UNIVERSITY OF SOUTH CAROLINA
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RURAL & MINORITY Health Research Center

Rural-urban disparities in inpatient psychiatric care quality

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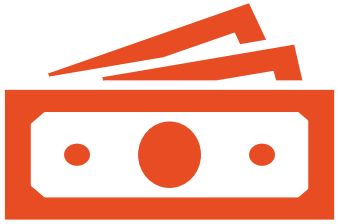

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Agenda

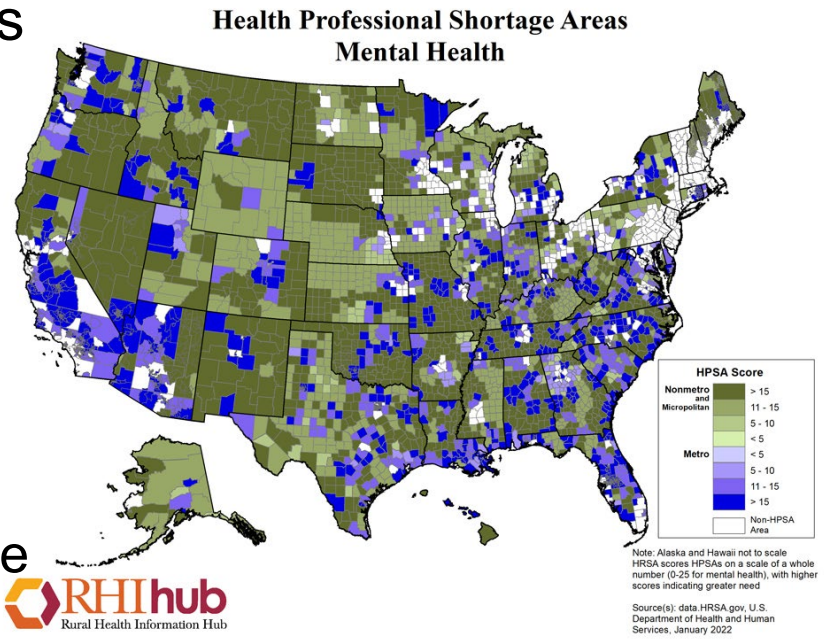
- Background
- Research objective
- Methods
- Results
- Conclusion
- Future Directions
- Questions and Discussion

Why Inpatient Psychiatric Care Quality Important?

- 1 in 5 adults experience mental illness every year and 1/4th of them experience serious mental illness (SMI).
- Inpatient psychiatric care – essential source of care, especially for residents of rural areas with limited availability of mental health providers.
- Facilities with inpatient psychiatric services (psychiatric hospitals/psychiatric units in acute care/critical access hospitals), covered by Medicare, are subject to IPFQR program, effective 2014.
- CMS inpatient psychiatric quality indices – ***continuity of care, patient experience, readmission, and substance use screening and treatment.***

Rural vs. Urban Mental Health Care

- ❑ Higher rates of SMI (5.9% in rural vs 4.8% in urban) in 2019.
- ❑ Millions living in Mental Health Professional Shortage Areas
  - 63% of all Mental Health Professional Shortage Areas are in Rural locations.
  - Patient demands, quality improvement effort, ability to receive early-followup care, affected.
- ❑ Higher rates of suicide attempts and deaths result.



Yet, little is known about the quality of inpatient psychiatric care available to rural patients, and how quality may have changed in response to Federal quality initiatives.

Research objective

To examine differences in quality of inpatient psychiatric care in rural and urban hospitals and changes in quality over time.

Methods

Study Design & Data

- **Study Design**: A national retrospective study
- **Data Sources**:
  - **Quality Outcomes: facility-level annual** quality of care data from the 2015-2019 Inpatient Psychiatric Facility Quality Reporting (IPFQR) Program.
  - **Hospital Characteristics:** 2015-2019 American Hospital Association annual surveys
  - **ZCTA-level sociodemographic characteristics**: 2015 – 2019 American community survey
- **Rurality**: Facility location was categorized into urban, large rural, and small/isolated rural areas based on ZIP-level Rural-Urban Commuting Area codes.

