USING HEALTHCARE COST AND UTILIZATION PROJECT STATE INPATIENT DATABASE AND MEDICARE COST REPORTS DATA TO DETERMINE THE NUMBER OF PSYCHIATRIC DISCHARGES FROM PSYCHIATRIC UNITS OF COMMUNITY HOSPITALS

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EXECUTIVE SUMMARY

Community hospitals are the primary source of inpatient psychiatric treatment in the United States based on number of admissions. Community hospital inpatient psychiatric care can be provided in a distinct part of the hospital with units that are organized and staffed specifically to treat psychiatric disorders, or in general medical beds (also called scatter beds). Psychiatric units offer more specialized care than scatter beds, and it is important to understand the settings in which, and the extent to which, patients are treated for psychiatric conditions.

As part of the SAMHSA Spending Estimates (SSE) project, Thomson Reuters estimated spending in community hospital scatter beds and psychiatric units starting with data from 1986. The original method involved using data from the SAMHSA survey of specialty mental health organizations to determine psychiatric unit status. More recently, Thomson Reuters has proposed substituting the SAMHSA survey with data on psychiatric unit status from the Medicare Cost Reports.

The goal of this study was to first test the accuracy of the Medicare Cost Reports (MCRs) in capturing psychiatric unit status to support the methods being employed as part of the SAMHSA Spending Estimates. The second goal was to provide an estimate of the number of discharges from community hospital psychiatric units and scatter beds.

Data from the Medicare Cost Reports on psychiatric unit status were linked to discharge counts from the Healthcare Cost and Utilization Project State Inpatient Databases (HCUP SID) using the American Hospital Association hospital identifier (ID). The number of discharges from hospitals with and without psychiatric units was examined. Hospitals from selected states with no indicated psychiatric units, but which had 100 or more discharges with a principal psychiatric diagnosis (6% of all hospitals), were further investigated. It was determined that most of the hospitals with more than 300 psychiatric discharges, but no psychiatric unit listed on the Medicare Cost Reports, did have a psychiatric unit. Prior analyses also indicated that approximately four percent of discharges from hospitals with psychiatric units were from scatter beds. This information was used to make an upward adjustment to the estimates of discharges from psychiatric units.

Using the information on psychiatric unit status from the Medicare Cost Reports and the adjustments for under-reporting of psychiatric units and over-reporting of psychiatric unit use in hospitals with psychiatric units, it was estimated that approximately 94% of discharges from community hospitals in the United States were from psychiatric units and 6% were from scatter beds. This scatter bed estimate is much lower than the 33% estimate of scatter bed psychiatric discharges from community hospitals using data from 1980. The current estimate highlights the important role of community hospital psychiatric units in providing inpatient care to persons with psychiatric diagnoses.

BACKGROUND

Psychiatric Units of Community Hospitals

Inpatient treatment remains a key component of mental health care, particularly for those who are in crisis, at risk for harming themselves or others, and who need services in a protective setting. Historically, inpatient psychiatric care was provided primarily in psychiatric hospitals. The first psychiatric unit in a general hospital was established in 1902 with a 2- bed 'pavilion' at Albany General Hospital (New York) by James Mosher. He envisioned general hospitals as supplementing, rather than replacing treatment at home, in private institutions, or in custodial facilities such as psychiatric hospitals[1] Psychiatric units in hospitals continued to grow throughout the century, propelled by the growth of general hospitals under the Hill-Burton act, expanding insurance coverage, and the ability of psychotropic medications to make short-term treatment in general hospitals more feasible.

In 1970, only 5 percent of psychiatric unit beds were located in general hospital psychiatric units; by 2002, 30% of beds were located in general hospital psychiatric units, according to data collected by the Substance Abuse and Mental Health Services Administration (SAMHSA) (Figure 1). Today, largely as a result of deinstitutionalization and the closure of public psychiatric hospitals, community hospitals are the primary source of inpatient psychiatric treatment in the United States on the basis of number of admissions.[2, 3]

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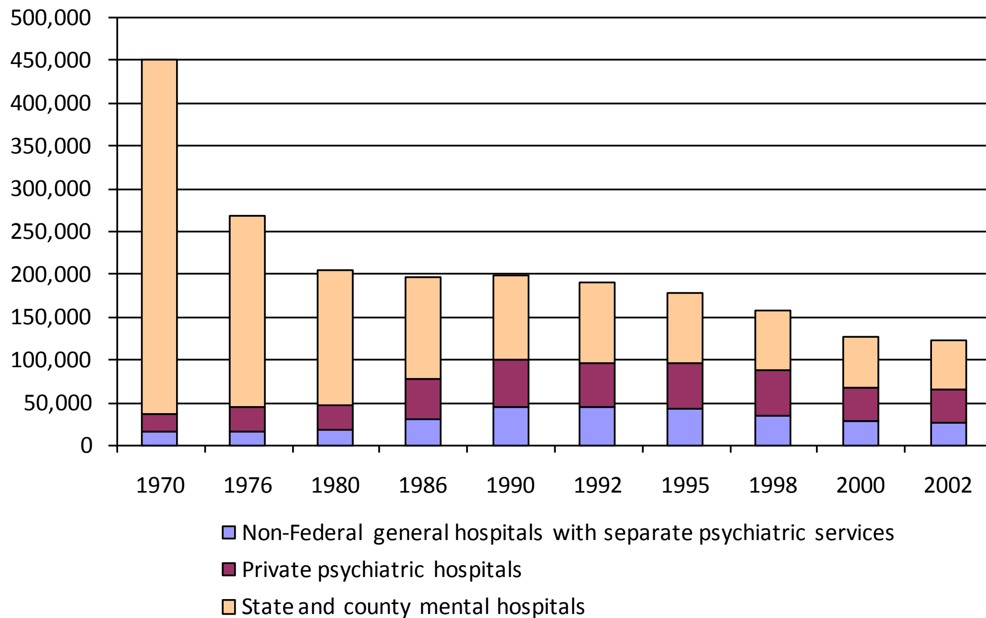
[1] Mosher JM. The insane in general hospitals. *America Journal of Insanity.* 57:325-329,1900.

[2] Owens P, Elixhauser A, Brach C. *Care of Adults with Mental Health and Substance Abuse Disorders in U.S. Community Hospitals, 2004* Rockville, MD: Agency for Healthcare Research and Quality, 2007. HCUP Fact Book No. 10.

[3] Foley D, Manderscheid R, Atay J, et al. “Highlights of Organized Mental Health Services in 2002 and Major National and State Trends” in *Mental Health, United States, 2004*. Edited by RW Manderscheid and JT Berry. Rockville, MD: U.S. Department of Health and Human Services, publication number (SMA-06) 4195, 2006.

