Findings Brief
NC Rural Health Research Program

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2018-23 Profitability of Rural Hospitals with and without Rural Health Clinics and Long-Term Care

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OVERVIEW

Rural hospitals provide vital health care services to the remote and underserved regions of rural America. However, access to care in many communities has been reduced by rural hospital closures.[1] Between January 2010 and December 2023, there were 146 rural hospital closures.[2] The causes of rural hospital closures are complex and multifaceted,[3] but long-term unprofitability has been identified as a contributing factor.[4]

The profitability of rural hospitals is affected by many factors such as payer mix and patient volume. In this study, we focus on two factors that have been found to be important – provision of long-term care and operation of a rural health clinic(s).

- *Long-term care (LTC)* - Long-term care units within hospitals provide comprehensive services to individuals requiring assistance with daily activities, chronic health care needs, and rehabilitation, while also providing nutrition, therapy, and skilled nursing care.[5] However, inadequate reimbursement rates and service costs can make provision of LTC unprofitable for rural hospitals. In previous studies we found that rural hospitals that provided LTC were less profitable than those that did not provide LTC (excluding hospitals that provide post-acute care/LTC only through swing beds).[6,7]
- *Rural health clinic (RHC)* - Rural health clinics aim to increase access to outpatient and primary care services for patients in rural communities. RHCs can either be independent (freestanding clinic or office-based practice) or provider-based (subordinate part of a hospital, skilled nursing facility, or home health agency). RHCs are required to provide outpatient and primary care services, basic laboratory services, and be able to provide "first response" services to common life-threatening injuries and acute illnesses.[8] In a previous study, we found that rural hospitals that operated RHCs were less profitable than those that did not operate RHCs.[7]

KEY FINDINGS

This study compares profitability of rural hospitals that provide and do not provide long-term care, and that operate and do not operate rural health clinics. The study includes two years before COVID-19 (2018-19, 2019-20) and three years after COVID-19 (2020-21, 2021-22, 2022-23). Taking into account Public Health Emergency funds received during the pandemic, we found:

- Rural hospitals that did not provide long-term care had a higher median total margin than those that provided long-term care in every period except 2018-19. Median profitability of rural hospitals that provided and did not provide long-term care increased over the first four time periods, but there was a large decrease in profitability of both in 2022-23.
- Rural hospitals that did not operate rural health clinics had a higher median total margin than those that operated rural health clinics in the first three periods, but a lower total margin in the last two periods. Median profitability of rural hospitals that operated and did not operate rural health clinics increased over the four periods, but there was a large decrease in profitability of both in 2022-23.
- Profitability of rural hospitals in 2020-21 and 2021-22 was influenced by Public Health Emergency funding distributed during the COVID-19 pandemic.

COVID-19

The North Carolina Rural Health Research Program (NC RHRP) has been tracking profitability of rural hospitals for more than a decade. However, the global COVID-19 pandemic had a substantial effect on hospital profitability. COVID-19 increased financial pressures on hospitals and health systems, with cancelled procedures, decreased patient volume, and increased costs for treating COVID-19 patients.[9] Rural hospitals had particular difficulty responding to the pandemic which compounded their pre-existing challenges. In response, the federal government provided financial support through Public Health Emergency (PHE) funding utilizing Provider Relief Funds (PRF), Paycheck Protection Program (PPP), and other funds, to compensate for the loss in revenue and support high costs due to the pandemic.[10]

In a previous study, we discuss how timing differences in hospital recognition of PHE revenue versus PHE expenses on Medicare cost reports could distort reported profitability in 2020 and 2021. For this reason, in this study we considered it important to clearly separate study years without PHE funds (pre-COVID-19 years) and study years with PHE funds (COVID-19 years). Therefore, the purpose of this brief is to describe the profitability of rural hospitals providing and not providing LTC and operating and not operating RHCs over a five-year period consisting of two years before and three years after COVID-19.

STUDY METHOD

Data

Financial data were obtained from hospital cost report data produced by the Centers for Medicare & Medicaid Services (CMS) Healthcare Cost Report Information System (HCRIS). We excluded cost reports for Indian Health Service hospitals (due to lack of data), cost reports with days in period < 360, and cost reports where net patient revenue was ≤ $0. Hospitals were defined as rural using the 2022 definition by Federal Office of Rural Health Policy (FORHP).[11]

Measure of Profitability

Hospital profitability is expressed as total margin, which is defined as the ratio of net income to total revenue. This ratio provides a measure of the hospital's profit relative to the total revenue it generates. To illustrate, a hospital with a five percent total margin signifies that for every dollar of revenue generated, the hospital makes five cents in net income. The total margin definition and source of data from the Medicare Cost Report are shown below.

	Description	Medicare Cost Report Source
Numerator	Net income	Worksheet G Line 29
Denominator	Total revenue	Worksheet G Lines 3 + 25

COVID-19 PHE funding is included in calculation of total margin.