Primary Measures

- **Exposure:** Hospital rurality - three levels based on ZCTA-level Rural Urban Commuting Area codes (RUCA), urban (RUCA codes1, 2), large rural (4-6), small/isolated rural (7–10).
- **Outcomes:**

Continuity of care measures	Patient experience measures
1) Follow-up-care after 7-day or 30-day of discharge 2) Antipsychotic medications at discharge with justification 3) Transition record management	We categorized whether **physical restraint or seclusion** were used in each facility per year. *All patients admitted to hospital-based psychiatric setting were included. CMS evaluates number of mins psychiatric inpatients in a facility were maintained in physical restraint or seclusion.*

Covariates

	Variables	Data
Hospital Factors	Hospital primary services Ownership System affiliation Teaching status Joint Commission or DNV accreditation, Critical access hospital status, Rural referral center, Number of psychiatric beds Registered nurses supply	AHA 2015-2019 Data; and Flex Monitoring Critical Access Hospital Data
ZCTA-level Socio-demographic Factors	Age groups Race/ethnicity mix Unemployment rates Uninsured rates Rates of households with broadband access Rates of households below 200% Federal Poverty Level	American Community Survey 2015-2019 5-year Estimates

Statistical Analyses

- Chi-square tests – frequency distributions
- One-way ANOVA – hospital and ZCTA level characteristics across urban, large-rural and small isolated rural facilities.

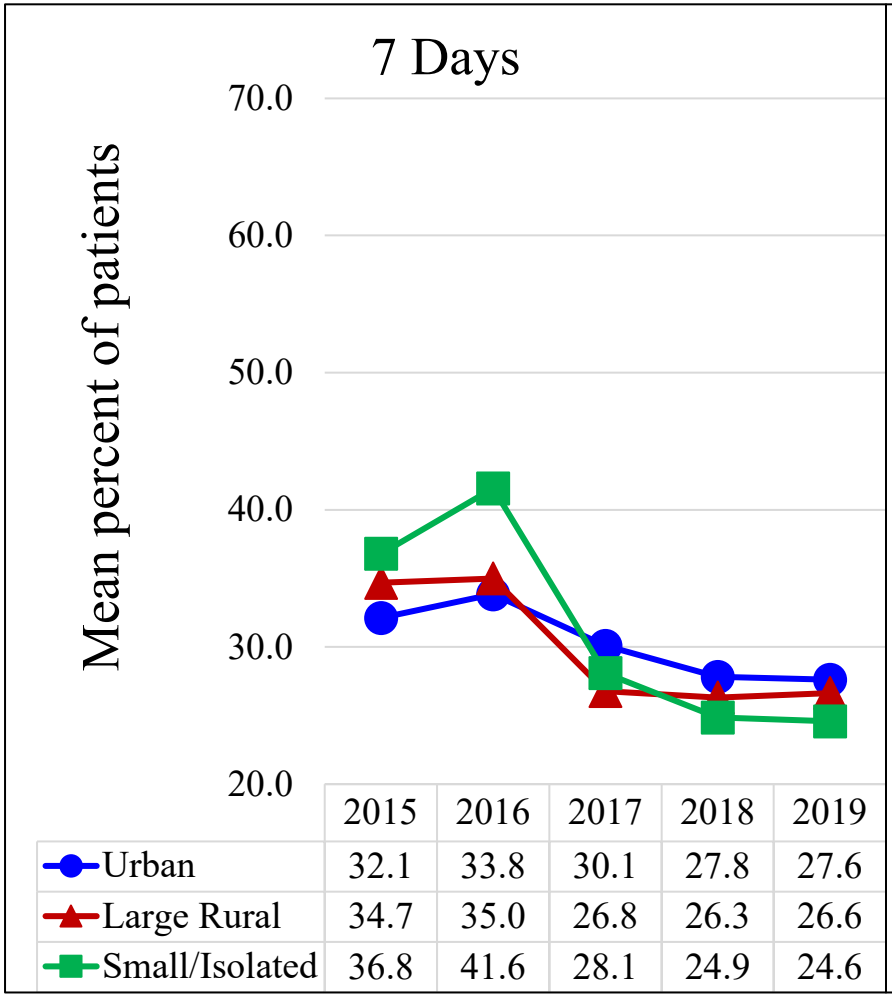
Mann-Kendal trend tests – continuum of care measures (continuous)