Figure 1. Number of Psychiatric Beds by Hospital Type, 1970-2002



The number of distinct part psychiatric units of general hospitals expanded in the early 1980s. Part of the stimulus was the 1983 Medicare Prospective Payment System (PPS) for inpatient care. Because DRGs were shown to be poor predictors of inpatient psychiatric stays and the mental health community believed that psychiatric care would not be reimbursed fairly under PPS, psychiatric hospitals and distinct part psychiatric units of general hospitals were exempted from Medicare PPS.[4] Exempt psychiatric units were instead paid on a reasonable cost basis under Medicare, subject to a cost per discharge limit established under the Tax Equity and Fiscal Responsibility Act (TEFRA) of 1982. TEFRA established a ceiling (or target rate) on the increase in hospital costs per discharge, developed from each provider's historical costs. TEFRA also provided bonus or incentive payments for facilities whose costs fell below the target rates.

After the implementation of PPS, the number of psychiatric units grew substantially. In 1980, there were 843 distinct part psychiatric units of non-Federal general hospitals. By 1986, there were 1,287, and, by 1992, there were 1,571 (Manderscheid et al., 2002).[5]

However, by the late 1980s, third-party payers started to turn to behavioral managed care plans to contain their psychiatric expenses. Using prior authorization, utilization review, and aggressive payment negotiations, behavioral health plans focused particular effort on cutting expenditures on inpatient hospital care. Negotiated payment rates and lengths of stay fell

[4] Lave JR. Developing a Medicare prospective payment system for inpatient psychiatric care. *Health Affairs (Millwood).* Sep-Oct;22(5):97-109, 2003.

[5] Manderscheid R, et al. "Highlights of Organized Mental Health Services in 2000 and Major National and State Trends" in *Mental Health, United States, 2002.* Edited by RW Manderscheid and M Henderson. Rockville, MD: U.S. Department of Health and Human Services, publication number (SMA) 3938, 2004.

steadily over the 1990s.[6] In addition, there was a shift away from private payers. From 1988 to 1992, the percent of hospital days of care covered by private insurance fell from 40 percent to 26 percent.[7]

Under the Balanced Budget Act of 1997 (BBA), Medicare's payment of exempt psychiatric units was further modified. BBA limited the target rate to an annual cap, and reduced the amount of incentive payments psychiatric facilities could receive. Psychiatric facilities were subsequently paid the lowest of their own costs, their individual target rate, or the national cap. The pressures from private insurance, and subsequently Medicare, led to the closure of many psychiatric units. In January 2005, Medicare Prospective Payment was implemented for psychiatric units of general hospitals and free-standing psychiatric hospitals.[8] Under PPS, Medicare pays per diem routine, ancillary, and capital costs associated with furnishing covered inpatient services. A base per diem payment is adjusted to account for differences in the cost of care related to patient characteristics (e.g., age, diagnosis, and length of stay) and facility characteristics (e.g., wage rate, location, teaching status, and emergency department (ED) presence). PPS was implemented with a three year transition starting in January 2005, with an increasing percentage of PPS payment and a decreasing percentage of facility-specific TEFRA rate.

Scatter Beds or Psychiatric Units

In addition to treatment in general psychiatric units that are organized and staffed specifically to treat psychiatric disorders, community hospital inpatient psychiatric care can be provided in general medical beds. These are sometimes known as "scatter beds" in the literature on mental health and substance abuse services. Psychiatric care in scatter beds may occur even in hospitals with separate psychiatric units.

There have been several attempts to understand how much care is being provided in scatter beds as opposed to psychiatric units; the types of patients being treated in each setting; and the nature and quality of the services provided there. Estimating how much inpatient care is occurring in psychiatric specialty units as opposed to scatter beds is of long standing interest for several reasons. Specialty units offer services that are not typically found in community hospitals, such as dedicated psychiatric staff. As public and private psychiatric hospital beds have declined, psychiatric units of community hospitals may be a more important source of inpatient care for persons in crisis, who may be at risk of harming themselves or others. It is also important to understand the role that scatter beds do and should play in treating people with psychiatric illnesses, particularly in regions where specialized psychiatric inpatient care is sparse.

Studies that examine treatment in psychiatric units, as compared to scatter beds, have typically used particular samples of discharges, such as Medicare patients or a select group of hospitals, and most were done ten or more years ago. Several studies have found that patients treated in

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[6] Grazier KL, Eselius LL. Mental health carve-outs: effects and implications. *Medical Care Research and Review*. 56 Suppl 2:37-59, 1999.

[7] Frank RG, Glied S. Changes in Mental Health Financing Since 1971: Implications for Policymakers and Patients. *Health Affairs* 25(3):601-613, 2006.

[8] MedPAC. Psychiatric Hospital Services Payment System. October, 2008.

scatter beds have shorter lengths of stay than those treated in a psychiatric unit.[9, 10 ,11, 12] The same research also suggests that patients in scatter beds tend to be older, are more likely to be receiving Medicare, are more likely to present with somatic complaints, have greater medical comorbidity, and are more likely to have a principal diagnosis other than schizophrenia, bipolar disorder, or major depressive disorder.

There is limited research examining whether treatments provided in scatter beds differ from those in psychiatric units. Mechanic and Davis found that patients in scatter beds were rarely attended by psychiatrists, and had more CAT scans and EEGs than patients in psychiatric unit beds.[13] Olfson found that psychiatric unit patients were more likely to receive antidepressants.[14] Norquist and colleagues[15] concluded that the quality of care for the psychological aspects of depression treatment might be better in psychiatric units, while the quality of general medical care may be better in general medical beds.

To our knowledge, the only prior attempt to estimate what proportion of community hospital psychiatric discharges were from psychiatric units and the proportion from scatter beds was by Kiesler and colleagues. In their first attempt, this group estimated the number of patients treated in psychiatric units using a National Institute of Mental Health (NIMH) survey of community hospitals and subtracted that amount from the total community hospital discharges as determined by the National Hospital Discharge Survey (NHDS). Using this approach, they estimated that two-thirds of patients were treated in community hospitals without psychiatric units.

However, Kiesler and colleagues later determined that this approach was an over-estimate, and found that in 1980, approximately 33 percent of patients with psychiatric disorders treated in community hospitals were in scatter beds, with the majority treated in psychiatric units. In this subsequent study, they directly linked information from the National Mental Health Survey and the American Hospital Association Annual Survey Database on psychiatric units to the NHDS. They excluded free-standing psychiatric hospitals from the NHDS and imputed psychiatric unit status where it was missing or unclear (Kiesler et al., 1991).[16]

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[9] Ettner SL. The setting of psychiatric care for Medicare recipients in general hospitals with specialty units. *Psychiatric Services* 52:237-239, 2001.

