

Healthcare Utilization in Texas

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INTRODUCTION

- Texas is ranked **number one** in the United States in terms of **rural hospital closures**.¹
- Reasons for rural hospital closures:**
 - Low occupancy** rates²
 - Preference for urban providers
 - Aging** facilities
 - Poor financial health**³⁻⁵
 - Medicare cuts
 - Medicaid underpayments
 - Operation costs
 - Low patient volume and dynamic changes in patient number
 - Recruitment difficulties
 - Often rely on property taxes for expense coverage

OBJECTIVES

- Describe mental health utilization and costs in rural vs. urban hospitals by:
- Demographics: age, gender, race/ethnicity, insurance type
 - Mental health diagnosis

METHODS

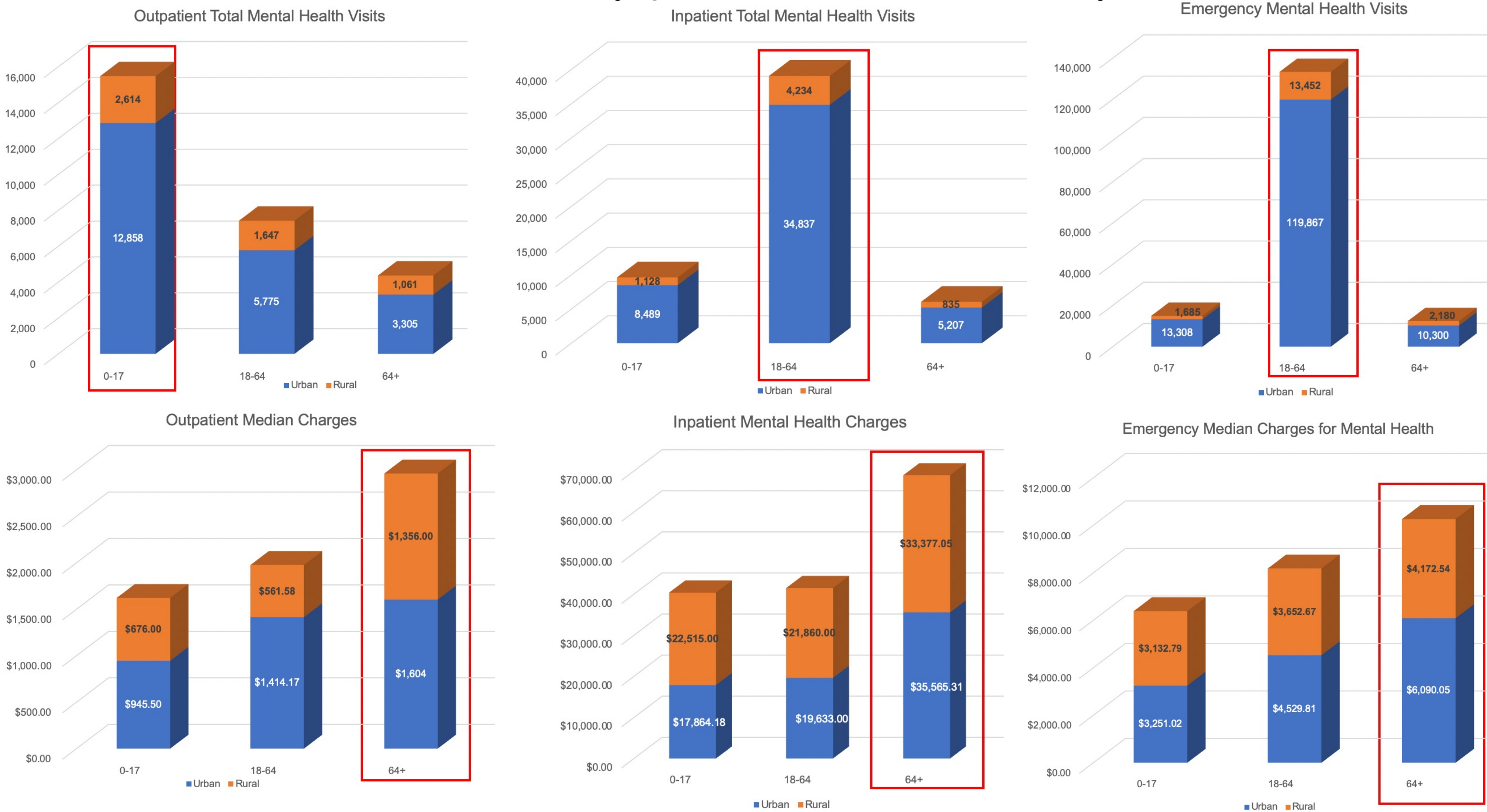
- Study Design**
- Retrospective cohort analysis
- Data Sources**
- Texas Hospital Association (THA) dataset**
- De-identified patient and hospital-level data from Texas hospitals that report to THA in 2019
 - Mental health services and costs: ICD-10 (codes with “F”) and revenue codes
 - Demographic variables provided via data set
- Variables**
- Independent variable:
 - Hospital type (inpatient vs. outpatient vs. ED)
 - Rural vs. urban hospital
 - Dependent variable:
 - % of mental health-related visits for rural vs. urban areas
 - Mental health diagnosis-related visits
 - Average total cost/mental health diagnosis
 - Insurance coverage
 - Visits and costs by demographic (race/ethnicity, age, insurance types)
 - Charge by diagnosis, revenue code, and insurance (charity) ongoing
- Inclusion & Exclusion Criteria:**
- Inclusion criteria:* mental health personal and hospital-level data
 - Exclusion criteria:* missing data
- Statistical Analysis**
- Descriptive statistics, logistic regressions, and Chi-Square analysis was conducted using SAS 9.4.

