-used (Ahearn 1979; Ahearn and Fryor 1985; Hines et al. 1975; Kleinman and Makuc 1983; Makuc et al. 1985). It is particularly useful because it goes beyond a simple urban/rural or metropolitan/nonmetropolitan dichotomy and arrays counties on a ten-position urban/rural or urbanization continuum. The scale clearly separates metropolitan from nonmetropolitan areas, as well as predominately urban from predominantly rural counties in nonmetropolitan areas. Additionally, it separates nonmetropolitan counties that are accessible to metropolitan areas (nonmetropolitan counties that are adjacent to metropolitan counties) from those that are not (remaining or more simply remote nonmetropolitan counties).

As noted, the psychiatric facility data presented are from three sources: the 1990 Inventory of Mental Health Organizations (IMHO), conducted by the Center for Mental Health Services (CMHS) of the Substance Abuse and Mental Health Facilities Administration (SAMHSA), the 1990 Inventory of General Hospital Mental Health Facilities, a joint CMHS/American Hospital Association Project (Redick et al. 1994), and the Mental Health Directory 1990, a list of specialty mental health facilities by address and type of services provided (Fell et al. 1990). Our earlier papers, utilizing the 1983 data set, were limited to inpatient mental health facilities because they were the only type of service for which accurate county-

level estimates could be derived (Goldsmith et al. 1988) The 1990 data have overcome this problem, so the distribution of a wider range of facilities could be determined. In addition to inpatient facilities, data for ambulatory facilities (includes outpatient and partial facilities) and overnight facilities are available. Further, overnight facilities are disaggregated into inpatient and other overnight facilities (facilities providing overnight care in a setting other than a hospital).

Findings

Table 7.1 presents the distribution of counties with any specialty mental health service (any facilities). These include both inpatient and ambulatory facilities. As noted, the counties are arrayed in accordance with the 1990 Beale Urbanization Scale. The majority of counties (83 percent) have some mental health facilities. Not surprisingly, virtually all metropolitan counties (96 percent) have facilities, in contrast to 79 percent of the nonmetropolitan counties. Broadly, the urbanization gradient that we spoke of earlier with respect to inpatient facilities remains: 97 percent of major metropolitan counties have some facility, in contrast to half (51 percent) of the most isolated rural counties (rural nonmetropolitan counties not adjacent to metropolitan counties). Looking at these extremes, however, obscures an important point. For 8 of the 10 county types, the gradient is relatively flat. Virtually all (at least 90 percent) counties from major metropolitan to nonmetropolitan with urban populations of 2,500 - 20,000 have some facility. It is only when we reach rural nonmetropolitan counties that the percent age of counties with facilities drops off sharply.

Since ambulatory facilities constitute 70 percent of the 17.6 thousand specialty mental health facilities in the United States in 1990, the pattern for ambulatory facilities is virtually identical to any facilities. While overnight facilities are relatively uncommon (about one-third of counties have them), they are most likely to be found in metropolitan counties--particularly the core counties (generally counties with urban populations of at least 50,000 or more) of major metropolitan areas and in small metropolitan counties (50,000 to 250,000 persons). Less than one-quarter of the nonmetropolitan counties have overnight facilities and these are concentrated in the counties with the larger urban populations. Overnight facilities are virtually absent in the rural nonmetropolitan counties.

As expected, inpatient facilities are less common than ambulatory. Only 30 percent of counties have them (67 percent of metropolitan and 16 of nonmetropolitan). They are most likely to be found in the core counties of major metropolitan areas (95 percent), and least likely in the rural nonmetropolitan counties (1 percent).

The category other overnight facility is the least common: they are found in less than one-quarter of the counties. Slightly less than half of the metropolitan counties (48 percent), and 12 percent of the nonmetropolitan counties have such a facility. Like the other facilities, they are most likely to be found in the core counties of the metropolitan areas (74 percent have these facilities) and they are virtually absent in the most isolated rural counties (3 percent have these facilities).