[10] Ettner SL, Hermann RC. Inpatient psychiatric treatment of elderly Medicare beneficiaries. *Psychiatric Services* 49:1173-1179, 1998.

[11] Mechanic D, Davis D. Patterns of care in general hospitals for patients with psychiatric diagnoses. Some findings and some cautions. *Medical Care* 28:1153-1164,1990.

[12] Olfson M. Treatment of depressed patients in general hospitals with scatter beds, cluster beds, and psychiatric units. *Hospital and Community Psychiatry* 41:1106-1111,1990.

[13] Mechanic. *Medical Care* 28:1153-1164,1990.

[14] Olfson. *Hospital and Community Psychiatry* 41:1106-1111,1990.

[15] Norquist G, Wells KB, Rogers WH, Davis LM, Kahn K, Brook R. Quality of care for depressed elderly patients hospitalized in the specialty psychiatric units or general medical wards. Archives of General Psychiatry. 52(8):695-701,1995.

[16] Kiesler CA, Sibulkin AE, Morton TL, Simpkins CG. Characteristics of psychiatric discharges from nonfederal, short-term specialty hospitals and general hospitals with and without psychiatric and chemical

SAMHSA Spending Estimates of Psychiatric Unit and Scatter Bed Spending

As a part of the SAMHSA Spending Estimates project, Thomson Reuters estimated community hospital spending in scatter beds and psychiatric units from 1986-2003. The initial approach used methods similar to the original method used by Kiesler et al. The SAMHSA Surveys of mental health specialty organizations (i.e., the Inventory of Mental Health Organizations (IMHO) and Survey of Mental Health Organizations (SMHO)) were used to estimate spending for care in psychiatric units. This estimate was then subtracted from an estimate of total spending on psychiatric care in community hospitals based on the NHDS. In the NHDS, the share of discharges for MH, adjusted for differences in average costs per discharge, was applied to community hospital expenditures from the National Health Accounts. Using this method, the 2003 estimate indicated that 47 percent of spending on MHSA treatment in community hospitals took place in psychiatric units and 53 percent of the spending took place in scatter beds.

After careful analysis of the data sources, it was determined that the estimate of scatter bed spending was likely to be too high. NHDS utilization data led to an overestimate of spending on MHSA treatment in community hospitals because the NHDS included short-term psychiatric hospitals in its sample, hospitals that are counted separately in the SSE. In addition, use of SMHO data led to an underestimate of spending on MHSA treatment in specialty units, most likely because of the absence of recent financial information for psychiatric units (Stranges and Levit, 2009).[17] Thomson Reuters proposed revising the approach to psychiatric unit spending by using the Medicare Cost Reports (MCRs) rather than using the SAMHSA surveys. The proposed new method would subtract MCR data from cost estimates developed using the Healthcare Cost and Utilization Project (HCUP) for psychiatric discharges from community hospitals.

OBJECTIVES

The purpose of this analysis was to further examine how well the MCRs are capturing psychiatric units and to develop an estimate of the percent of psychiatric discharges from psychiatric units.

METHODS

The analysis employed 2001-2007 data from the MCRs and from HCUP-SID (State Inpatient Databases). MCRs are reports submitted by hospitals that provide services to Medicare beneficiaries. These reports are a condition of participation in the program and contain detailed hospital data, including financial statements and utilization information. Because psychiatric units were traditionally exempt from the Medicare Prospective Payment System implemented in October, 1983, and were instead paid under an alternative system (TEFRA), hospitals with separate psychiatric units were required to indicate on the MCRs that they had a unit. However, while we believe the MCRs are capturing the majority of psychiatric units, it is unclear if some units may be missed. Hospitals with units from which discharges were paid under Medicare PPS, or those with units that do not treat Medicare patients, may not have been indicated on the MCRs.

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dependency units: the National Hospital Discharge Survey data. *Health Services Research*. Feb;25(6):881-906,1991.

[17] Stranges E, Levit K. SSE Community Hospital Inpatient Estimates Methodology Review. May 2008. (Internal paper).

The HCUP-SID are hospital inpatient databases from state data organizations participating in HCUP.[18] The SID contain the universe of the inpatient discharge abstracts in the participating HCUP states, translated into a uniform format to facilitate comparisons and analyses.

For each year, we used the AHA hospital ID crosswalk to match SID hospital records to MCR records. For each hospital, we recorded the MCR psychiatric unit indicator (0 or 1), the number of discharges with a principal MH diagnosis (calculated from HCUP-SID files), and the number of discharges with a principal SA diagnosis (calculated from HCUP-SID files).

Prior analyses of HCUP-SID data from 12 states have shown that hospitals with psychiatric units have an average of 753 MH discharges a year, while hospitals without psychiatric units have an average of 17 MH discharges a year.[19] Based on these findings, we expected most hospitals with a relatively high number of MH discharges, as calculated from HCUP-SID, would have an MCR psychiatric unit indicator. Thus, we proposed that MH discharge volume be used as a way to validate whether the MCRs were capturing all likely psychiatric units.

To implement this validation exercise, we sorted the hospital records into two groups: those with and those without a psychiatric unit indicator. We then examined the distribution of the number of MH discharges in each group and established that for hospitals with no MCR psychiatric unit indicator, the number of MH discharges appeared to break at 100. We identified hospitals that had more than 100 MH discharges, but no psychiatric unit indicator. We investigated whether these hospitals did indeed have a psychiatric unit by performing a web search to determine the types of services that the hospital reported.

To meet the second objective of our analysis, we generated an estimate of the share of MH discharges from psychiatric units and scatter beds using the combined MCR and SID data. We utilized the results from part one of our analysis to generate an estimate of the number of discharges from psychiatric units by using the presence of 300 or more MH discharges as a proxy for the presence of a psychiatric unit. Because small shares (3.6%) of discharges from hospitals with psychiatric units come from scatter beds rather than psychiatric units,[18] we then performed a second adjustment to the MCR-SID data to account for this. We reduced the total estimate of psychiatric unit discharges from HCUP SID by 3.6 percent.

