



Rural Emergency Hospitals (REHs) and Telehealth: Mixed-Methods Analysis

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Learning Objectives

- Describe mixed methods findings on REH telehealth
 - Provided Services
 - Needs
 - Barriers
 - Executive Perspectives

Agenda

- Background
 - MUSC Telehealth
 - REHs
- Methods
- Results
- Implications and Conclusion
- Questions



Background: MUSC Telehealth

Medical University of South Carolina (MUSC)

- Provide patient care at 16 hospitals (includes owned or governing interest)
- Approximately 2,700 beds and four additional hospital locations in development
- Nearly 750 care locations situated in all regions of South Carolina.

Center for Telehealth at MUSC

- The Center for Telehealth has over 15 years of experience providing telehealth, offering over 100 unique telehealth services to over 280 sites across South Carolina.
- Care settings include over 45 hospitals, over 90 schools, and over 100 community clinics and other facilities.



Background: Rural Emergency Hospitals (REHs)

REHs

- Established by Consolidated Appropriations Act of 2021; First Eligible 1/1/23.
- Eligibility:
 - “Facilities enrolled as CAHs or rural hospitals with not more than 50 beds as of December 27, 2020 that closed after that date, are also eligible to seek REH designation if they re-enroll in Medicare and meet all REH CoPs and requirements.”
- Provide: 24/7 emergency services; have transfer agreements with Level I/II trauma center; average annual Length of Stay (LOS) <24 hours
- Rural Health Redesign Center (RHRC) REH Technical Assistance Center:
<https://rhrco.org/reh/>
- University of North Carolina (UNC) Sheps REH Tracking List:
<https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-emergency-hospitals/>

Why Telehealth Matters for REHs

- REHs provide emergency care and outpatient services in rural areas without nearby alternatives
- Access to many specialty services may not be available based on volume and geographical restraints
- Telehealth may be an opportunity for REHs to staff specialty services, nurses, and providers, particularly for low-volume, high-need services, and in REH communities where inpatient services are no longer offered

Methods



Methods: Study Design

- Explanatory Sequential Mixed Methods design.
- Quantitatively, we analyzed a panel of data constructed at the hospital-level using Medicare Cost Reports and American Hospital Association (AHA) Annual Survey data relevant to telehealth (2017-2021).
- Qualitatively, we conducted semi-structured interviews with REH executives and analyzed transcripts in Nvivo 15 using a structured codebook.



Results



Table 1: Unadjusted Hospital Characteristics by REH Status – 2022 (Part 1 of 2)

	Urban	Rural, Not REH Eligible	REH Eligible, Not REH	REH	Total	Test
N	2,122 (49.3%)	423 (9.8%)	1,716 (39.9%)	40 (0.9%)	4,301 (100.0%)	
Length of Stay	4.941 (1.307)	4.532 (0.942)	6.185 (3.413)	4.969 (1.965)	5.367 (2.407)	<0.001
Average Daily Census	176.014 (166.893)	56.814 (48.551)	8.532 (6.181)	3.798 (4.117)	95.868 (142.928)	<0.001
Total outpatient visits	292,200.384 (404,989.005)	183,923.045 (187,111.583)	53,565.389 (56,828.681)	20,420.500 (23,192.367)	179,915.317 (309,269.618)	<0.001
Total facility admissions	13,462.210 (11,574.026)	4,710.065 (3,424.589)	714.416 (630.282)	440.553 (515.004)	7,175.825 (10,104.250)	<0.001
Any Telehealth Consult or Office Visits (AHA)	0.843 (0.364)	0.789 (0.409)	0.802 (0.398)	0.680 (0.476)	0.820 (0.384)	0.004
Percent with computer (ACS)	90.125 (5.486)	85.795 (5.559)	84.192 (6.298)	81.767 (7.118)	87.160 (6.531)	<0.001

Table 1: Unadjusted Hospital Characteristics by REH Status – 2022 (Part 2 of 2)

	Urban	Rural, Not REH Eligible	REH Eligible, Not REH	REH	Total	Test
Region						
Northeast	368 (17.3%)	59 (13.9%)	95 (5.5%)	3 (7.5%)	525 (12.2%)	<0.001
Midwest	465 (21.9%)	103 (24.3%)	739 (43.1%)	8 (20.0%)	1,315 (30.6%)	
South	808 (38.1%)	217 (51.3%)	558 (32.5%)	27 (67.5%)	1,610 (37.4%)	
West	481 (22.7%)	44 (10.4%)	324 (18.9%)	2 (5.0%)	851 (19.8%)	
Critical Access Hospital (CAH)						
Non-CAH	2,122 (100.0%)	423 (100.0%)	417 (24.3%)	23 (57.5%)	2,985 (69.4%)	<0.001
CAH	0 (0.0%)	0 (0.0%)	1,299 (75.7%)	17 (42.5%)	1,316 (30.6%)	
Health System by AHRQ (16-22 Only), AHA (00-21 Only), or CHOW						
Not Reported as Part of a Health System	83 (3.9%)	20 (4.7%)	488 (28.4%)	11 (27.5%)	602 (14.0%)	<0.001
Part of Health System	2,039 (96.1%)	403 (95.3%)	1,228 (71.6%)	29 (72.5%)	3,699 (86.0%)	
Ownership Type						
Not for Profit	1,389 (65.5%)	269 (63.6%)	975 (56.8%)	15 (37.5%)	2,648 (61.6%)	<0.001
For Profit	517 (24.4%)	80 (18.9%)	118 (6.9%)	5 (12.5%)	720 (16.7%)	
Government - Non-Federal	216 (10.2%)	74 (17.5%)	623 (36.3%)	20 (50.0%)	933 (21.7%)	