Cochran-Armitage trend tests – trends in proportions over years for physical restraint and seclusion use

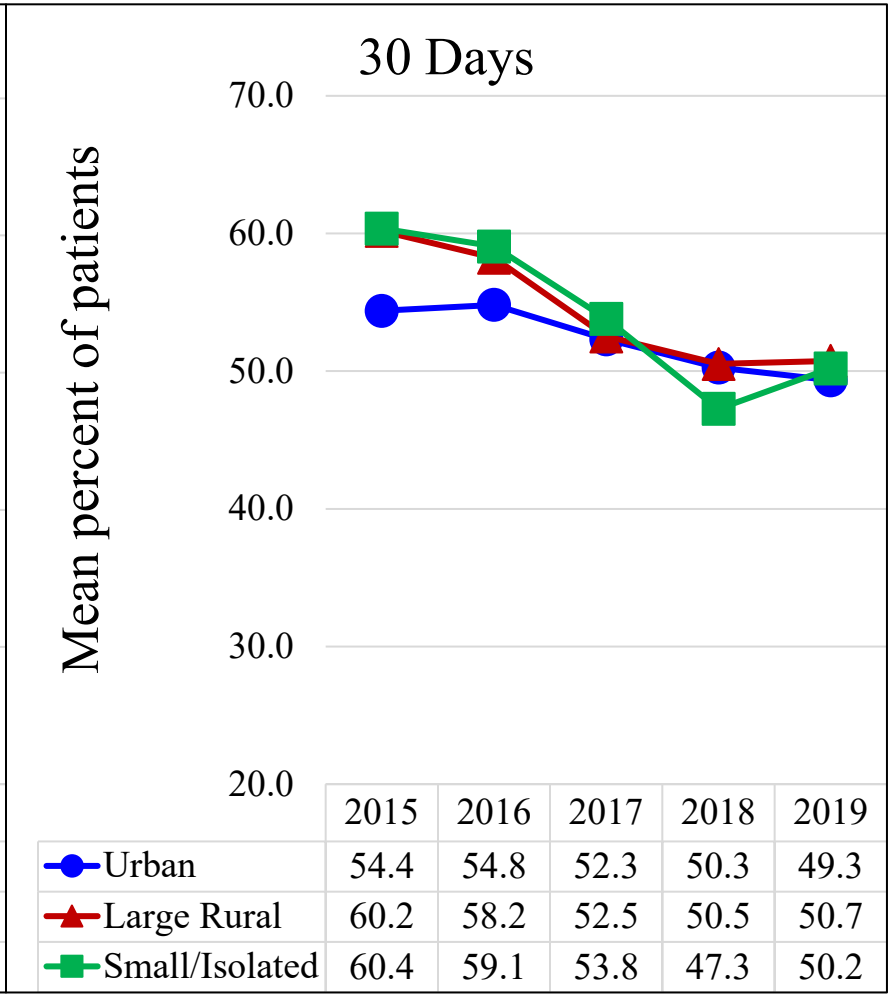
- Multivariable regression analysis – generalized linear regression (continuity of care outcomes); logistic regression (patient experience outcomes), accounted for state level clustering.
- No violation of multicollinearity was observed b/w independent predictors (VIF = 1.86)

Results

Rural-Urban Facility Performance in % of Discharged Patients Receiving Follow-Up Care After Hospitalization