RESULTS

Number of Psychiatric Units as Indicated by MCR, AHA, and SMHO—All States

Three data sources provide nationwide data on the number of community hospitals with psychiatric units—Medicare Cost Reports (MCRs), the AHA Annual Survey, and the SAMHSA Survey of Mental Health Organizations (SMHO). Each data source has strengths and limitations. Hospitals that collect payments from Medicare for stays in specialty psychiatric units must file a MCR which includes data on the presence of a specialty psychiatric unit, as well as the number of discharges and costs involved in the unit. Hospitals that do not bill Medicare do not file a cost report. The AHA survey collects data on the presence of a psychiatric unit; however, there is no incentive for accurate reporting on the AHA survey. The number of psychiatric units in general hospitals reported by the SMHO is based on inventory of specialty mental health providers and is subject to nonresponse as well as the possibility of an incomplete inventory.

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[18] See Appendix A for a description of HCUP and a list of the HCUP Partners at the time of this study.

[19] Mark, T. Psychiatric Care in General Hospitals without Psychiatric Units: How Much and for Whom?

Table 1 reports the number of psychiatric units from 2001-2007 as reported in each of the three data sources. As shown, both the MCR and the AHA indicate a decline in the total number of community hospitals with psychiatric units from 2001 through 2005. The SMHO shows a decline from 2002 to 2004, and a rise in 2005. The estimates from the SMHO are lower than that for the MCR and AHA in 2002 and 2004 and higher in 2005. The estimates from the MCR and AHA are fairly similar, differing, at most, by 53 hospitals, in 2004.

Table 1. Total Number of U.S. Community Hospitals with MCR, SMHO and AHA Psychiatric Unit Indicators, 2001-2007

Year	MCR	SMHO	AHA
2001	1,401		1,363
2002	1,367	1,285	1,348
2003	1,353		1,314
2004	1,301	1,230	1,248
2005	1,245	1,290	1,249
2006			1,226
2007			1,237

Sources: CMS, Medicare Cost Reports, 2001-2007; SAMHSA, Survey of Mental Health Organizations, 2002, 2004, 2005. AHA, Annual Survey, 2001-2007.

Matching MCR Data to HCUP-SID

To compare the number of psychiatric discharges in each hospital to the presence or absence of a psychiatric unit, as indicated on the MCRs, the HCUP-SID first had to be linked to the AHA hospitals. Then the AHA hospital ID was used to link the MCRs to the HCUP-SID. Table 2 describes the total number of hospitals in the U.S. (as indicated by the American Hospital Association), the number of states captured by HCUP-SID, the number of hospitals captured in the SID, the number of hospitals with data from both the HCUP-SID and MCR, and the percent of total hospitals which are captured in the study sample. As shown in Table 2, the number of states included in the SID varies by year. Consequently, the number of hospitals included in our analysis also varies by year. In 2001 and 2002, the sample comprised 66% of all U.S. community hospitals. For 2004-2006, the sample comprised 80-86% of all hospitals. MCR data from the year 2007 was still incomplete at the time of this analysis, explaining the lower match rate for 2007.

Table 2. Number of AHA-listed Hospitals in HCUP SID States and AHA-listed Hospitals with Matching MCR-listed Hospitals in SID States, 2001-2007

Year	AHA-listed hospitals (National)	HCUP SID States	AHA-listed hospitals in SID states	AHA-SID match	AHA-SID-MCR match	AHA-SID-MCR match share of all community hospitals
2001	4,908	33	3,759	3,340	3,245	66%
2002	4,927	35	3,967	3,335	3,250	66%
2003	4,895	37	4,139	4,065	4,018	82%
2004	4,919	37	4,031	3,965	3,925	80%
2005	4,936	37	4,174	4,110	4,085	83%
2006	4,927	38	4,309	4,235	4,220	86%
2007	4,897	40	3,586	3,536	3,292	67%

Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007; AHA, Annual Survey, 2001-2007.

Number of Psychiatric Units as Indicated by MCR and AHA—SID States [20]

For the years 2001 through 2006, between 27% and 35% of the MCR-SID matched community hospitals had an MCR psychiatric unit indicator (Table 3).[21] This is comparable to the share of community hospitals that had an AHA psychiatric unit indicator (27% to 34% during the same period). The share of hospitals that had an AHA psychiatric unit indicator ***or*** an MCR psychiatric unit indicator was slightly higher, ranging from 30% to 40% during the same period. Because of the different requirements and incentives for reporting psychiatric units on the MCR and on the AHA Annual Survey, we expect the MCR data to be more accurate than the AHA data.[22] As shown in Table 3, the percent of psychiatric units reported by both the MCR and AHA data declined from 2001 to 2006, from 33% to 25-26% of all hospitals.

[20] Iowa does not submit discharge records for Mental Health and Substance Abuse treatment and is excluded from this study.

[21] Because of the MCR submission and processing time duration, it is likely that the most recent years of MCR data are somewhat incomplete. Given this fact, our discussion will be limited to 2001-2006 data, although we show 2007 data.

[22] If hospitals have a separate and distinct psychiatric unit in which they treat and expect to receive payment for Medicare patients, they must file an MCR to receive payment. No such financial incentive exists for reporting a psychiatric unit on the AHA Annual Survey, and while there may not be a disincentive, the AHA Survey may not be as accurate.

Table 3. Number of Community Hospitals in SID States with MCR Psychiatric Unit Indicator, with AHA Psychiatric Unit Indicator, and with MCR or AHA Psychiatric Unit Indicators, 2001-2007

Year	Community Hospitals in SID States	Hospitals with MCR Psychiatric Unit Indicator		Hospitals with AHA Psychiatric Unit Indicator		Hospitals with MCR or AHA Psychiatric Unit Indicator	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
2001	3,245	1,086	33	1,055	33	1,231	38
2002	3,250	1,140	35	1,105	34	1,286	40
2003	4,018	1,231	31	1,216	30	1,389	35
2004	3,925	1,131	29	1,088	28	1,274	32
2005	4,085	1,110	27	1,106	27	1,254	31
2006	4,220	1,127	27	1,094	26	1,279	30
2007	3,292	815	25	852	26	965	29

Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007; AHA, Annual Survey, 2001-2007.

Number of Discharges from Psychiatric Units as Indicated by MCR and AHA—SID States

Table 4 reveals the number of MH discharges from hospitals with a psychiatric unit as indicated by the MCR, AHA, or both. The share of MH discharges from hospitals with an MH psychiatric unit indicator ranged from 81% to 85% between 2001 and 2006. Conversely, the number of discharges from hospitals without psychiatric units ranged from 15% to 19%. The range based on the AHA indicator was 18% to 20%. These estimates are lower than the 33% estimated by Kiesler and colleagues using 1980 data.