Net Revenue Over Time, by REH Status



Net Revenue Over Time, by REH Status



LOS By REH Status



Average Daily Census (ADC), By REH Status



Outpatient Visits, by REH Status



Admissions, by REH Status



Telehealth Provision, by REH Status

REH Interview Codes and Unique Executive Responses

Barriers to Telehealth Adoption	Telehealth Utilization (Current State)	Unmet Telehealth Needs
<ul style="list-style-type: none"> • Volume and Scale (7) • Financial Incentives (5) • Regulatory and Policy (4) • Workforce Model and Clinical Coverage (3) • Community and Market Factors (2) • Technology and Infrastructure (1) 	<ul style="list-style-type: none"> • Tele-Behavioral Health Psychiatry (6) • Tele-Neurology (4) • Tele-Stroke (4) • Tele-Cardiology (2) • Tele-Emergency Medicine (2) • Tele-Radiology (2) • Tele-Critical Care Intensivist (1) • Tele-Hospitalists (1) • Tele-Infections Disease (1) • Tele-Peds (1) • Tele-Pulmonology (1) • Tele-Sexual Assault Nurse Examiner (1) 	<p>Top Priority Tele Specialty Need:</p> <ul style="list-style-type: none"> • Tele-Behavioral Health Psychiatry (2) • Tele-Critical Care Intensivist (2) • Tele-Emergency Medicine (2) • Tele-Allergist (1) • Tele-Oncology (1) <p>Other Desired Tele Specialties:</p> <ul style="list-style-type: none"> • Tele-Cardiology (3) • Tele-Critical Care Intensivist (3) • Tele-Behavioral Health Psychiatry (2) • Tele-Emergency Medicine (2) • Tele-Neurology (2) • Tele-Allergist (1) • Tele-Endocrinology (1) • Tele-Hepatology (1) • Tele-Oncology (1) • Tele-Stroke (1) • Tele-Urology (1)

Quotes from REH Leaders

Barriers to Telehealth Adoption

- **Volume/scale:** “We love telehealth. We've tried it in the past. The problem with us and our low volumes is just the model of how telehealth most of the time is used.”
- “They're going to be a minimum, right? You either hit hit us X amount of times or you're going to pay us \$2500 a month or whatever. That's kind of what I see and **I'm not sure I can get \$2500 a month or \$5000 a month of usage** out of somebody.”
- “So if I could get some tele-specialties, **even if it's once a month** cardiology, once a month urology... yes, then if they have to go for a procedure, obviously they have to travel.”
- “A real barrier, but [we] really need it...our REH cohort to say is there opportunity for us to as a group connect with, like tele-hospitalists, tele-ED specialists to have as consultants or even pay per click...somehow if we had a **coalition** of us...”

Unmet Telehealth Needs

- “I felt like the **REH space is ripe for utilization of telehealth and yet I feel like our organization has been slow to explore** whether there's opportunities there or how we could utilize it.”
- “that **tele ED or tele-intensivist** service that that our providers could lean on...we deal with those situations but not multiple times a day or even multiple times in one month. **It might be 6 months between STEMIs.**”
- “a really low socioeconomic area. There are people that **don't even have cars?** So they're not going to go an hour and a half to see cardiology, nephrology, urology. So **our primary care providers end up doing a lot more** than what typical primary care would do.”

Some Quotes from REH Leaders

- “Our hospital **did not use telehealth at all until the COVID pandemic.**”
- “They can hit that button and there's a **tele-intensivist or tele-ed physician** that's able to come on and and observe. They've got access to the EMR. They can help direct...the provider, maybe they're doing an intubation or whatever they're involved with.”
- “Reviewing the images for instance for **tele stroke and also doing a neurologic exam**...for example...has potential for great value.”
- “Typically they're you know 10 to 12 patients a day. So the **volumes** there that that's also some of our challenges when you're looking at them. **A monthly stipend plus a per click fee or whatever...we can't stomach that** you know for the smaller facilities. But **if we were able to spread that access across multiple facilities, you know within and maybe we needed it within state lines for licensure,** you know.”



Limitations, Implications, & Conclusions

Limitations

- **Data:** Medicare Cost Reports, though a widely used source of hospital financial information, are self-reported data and can show inconsistencies.
- **Generalizability:** Qualitatively, while we attempted to contact at least one individual at all 44 REHs, we only interviewed individuals 9 individuals representing 12 REHs. Thematic results may not be reflective of all REHs.
 - Quantitatively, we evaluated 40 REHs.

Lessons learned

- Telehealth is used at some facilities and for a few modalities; expanded scale and scope of tele services desired.
- Barriers to further telehealth adoption were identified; most seem to be reasonably mitigated with coordination across decision-makers.
 - To overcome relatively high tele-specialty access costs for these low volume providers, rural hospitals may need to seek further alignment with a large regional provider or possibly a coalition of other REHs/rural hospitals may be an opportunity.
 - Delays in REH accreditation, state-level Medicaid/payer recognition could be reduced; impacts liquidity/solvency concerns

References

REH Resources

- REH Eligibility: <https://www.cms.gov/medicare/health-safety-standards/certification-compliance/rural-emergency-hospitals>
- CMS REH fact sheet (Sept 2024): <https://www.cms.gov/files/document/rural-emergency-hospitals-factsheet-september-2024.pdf>
- RHRC REH Technical Assistance Center: <https://rhrco.org/reh/>
- UNC Sheps REH Tracking List: <https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-emergency-hospitals/>
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- AHRQ Compendium: <https://www.ahrq.gov/chsp/data-resources/compendium.html>
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Questions?

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Thank you!

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