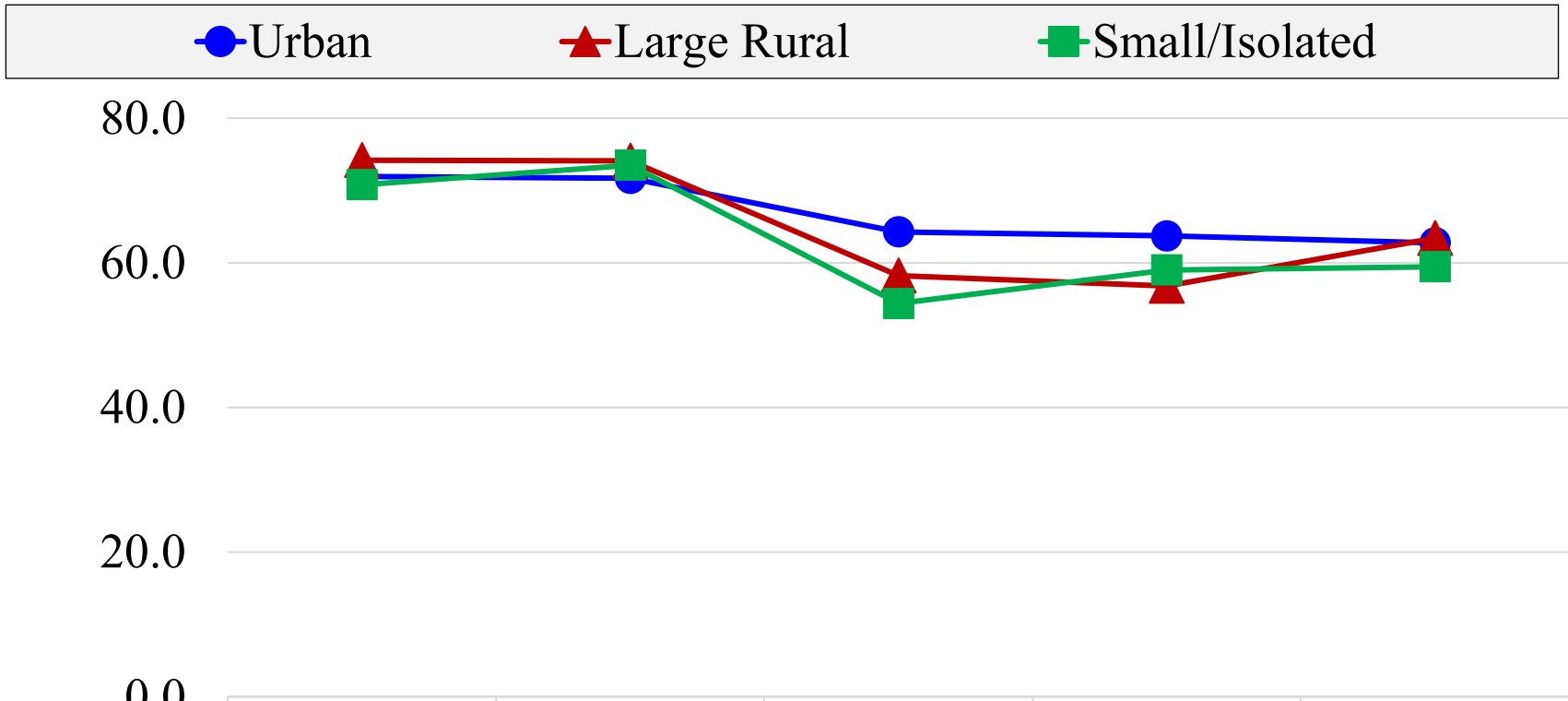


	2015	2016	2017	2018	2019
Urban	32.1	33.8	30.1	27.8	27.6
Large Rural	34.7	35.0	26.8	26.3	26.6
Small/Isolated	36.8	41.6	28.1	24.9	24.6