Table 4. Number of MH Discharges from Community Hospitals in SID States with MCR Psychiatric Unit Indicator, with AHA Psychiatric Unit Indicator, and with MCR or AHA Psychiatric Unit Indicators, 2001-2007

Year	Community Hospitals in SID States	Hospitals with MCR Psychiatric Unit Indicator		Hospitals with AHA Psychiatric Unit Indicator		Hospitals with MCR or AHA Psychiatric Unit Indicator	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
2001	915,816	774,269	85	737,298	81	866,772	95
2002	988,593	823,262	83	809,693	82	940,081	95
2003	1,081,903	906,223	84	885,862	82	1,022,249	94
2004	1,048,178	868,716	83	843,128	80	985,693	94
2005	1,019,334	833,809	82	839,512	82	957,502	94
2006	1,043,003	846,436	81	850,905	82	970,278	93
2007	810,763	626,408	77	682,647	84	746,862	92

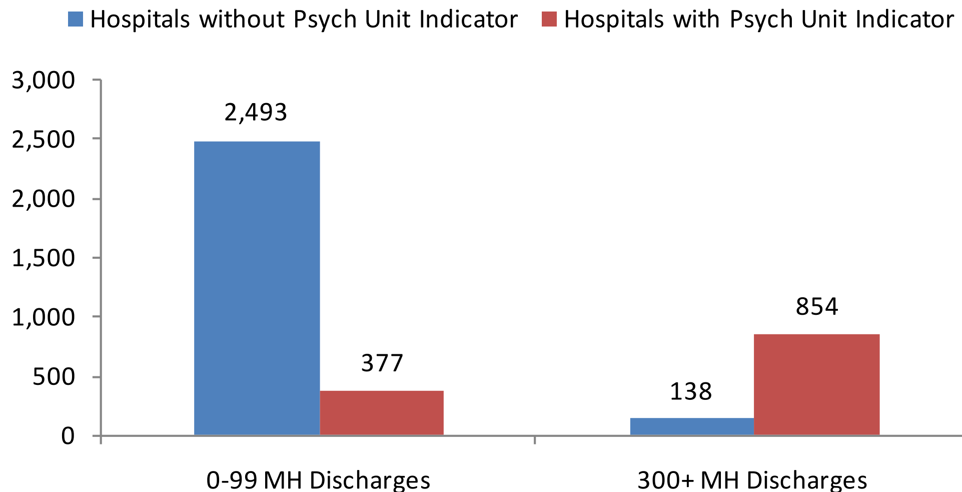
Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007; AHA, Annual Survey, 2001-2007.

Validation of MCR Psychiatric Unit Indicator Against Number of MH Discharges

To determine the accuracy of the MCR psychiatric unit indicator, we used 2003 data on psychiatric unit discharges from HCUP SID hospitals. In 2003, there were 2,631 hospitals with no MCR psychiatric unit indicator. The number of MH discharges from these hospitals ranged

from zero to 4,096. The majority of these hospitals (2,407) had less than 50 MH discharges, 62 hospitals had 50-99 MH discharges, and 24 hospitals had 100-299 discharges. The remaining 138 hospitals had between 300 and 4,096 MH discharges. Figure 2 shows the number of hospitals with and without the MCR psychiatric unit indicator in terms of those with less than 300 MH discharges and those with 300 or more MH discharges.

Figure 2. Community Hospitals in SID States with and without MCR Psychiatric Unit Indicator by Number of MH Discharges, 2003



Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2003; CMS, Medicare Cost Reports, 2003.

Given our expectation (based on prior analyses[23]) that hospitals which did not have a psychiatric unit would not have a large number of MH discharges, we investigated those hospitals that had 100 – 300 or more MH discharges, but no MCR psychiatric unit indicator, using information about the hospitals found on hospital websites.

We randomly selected 40 of the 162 hospitals with 100 or more MH discharges and performed a web search for evidence of a separate and distinct psychiatric unit. An online description in which the terms “psychiatric,” “behavioral health,” or “mental health” were used in combination with “inpatient” and with terms indicating a distinct part such as “unit,” “facility,” or “campus” was considered adequate evidence of a separate and distinct unit. The use of terms such as “division,” “department,” “services,” or “program” in an online description was not adequate indication of a separate and distinct unit.

As shown in Table 5, there was clear online evidence of a psychiatric unit on the websites of 28 of the 40 hospitals, and possible evidence on the sites of another two.[24] The hospitals for which there was clear online evidence of a psychiatric unit accounted for 86 percent of the MH

[23] Mark T. Psychiatric Care in General Hospitals without Psychiatric Units: How Much and for Whom?

[24] Possible reasons why hospitals may have a psychiatric unit, but not report that unit on the MCRs include that the hospitals do not bill to Medicare (e.g., children’s hospitals) or that hospitals do not elect to receive cost-based reimbursement for Medicare discharges in their psychiatric unit (e.g., there is no financial incentive for them to do so).

discharges from the sample of hospitals examined. The hospitals for which there was possible evidence accounted for another 7 percent of the MH discharges.

Table 5 shows that the percent of hospitals with no MCR psychiatric unit indicator for which there is clear online indication of a psychiatric unit is higher for hospitals with 300 or more MH discharges than for those with 100 or more MH discharges (83 percent versus 70 percent). The corresponding share of MH discharges is similar for the two sets of hospitals (88 percent versus 86 percent).

Given the results of the web search, we generated an estimate of the number of discharges from psychiatric units by using the presence of 300 or more MH discharges as a proxy for the presence of a psychiatric unit. Table 6 displays the estimate of psychiatric unit discharges based only on the presence of the MCR psychiatric unit indicator in the *MCR Unadjusted* column. The results of the adjustment using the 300 or more MH discharges proxy are shown in the *MCR 1st Adjustment* column.

Because small shares (3.6%) of discharges from hospitals with psychiatric units come from scatter beds rather than psychiatric units,[25] we performed a second adjustment to the MCR-SID data to account for this. This estimate was based on the study of 12 states that used revenue codes and found that 3.6 percent of discharges from hospitals with psychiatric units were from scatter beds. Thus, we reduced the total *MCR 1st Adjustment* estimate of psychiatric unit discharges by 3.6 percent; results are shown in the third column (*MCR 2nd Adjustment)* of Table 6.

Table 5. Distribution of Selected Hospitals without MCR Psychiatric Unit Indicator and Corresponding MH Discharges by Online Indication of Psychiatric Unit, 2003

	Total	Clear indication*	Possible indication**	No indication of separate
Hospital Count				
>100 MH discharges	40	28	2	10
>300 MH discharges	30	25	2	3
Hospital Percent Distribution				
>100 MH discharges	100%	70%	5%	25%
>300 MH discharges	100%	83%	7%	10%
Discharge Count				
>100 MH discharges	36,263	31,341	2,375	2,547
>300 MH discharges	34,827	30,858	2,375	1,753
Discharge Percent Distribution				
>100 MH discharges	100%	86%	7%	7%
>300 MH discharges	100%	88%	7%	5%

[1]Forty hospitals were randomly selected for online checking from the 162 hospitals which did not have an MCR psychiatric unit indicator, but which had 100 or more MH discharges.