RESULTS

Mental Health Utilization

Table 1 of Mental Health Utilization				
		Total Patient Visits	Total Mental Health Visits (%)	Top 5 Mental Health Diagnosis
Outpatient	Urban	5,401,676	8,481 (14.25%)	Unspecified Dementia, Developmental Disorder of Speech and Language, Anxiety Disorder, Nicotine Dependence, Autistic Disorder
	Rural			Developmental Disorder of Speech and Language, Unspecified Dementia, Mixed receptive-expressive, Language disorder, Autistic disorder, Nicotine Dependence
Inpatient	Urban	1,955,268	2,931 (4.93%)	MDD Without Psychosis, MDD - With Psychosis, MDD - Single Episode Without Psychosis, Alcohol Dependence With Withdrawal, Bipolar Disorder
	Rural			MDD without psychosis, Alcohol dependence with withdrawal, MDD with psychosis, Schizoaffective disorder, Schizophrenia
ED	Urban	6,196,708	165,994 (2.67%)	Anxiety, MDD - Single Episode, Panic disorder, GAD, Alcohol Abuse Disorder, Intoxication
	Rural			Anxiety, MDD - Single Episode, Alcohol Abuse Disorder, Intoxication, Panic Disorder, Other Psychoactive Substance Disorder

Sociodemographic Characteristics and Total Charges



Sociodemographic Characteristics and Insurance

Are there differences in average costs for mental health services between urban and rural areas?

Average charges are:

- 25%* less in rural than urban areas for outpatient
- 9%* more in rural than urban areas for inpatient
- 21%* less in rural than urban areas for emergency room