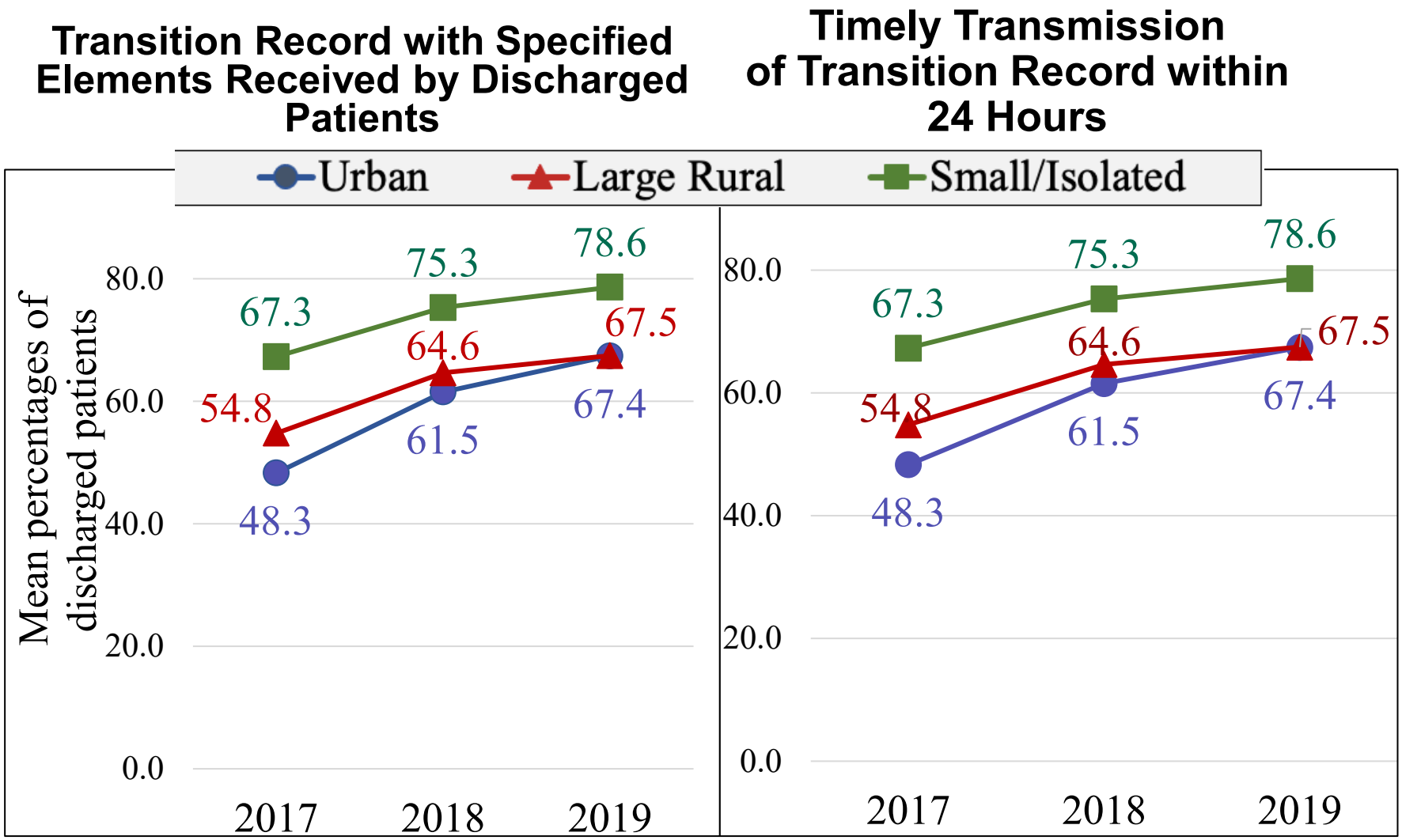
	2015	2016	2017	2018	2019
Urban	54.4	54.8	52.3	50.3	49.3
Large Rural	60.2	58.2	52.5	50.5	50.7
Small/Isolated	60.4	59.1	53.8	47.3	50.2

Rural-Urban Facility Performance in % of Patients Discharged on Multiple Antipsychotic Medications with Appropriate Justification