*Clear indication defined as combination of the terms ("psychiatric" or "behavioral health" or "mental health") and "inpatient" and ("unit" or "facility" or "campus") on hospital website.

**Possible indication defined as combination of the terms ("psychiatric" or "behavioral health" or "mental health") and ("program" or "services") and ("center" or "environment") on hospital website.

[25] Mark T. Psychiatric Care in General Hospitals without Psychiatric Units: How Much and for Whom?

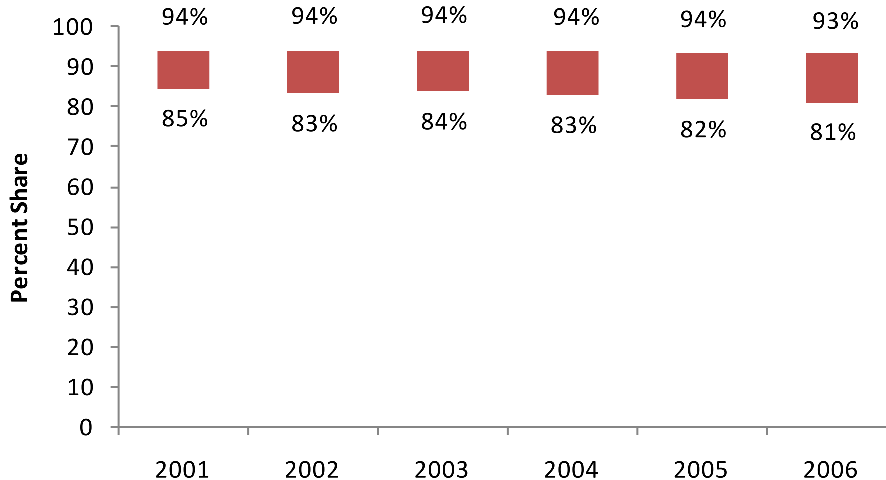
Table 6. Estimates of Number of and Share of MH Psychiatric Unit Discharges from Community Hospitals in SID States, MCR and HCUP SID Data, 2001-2007

Year	All Community Hospitals in SID States	Hospitals with MCR Psychiatric Unit (PU) Indicator [MCR Unadjusted]		Hospitals with MCR PU Indicator OR with >300 MH discharges [MCR 1st Adjustment]		Hospitals with MCR PU Indicator OR with >300 MH discharges + scatterbed adjustment [MCR 2nd Adjustment]	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
2001	915,816	774,269	85	890,719	97	858,653	94
2002	988,593	823,262	83	962,400	97	927,754	94
2003	1,081,903	906,223	84	1,052,678	97	1,014,782	94
2004	1,048,178	868,716	83	1,019,511	97	982,809	94
2005	1,019,334	833,809	82	989,930	97	954,293	94
2006	1,043,003	846,436	81	1,010,617	97	974,235	93
2007	810,763	626,408	77	784,289	97	756,055	93

Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007.

Table 6 provides a low estimate and a high estimate of shares of discharges from psychiatric units. Our best guess estimate is shown in the last column of Table 6. The ranges, by year, of shares of MH discharges from psychiatric units are displayed in Figure 3.

Figure 3. Range of Estimated Share of MH Discharges from Community Hospital Psychiatric Units Based on MCR & SID Data, 2001-2006



Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007.

Table 7 displays the converse of Table 5—that is, the percent of shares from scatter beds.

Table 7. Estimates of Number and Share of MH Scatterbed Discharges from Community Hospitals in SID States, MCR and HCUP SID Data, 2001-2007

Year	All Community Hospitals in SID States	Hospitals with MCR Psychiatric Unit (PU) Indicator [MCR Unadjusted]		Hospitals with MCR PU Indicator OR with >300 MH discharges [MCR 1st Adjustment]		Hospitals with MCR PU Indicator OR with >300 MH discharges + scatterbed adjustment [MCR 2nd Adjustment]	
	Number	*Number*	*Percent*	*Number*	*Percent*	*Number*	*Percent*
2001	915,816	141,547	15	25,097	3	57,163	6
2002	988,593	165,331	17	26,193	3	60,839	6
2003	1,081,903	175,680	16	29,225	3	67,121	6
2004	1,048,178	179,462	17	28,667	3	65,369	6
2005	1,019,334	185,525	18	29,404	3	65,041	6
2006	1,043,003	196,567	19	32,386	3	68,768	7
2007	810,763	184,355	23	26,474	3	54,708	7

Sources: AHRQ, Center for Delivery, Organization, and Markets, Healthcare Cost and Utilization Project, State Inpatient Databases, 2001-2007; CMS, Medicare Cost Reports, 2001-2007.

Thus, to summarize the analyses above, we estimate that 6 percent of discharges with a principal mental health diagnosis are from scatter beds and 94 percent are from psychiatric units over the 2001-2007 time span.

Variation on Number of Psychiatric Discharges, Overall and in Psychiatric and Scatter Beds, by State

This next section examines the variation in psychiatric unit utilization across states. The proportion of community hospital discharges with a principal psychiatric diagnosis per state population, overall, and by psychiatric unit or scatterbed, was calculated for each of the states in the 2003 HCUP-SID. The results are shown below in Figure 4.

The figures highlight the large variation across states in the total number of psychiatric discharges. The top few states have from three to six times the number of total psychiatric discharges per state population as the bottom few states. Within all the states, the vast proportion of discharges is from psychiatric units (Figure 4). This is even more apparent if one uses the criteria that any hospital with 300 or more MH discharges has a psychiatric unit (Figure 5). Furthermore, it does not appear that there are more scatter bed discharges in states with fewer psychiatric unit discharges. Thus, scatter beds do not appear to be consistently supplementing psychiatric unit beds across the states.