Table 7.1 presented data on the ecological location of mental health facilities. To determine the adequacy of mental health resources in different types of counties, one needs to know not only the types of counties that have some facilities, but also the quantity and quality of facilities that are available. In this section, we will consider the quantity of facilities. Assessment of quality cannot be made using the IMHO data set and its discussion is outside the scope of this chapter.

Table 7.1. The Percent of Counties with any Specialty Mental Health Facilities in 1990

Beale County Urbanization Scale	% Counties with any facilities	% Counties with ambulatory facilities	% Counties with overnight facilities	% Counties with inpatient facilities[1/]	% Counties with other overnight[2/]	Number of Counties
All counties	83.3	82.9	35.6	29.6	21.5	3,102
Metropolitan counties	95.9	95.6	72.6	67.2	48.5	813
Major metropolitan area (1 million or more)	97.3	96.7	74.9	67.6	51.8	299
Core Counties	98.9	98.9	97.0	95.2	74.3	167
Remainder (suburban and fringe counties)	95.5	93.9	47.0	32.6	23.5	132
Medium metropolitan area (250,000 to 1 million)	94.6	94.6	65.4	61.6	44.1	315
Small metropolitan counties (50,000 to 250,000)	96.0	95.5	80.4	75.4	50.3	199
Nonmetropolitan counties	79.1	78.4	22.5	16.2	11.9	2,289
Urban population of 20,000 or more	99.2	98.0	76.0	67.1	39.0	246
Adjacent to metro area	98.5	97.7	72.9	63.9	38.3	133
Not adjacent	100.0	98.2	79.6	70.8	39.8	113
Urban population of 2,500 to 20,000	90.3	89.6	23.4	15.5	12.0	1,262
Adjacent to metro area	90.8	89.6	23.5	16.0	11.7	608
Not adjacent	89.8	89.6	23.2	15.0	12.4	654
Urban population Less than 2,500 (rural counties)	54.7	54.0	4.2	1.4	3.2	781
Adjacent to metro area	61.7	61.3	4.8	1.2	4.4	248
Not adjacent	51.4	50.7	3.9	1.5	2.6	533

[1] 24 hour care in a hospital setting

[2] Overnight care in a setting other than a hospital (includes residential treatment care and residential supportive care).

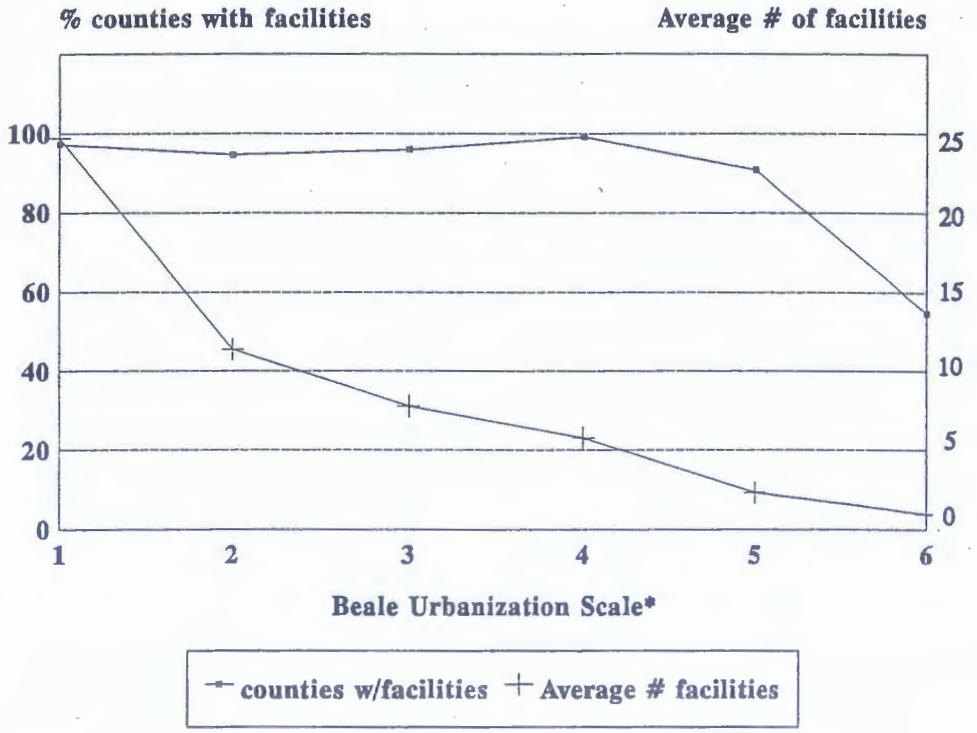
Table 7.2. The Average Number of Specialty Mental Health Facilities per County in 1990