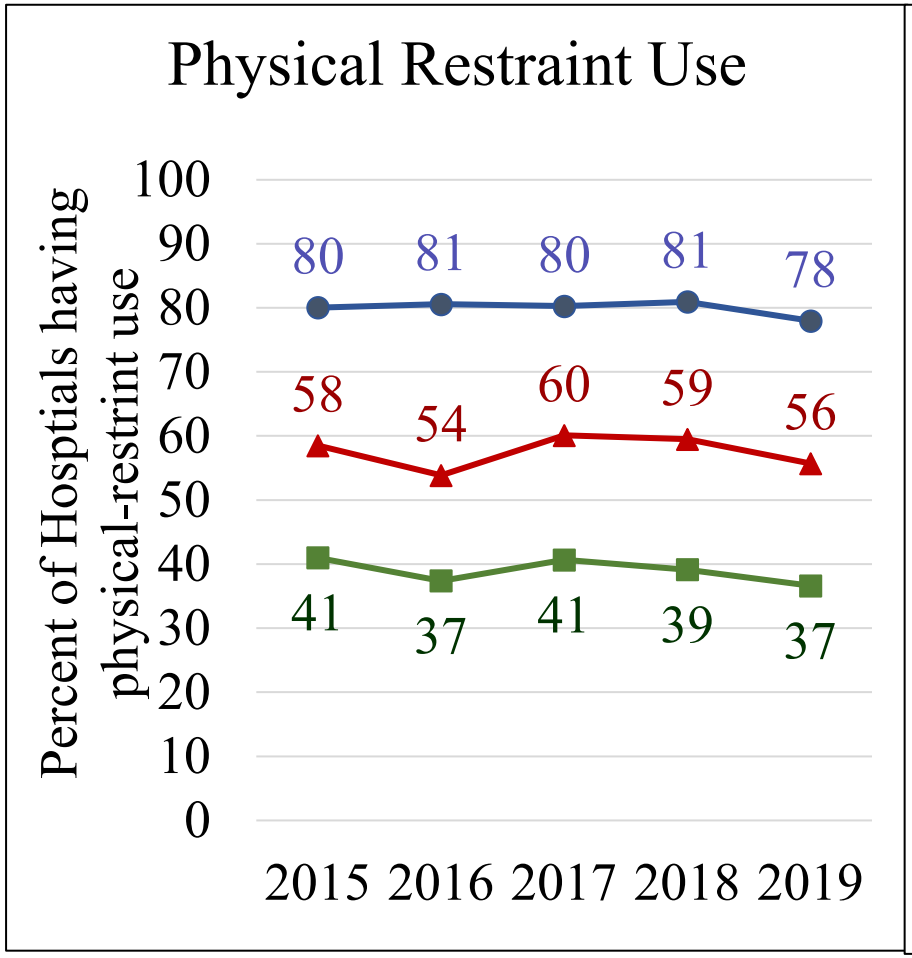


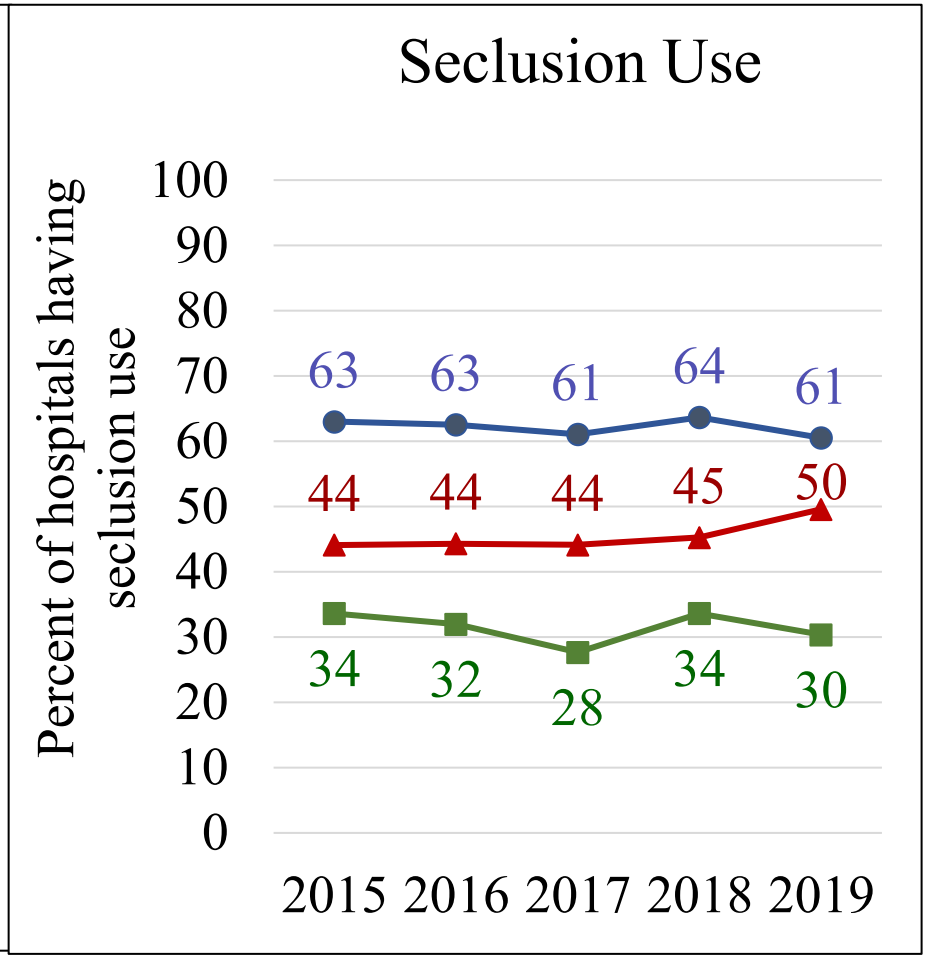
	2015	2016	2017	2018	2019
Urban	72.0	71.7	64.3	63.7	62.8
Large Rural	74.2	74.1	58.3	56.8	63.4
Small/Isolated	70.8	73.5	54.4	59.0	59.5