Figure 4. Rate of Psychiatric Discharges per 10,000 State Population from Community Hospital Psych Units and Scatter Beds, 2003 (Based on Presence of MCR Indicator)

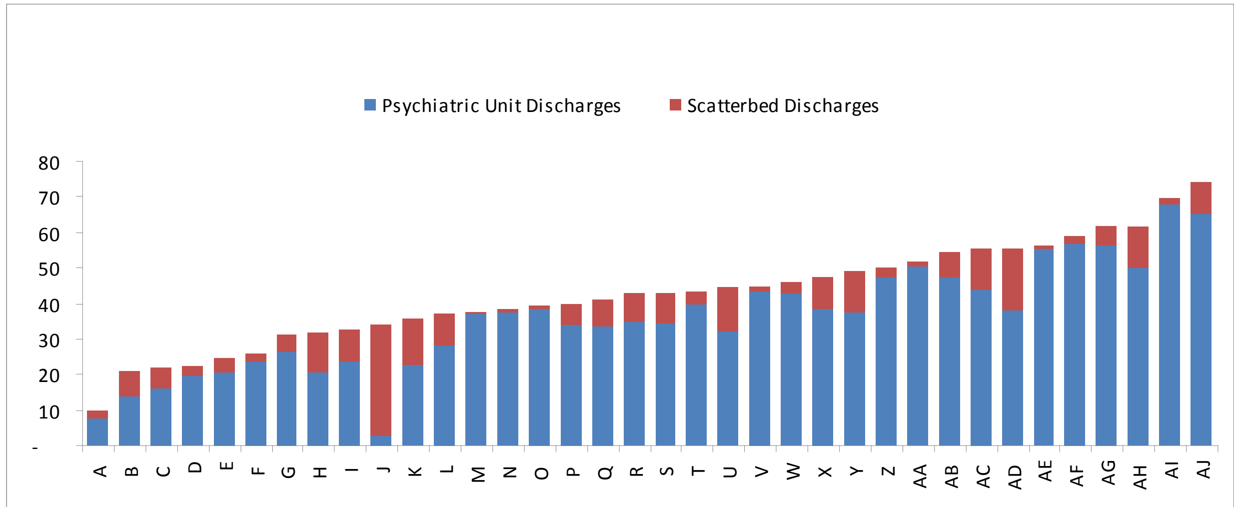
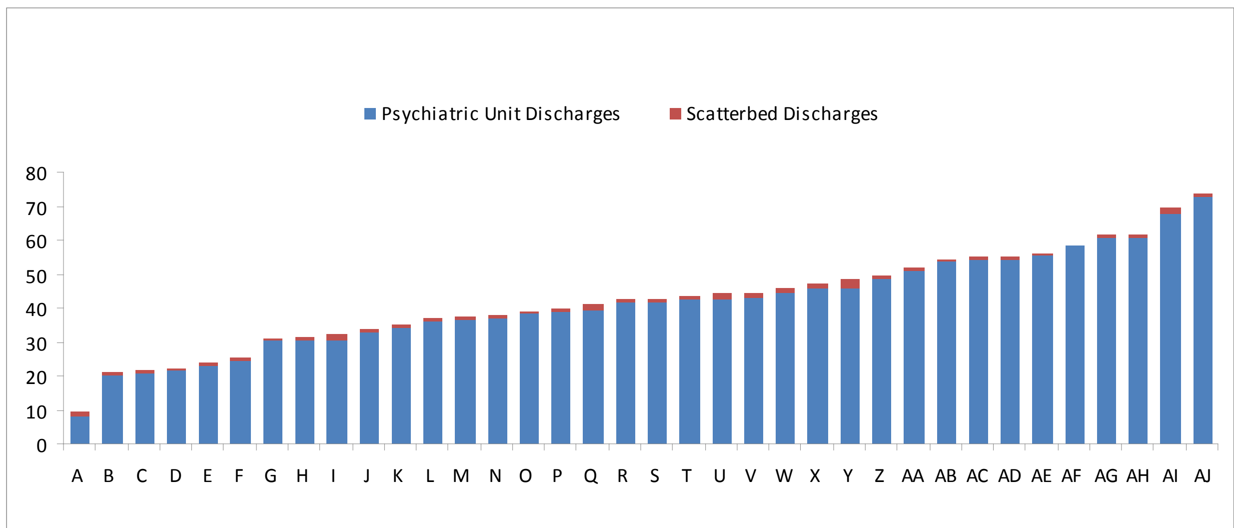


Figure 5. Rate of Psychiatric Discharges per 10,000 State Population from Community Hospital Psych Units and Scatter Beds, 2003 (Based on Presence of MCR Indicator or >300 SID MH Discharges)



LIMITATIONS

This study has limitations. The analysis was restricted to persons who had a principal psychiatric diagnosis. The justification for this approach was that these people are presumed to be in the hospital primarily for a psychiatric illness and most of their care is focused on that illness. Persons with a secondary psychiatric illness, while perhaps receiving some psychiatric treatment, were presumed not to be receiving care primarily to address a psychiatric problem. It is possible, however, that psychiatric diagnoses are under-coded across the settings or in scatter beds. If this were the case, the rate of scatter bed discharges might be higher than estimated.

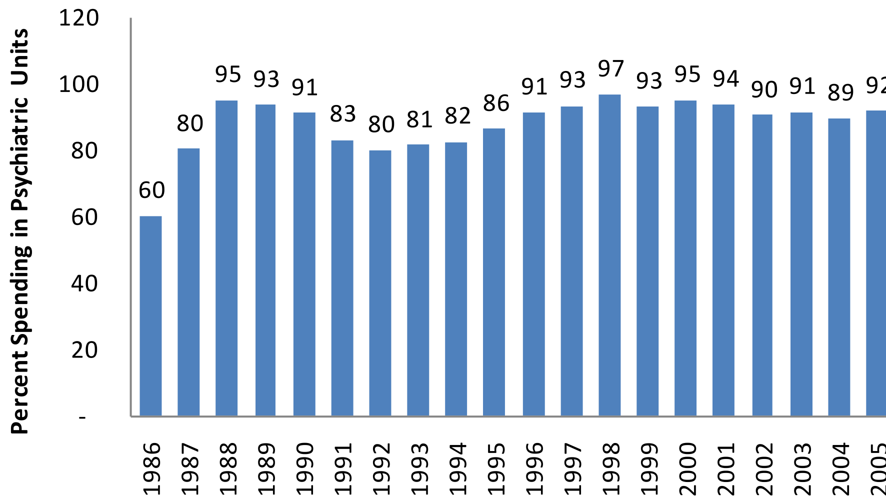
Additionally, the study focuses on community hospitals and an important extension would be to marry the HCUP-SID data with information on psychiatric hospital beds. This would provide a more comprehensive picture of how psychiatric inpatient care is being provided in the U.S.