Beale County Urbanization Scale	Average number of facilities in a county	Average number of ambulatory facilities in a county	Average number overnight facilities in a county	Average number of inpatient facilities in a county[1]	Average number of other overnight facilities in a county[2]	Number of counties
All counties	5.7	4.0	1.7	0.9	0.8	3,102
Metropolitan counties	15.3	10.4	5.1	2.7	2.3	813
Major metropolitan areas (1 million or more persons)	24.7	16.8	7.9	4.3	3.6	299
Core counties	40.3	27.2	13.1	7.2	5.8	167
Remainder (suburban and fringe counties)	4.4	3.3	1.1	0.5	0.6	132
Medium metropolitan area (250,000 to 1 million persons)	11.4	7.7	3.7	2.0	1.7	315
Small metropolitan counties (50,000 to 250,000 persons)	7.8	4.9	2.9	1.5	1.4	199
Nonmetropolitan counties	2.1	1.8	0.4	0.2	0.2	2,289
Urban population of 20,000 or more	5.8	4.0	1.8	0.9	0.9	246
Adjacent to metro area	5.9	4.1	1.8	0.9	0.9	133
Not adjacent	5.8	3.9	1.9	1.0	0.9	113
Urban population of 2,500 to 20,000	2.4	1.9	0.4	0.2	0.2	1,262
Adjacent to metro area	2.4	2.0	0.4	0.2	0.2	608
Not adjacent	2.4	1.9	0.4	0.2	0.3	654
Urban population less than 2,500 (rural counties)	1.0	0.9	0.1	0.0	0.1	681
Adjacent to metro area	1.5	1.4	0.1	0.0	0.1	148
Not adjacent	0.8	0.8	0.1	0.0	0.0	533

[1] 24 hour care in a hospital setting.

[2] Overnight care in a setting other than a hospital (includes residential treatment care and residential supportive care).

Figure 7.1 Comparison of Facility Availability and Facility Count for Counties: 1990



*Beale Urbanization Scale

1. Major metropolitan areas (1 million or more persons)
2. Medium metropolitan areas (250,000 to 1 million persons)
3. Small metropolitan areas (50,000 to 250,000 persons)
4. Nonmetropolitan counties with urban population of 20,000 or more persons
5. Nonmetropolitan counties with urban population of 2,500 to 20,000 persons
6. Nonmetropolitan counties with urban population of less than 2,500 persons

The magnitude or volume of services available in a county can be indexed -- in part -- by the number of facilities in a county. This is clearly reasonable for inpatient facilities. Wagenfeld, Goldsmith, et al. (1988) demonstrated that the average number of inpatient facilities in a county was closely associated with the median number of beds in a county, an indicator of the size of inpatient facilities in a county. It is likely that this relationship holds for other types of facilities.