Rural-Urban Facility Performance in Transition Care Management



Rural-Urban Facility Performance in Patient Safety





Multivariable Regression Analysis

	Baseline Rural-Urban Differences		Annual Trend in Urban Hospitals	Differential Annual Trends by Facility Rurality (Ref. Annual Trend in Urban Hospitas)	
	Large Rural	Small/Isolated Rural		Large Rural x Year	Small/ Isolated Rural x Year
	Marginal Differences or Changes				
Follow-up care within 30 days after hospitalization for mental illness	**4.2*** **	**6.2*** **	**-1.3*** **	**-1.4*** **	**-2.0*** **
Follow-up care within 7 days after hospitalization for mental illness	**2.5***	**7.3*** **	**-1.3*** **	**-0.9****	**-2.4*** **
Multiple antipsychotic medications with appropriate justification	2.2	-3.2	**-2.6*** **	-2.0	0.2
Transition record with specified elements received by discharged patients	11.1	**21.2***	**9.3*** **	-2.3	-3.0
Timely transmission of transition record within 24 Hours of Discharge	9.7	**22.5****	**6.7*** **	-1.9	-3.3
	Adjusted Odds Ratios				
Whether physical-restraint was used	**0.6****	**0.6****	1.0	1.0	0.9
Whether seclusion was used	**0.6*** **	**0.6***	1.0	1.1	0.9

Notes: *p<.05, **p<.01, ***p<.001; † Models adjusted for hospital ownership, system affiliation, teaching status, accreditation by Joint Commission or DNV, critical access hospital, rural referral center, psychiatric beds, and ZIP Code Tabulation Areas (ZCTA)-level age and race/ethnicity mix.

Summary

- Hospitalized patients served at rural units had better continuity of care and patient experience than those served at urban units.
- Having appropriate justifications in the discharge record for patients on multiple antipsychotic mediation saw annual decreasing rates similarly across urban, large rural, and small/isolated rural facilities.
- Rural facilities had a steeper decreasing trend in the proportions of patients with follow-up care than urban facilities.
- For patient experience measures, rural facilities, regardless of rurality, were less likely to use physical restraints and seclusion than urban facilities throughout the years without significant differences in the trends by facility locations.

Conclusions

Since the CMS IPFQR program was implemented in 2014, overall quality of inpatient psychiatric care has been improved but follow-up care has not.

Patients served at rural psychiatric units generally have a higher quality of care, as measured by better follow-up care, better timely transmission of transition records, and lower rates of physical-restraint use, than urban units.

Understanding the reasons behind rural-urban differences in psychiatric care quality and barriers behind decreasing post-discharge follow-up care in urban and rural units are needed to improve mental health outcomes.

Thank You!

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