Table 1 of Insurance by Race in Outpatient													
Insurance	Controlling for type=Urban							Controlling for type=Rural					
	American Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Missing	Total	American/ Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Total
Gov	16 0.06	164 0.62	1254 4.77	10107 38.49	1842 7.01	0 0.00	13383 50.96	3 0.05	20 0.30	234 3.56	2559 38.97	534 8.13	3350 51.01
Other	4 0.02	26 0.10	199 0.76	882 3.36	344 1.31	0 0.00	1455 5.54	1 0.02	0 0.00	7 0.11	243 3.70	24 0.37	275 4.19
Private	52 0.20	168 0.64	677 2.58	9222 35.12	1305 4.97	0 0.00	11424 43.50	3 0.05	34 0.52	161 2.45	2468 37.58	273 4.16	2942 44.80
Total	72 0.27	358 1.36	2130 8.11	20211 76.96	3491 13.29	0 0.00	26262 100.00	7 0.11	54 0.82	402 6.12	5270 80.25	831 12.65	6567 100.00
Frequency Missing = 12								Frequency Missing = 7					

RESULTS

Sociodemographic Characteristics and Insurance Cont.

Table 2 of Insurance by Race in Inpatient													
Insurance	Controlling for type=Urban							Controlling for type=Rural					
	American Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Total		American/ Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Total
Gov	50 0.08	143 0.24	3559 5.98	19781 33.25	3475 5.84	27008 45.40	7 0.09	8 0.10	270 3.53	3131 40.97	371 4.85	371 4.85	
Other	34 0.06	92 0.15	1499 2.52	8590 14.44	1954 3.28	12169 20.46	2 0.03	3 0.04	94 1.23	856 11.20	133 1.74	133 1.74	
Private	91 0.15	145 0.24	1868 3.14	15726 26.43	2484 4.18	20314 34.15	10 0.13	2 0.03	179 2.34	2237 29.27	340 4.45	340 4.45	
Total	175 0.29	380 0.64	6926 11.64	44097 74.12	7913 13.30	59491 100.00	19 0.25	13 0.17	543 7.10	6224 81.43	844 11.04	844 11.04	
Frequency Missing = 9													

Table 3 of Insurance by Race in ED																	
Insurance	Controlling for type=Urban									Controlling for type=Rural							
	American Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Invalid	Missing	Total		American/ Indian/ Eskimo/ Aleut	Asian or Pacific Islander	Black	White	Other	Invalid	Missing	Total
Gov	153 0.09	407 0.24	11823 6.91	37268 21.78	7238 4.23	1 0.00	4 0.00	56894 33.26	13 0.06	13 0.06	13 0.06	13 0.06	13 0.06	13 0.06	13 0.06	13 0.06	13 0.06
Other	207 0.12	603 0.35	13372 7.82	46844 27.38	16015 9.36	0 0.00	24 0.01	77065 45.05	28 0.14	28 0.14	28 0.14	28 0.14	28 0.14	28 0.14	28 0.14	28 0.14	28 0.14
Private	174 0.10	583 0.34	4669 2.73	27062 15.82	4624 2.70	2 0.00	10 0.01	37124 21.70	900 4.49	900 4.49	900 4.49	900 4.49	900 4.49	900 4.49	900 4.49	900 4.49	900 4.49
Total	534 0.31	1593 0.93	29864 17.46	111174 64.98	27877 16.29	3 0.00	38 0.02	171083 100.00	5869 29.31	5869 29.31	5869 29.31	5869 29.31	5869 29.31	5869 29.31	5869 29.31	5869 29.31	5869 29.31
Frequency Missing = 47										Frequency Missing = 24							

CONCLUSIONS

- Depression, anxiety, dementia, and speech and language disorders are the shared mental health diagnoses in rural and urban hospitals of Texas.
- Highest urban charges** in outpatient services are related to **therapy**, whereas **rural areas** have a focus in **radiotherapy**.
 - ED and inpatient: laboratory charges average the highest
- Asians: highest costs** in both urban and rural areas despite having few visits
 - More likely to have private insurance
- Majority of hospital-incurred charges occur at the emergency room level in both urban and rural areas.
 - Urban areas: higher percentage of charity cases compared to other types of payment
- Urban areas: more total costs than rural areas in terms of mental health
 - Inpatient: higher total costs for rural areas

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