Table 7.2 presents information on the average number of facilities by level of county urbanization. The expected pattern can be observed for ambulatory and overnight facilities, as well as the components of overnight facilities. Not only do metropolitan counties consistently have considerably more facilities/county (e.g., an average of 15 facilities/metropolitan county, compared to 2 in nonmetropolitan), but the decrease in the average number of facilities/county is very steep as one goes from the core counties of metropolitan areas to medium metropolitan areas to small metropolitan counties: 40, 11, and 8, respectively. In nonmetropolitan areas, multiple facilities are to be found in the most urban areas (an average of close to 6 in nonmetropolitan counties with urban populations of 20,000 or more). Suburban and fringe counties of major metropolitan areas have averages that are slightly below the most urban nonmetropolitan counties (4/county). The rural nonmetropolitan counties (adjacent or nonadjacent to metropolitan areas) have averages one-third to one-fourth that of the suburban and fringe counties of metropolitan areas. Collectively, they average less than 1 facility/county. The pattern for ambulatory, overnight, and other overnight follows that of any facilities. Of note is that, while there is an average of 7 inpatient facilities in the core counties of major metropolitan areas, this declines to less than 1 facility in the urbanization categories of nonmetropolitan counties.

Taken together, tables 7.1 and 7.2 present a picture of very different distributions of the availability of some services in different types of counties and the volume of services that exist. This difference is illustrated in figure 7.1. An examination of this figure clearly demonstrates that while some mental health services are available for nearly all the Beale Urbanization Scale categories except the most rural nonmetropolitan counties that the volume of services, indexed by the average number of facilities, is high in major metropolitan areas, but drops sharply thereafter.

Conclusion

This analysis has built on our earlier work with the 1983 IMHO data set. At that time, we were forced to limit our analysis to inpatient facilities. We demonstrated that they were most likely to be found in metropolitan counties and the more urbanized counties in nonmetropolitan areas. The 1990 data set permitted us to expand our analysis to ambulatory and all overnight facilities. The bulk of the analysis supported the idea of a direct relationship between county urbanization and the location and number of facilities. This was consistent with previous research. However, the relationship for availability of facilities but not numbers of facilities was comparatively flat. Virtually all counties, except rural nonmetropolitan counties, had some ambulatory facilities and consequently some facilities. With respect to the volume of facilities, only metropolitan counties, particularly the core counties, were likely to have a number of ambulatory and overnight facilities.

The results suggest that in 1990 the 50 percent of the population of the States (123.5 million persons) that lived in major metropolitan areas were very likely to have geographic access to a large volume of ambulatory and overnight mental health facilities, i.e. facilities that are in the county or metropolitan area where a population lived, or for the population of nonmetropolitan counties, facilities that were in an adjacent metropolitan county (See Beale 1994 for population characteristics). After the residents of major metropolitan areas, the 36 percent of the 1990 State populations (90.3 million persons) residing in medium or small metropolitan counties or the most urban nonmetropolitan counties, also had access to both ambulatory and overnight facilities. However, the volume of services appears to be reduced. This was reflected by the average number of facilities per county.

The remaining nonmetropolitan counties that are adjacent to metropolitan counties, are likely to have access to ambulatory and overnight facilities--either within the county or an adjacent metropolitan county. Approximately 7.5 percent of the population (18.6 million persons) reside in such areas. Those living in nonmetropolitan counties with urban populations of 2.5 to 20 thousand that are not adjacent to a metropolitan county (12.5 million persons comprising 5 percent of the population) are very likely to have

access to some ambulatory, but not overnight facilities.

Finally, the 1 percent of the population (3.5 million persons), living in the most isolated rural nonmetropolitan counties are unlikely to have access to either ambulatory or overnight mental health services. While there are issues of equity in the metropolitan/nonmetropolitan distribution of mental health services, this group appears to be in need of particular attention when questions of resource allocation are considered.

This paper has provided for the first time, recent information about where different types of specialty mental health facilities and consequently, services are likely to be found, as well as information about the volume of services that are likely to be available. This represents an initial step in providing policymakers with the information necessary for resource allocation. When this information is merged with estimates of the need and demand for mental health services, policymakers will be in a position to make informed decisions about where to locate specialty mental health facilities.

Note

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