CONCLUSIONS

Implications for SAMHSA Spending Estimates Methods

In light of the above analyses, the MCRs appear to be a fairly accurate source of data on the presence of psychiatric units. At a minimum, the MCRs provide a lower limit in terms of the number of psychiatric units and discharges in community hospitals. Investigation showed that psychiatric units do exist among hospitals that do not indicate a psychiatric unit on the MCRs. However, our analysis also showed that these missing psychiatric units can be fairly well captured by using the number of MH discharges from a hospital as a proxy for psychiatric unit status. Additionally, some small adjustment is needed for scatter bed discharges from hospitals with psychiatric units. Figure 6 illustrates spending as estimated by the SAMHSA Spending Estimates for inpatient care in community hospitals that were developed most recently using the MCRs. These data estimates are in line with the estimates of the proportion of discharges from psychiatric units and scatter beds.

Figure 6. Psychiatric Unit MH Spending as a Share of All MH Spending in Community Hospitals, 1986-2005



Sources: SAMHSA Spending Estimates, 1986-2005 (unpublished).

Broader Policy Implications

The determination shown in this study that only approximately six percent of mental health care discharges were from scatter beds is much lower than prior estimates. In particular, Kiesler and colleagues estimated that in 1980, 33% of psychiatric discharges were from community hospitals without scatter beds. The relatively low use of scatter beds across the states has several implications. First, if scatter beds are not being used often for psychiatric treatment, the importance of psychiatric units may be magnified. In some regions of the country, the low supply of psychiatric unit beds appears to be limiting access to care and resulting in more patients staying longer in emergency departments while appropriate options for care are identified. A 2006 survey of state mental health agency directors revealed that 80 percent of the states reported shortages in psychiatric beds.[26] One consequence of the lack of psychiatric beds has been overcrowding and increased waiting time in community hospital emergency departments, as reported by emergency department directors. [27, 28] With the numbers of psychiatric unit and psychiatric specialty hospital beds declining, access problems may accelerate. [29] This trend may be further exacerbated if the new Prospective Payment System

[26] National Association of State Mental Health Program Directors Research Institute, Inc. State Profile Highlights: State Psychiatric Hospitals: 2006.

[27] Larkin GL, Claassen CA, Emond JA, Pelletier AJ, Camargo CA. Trends in U.S. emergency department visits for mental health conditions, 1992 to 2001. *Psychiatric Services* 56:671-677, 2005.

[28] Cunningham P, McKenzie K, Taylor EF. The struggle to provide community-based care to low-income people with serious mental illnesses. *Health Affairs (Millwood)* 25:694-705, 2006.

[29] Cotterill PG. Medicare psychiatric admissions, 1987-2004: does the past offer insights for the future? *Health Affairs (Millwood)* 27:1132-1139, 2008.

for psychiatric care in community hospitals places additional financial pressure on community hospitals.[30]

In addition to identifying a relatively low average use of scatter beds, the data suggest that there is no consistent approach to ensuring an adequate supply of psychiatric unit beds across regions of the country. As the American Hospital Association Task Force on Behavioral Health recently noted, "Every hospital treats patients with behavioral health disorders, even when an acute care, community hospital has no organized behavioral health services or psychiatric clinical specialists."[31] The Task Force on Behavioral Health further called for all hospitals to give more attention to planning for the needs of patients with principal or secondary psychiatric disorders. A recent commentary in the *American Journal of Psychiatry* also noted that because community hospitals are now a major component of psychiatric clinical care, it is important to have "more comprehensive public policy and care strategies toward psychiatric care in community hospitals."[32]

Future Research

This study raises several issues that could be addressed with additional research. One study might look at the association between emergency department admissions for psychiatric conditions using the newly released HCUP Nationwide Emergency Department Sample (NEDS) data and the supply of psychiatric unit beds. This study would inform the question of whether part of the reported overcrowding in emergency department is due to a lack of specialty beds. This study could also add in information on beds in free standing psychiatric hospitals.

Other study extensions would be to examine the types of hospitals that are offering psychiatric units, such as whether the facilities tend to be urban hospitals, how large they are, how large the units may be, and whether the hospitals are public or private.

A follow-on study might examine more closely how psychiatric care is being provided in hospitals without psychiatric units. This might involve primary data collection such as surveying hospitals to see if they have a psychiatrist or psychiatric nurse on staff, if they have relationships with mental health community providers, and what types of services they typically provide to patients who are admitted with principal psychiatric conditions.

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[30] Cotterill. *Health Affairs (Millwood)* 27:1132-1139, 2008.

[31] American Hospital Association. Behavioral Health Challenges in the General Hospital: Practical Help for Hospital Leaders, September 2007.
Available from: http://www.aha.org/aha/content/2007/pdf/07bhtask-recommendations.pdf.

[32] Liptzin B, Gottlieb GL, Summergrad P. The future of psychiatric services in general hospitals. *American Journal of Psychiatry* 164:1468-1472, 2007.

APPENDIX A: HCUP Partners

HCUP is a family of powerful health care databases, software tools, and products for advancing research. Sponsored by the Agency for Healthcare Research and Quality (AHRQ), HCUP includes the largest all-payer encounter-level collection of longitudinal health care data (inpatient (SID), ambulatory surgery (SASD), and emergency department (SEDD)) in the United States, beginning in 1988. HCUP is a Federal-State-Industry Partnership that brings together the data collection efforts of many organizations—such as State data organizations, hospital associations, private data organizations, and the Federal government—to create a national information resource.

HCUP would not be possible without the contributions of the following data collection Partners from across the United States:

Arizona Department of Health Services
Arkansas Department of Health & Human Services
California Office of Statewide Health Planning and Development
Colorado Hospital Association
Connecticut Hospital Association
Florida Agency for Health Care Administration
Georgia Hospital Association
Hawaii Health Information Corporation
Illinois Department of Public Health
Indiana Hospital Association
Iowa Hospital Association
Kansas Hospital Association
Kentucky Cabinet for Health and Family Services
Maine Health Data Organization
Maryland Health Services Cost Review Commission
Massachusetts Division of Health Care Finance and Policy
Michigan Health & Hospital Association
Minnesota Hospital Association
Missouri Hospital Industry Data Institute
Nebraska Hospital Association
Nevada Department of Health and Human Services
New Hampshire Department of Health & Human Services
New Jersey Department of Health and Senior Services
New York State Department of Health
North Carolina Department of Health and Human Services
Ohio Hospital Association
Oklahoma State Department of Health
Oregon Association of Hospitals and Health Systems
Rhode Island Department of Health
South Carolina State Budget & Control Board
South Dakota Association of Healthcare Organizations
Tennessee Hospital Association
Texas Department of State Health Services
Utah Department of Health
Vermont Association of Hospitals and Health Systems
Virginia Health Information

Washington State Department of Health
West Virginia Health Care Authority
Wisconsin Department of Health and Family Services
Wyoming Hospital Association