Hospital Type

A binary variable was used for both LTC[12] (provided/not provided) and RHC (operated/did not operate). The following table shows the specific cost report fields that document whether hospitals provide LTC and operate RHCs.

Description	Medicare Cost Report Source
Provided long-term care (LTC)	S3 Part I, column 8, lines 19, 20 and/or 21
Operated a rural health clinic (RHC)	S2 Part I, column 2, line 15

Study Periods

For study purposes, we defined the start of the COVID-19 period as April 1, 2020, because the PHE funding was first distributed to hospitals in April 2020.

Period	Data Label	Cost Reports Ending Between	
Before COVID-19	2018-19	Apr 1, 2018	Mar 31, 2019
	2019-20	Apr 1, 2019	Mar 31, 2020
After COVID-19	2020-21	Apr 1, 2020	Mar 31, 2021
	2021-22	Apr 1, 2021	Mar 31, 2022
	2022-23	Apr 1, 2022	Mar 31, 2023

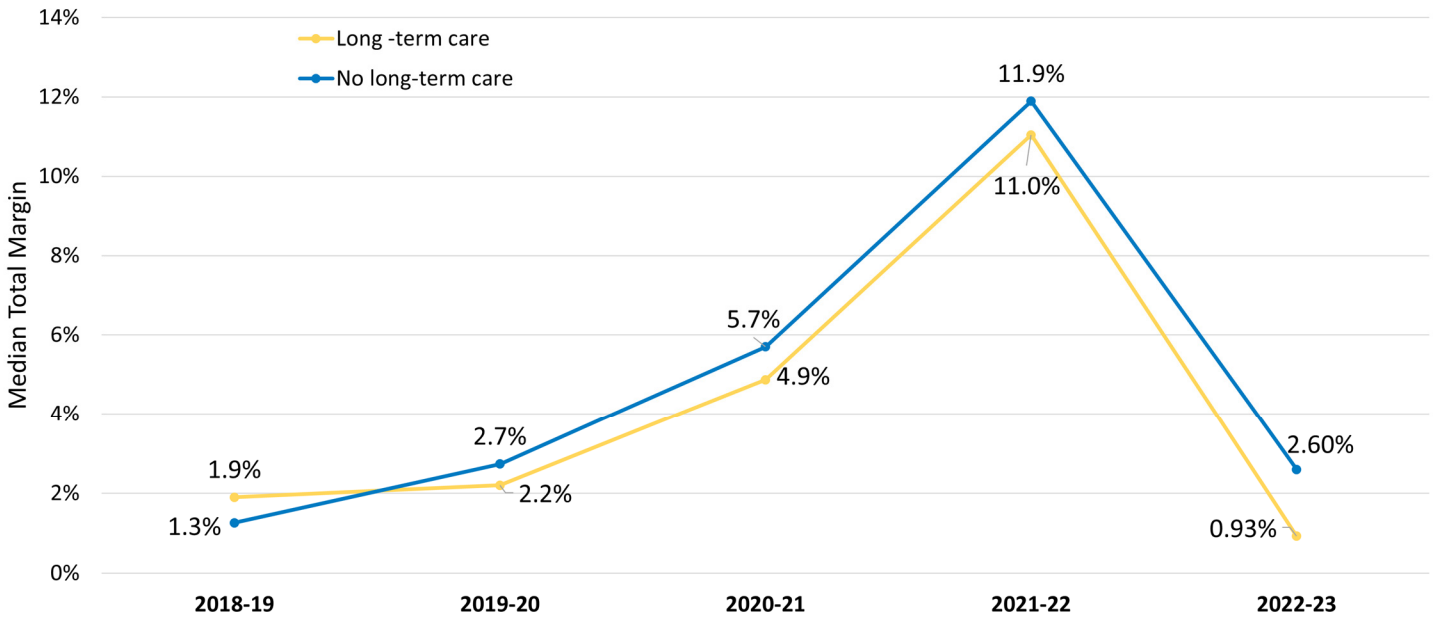
Number of Cost Reports by Provision of LTC and Operated RHC

Period	Provided LTC			Operated an RHC		
	Yes	No	Total	Yes	No	Total
2018-19	443	1,712	2,155	1,127	1,028	2,155
2019-20	425	1,713	2,138	1,158	980	2,138
2020-21	417	1,722	2,139	1,211	928	2,139
2021-22	399	1,746	2,145	1,265	880	2,145
2022-23	392	1,749	2,141	1,281	860	2,141

RESULTS

Figure 1 shows the median total margins of rural hospitals that provided and did not provide LTC in each of the five periods. Rural hospitals that did not provide LTC had a higher median total margin than those that provided LTC in every period except 2018-19. Median profitability of rural hospitals that provided and did not provide LTC increased over the first four time periods, but there was a large decrease in profitability of both in 2022-23. The distribution of total margin of rural hospitals that provided and did not provide LTC by period is shown in Appendix A.

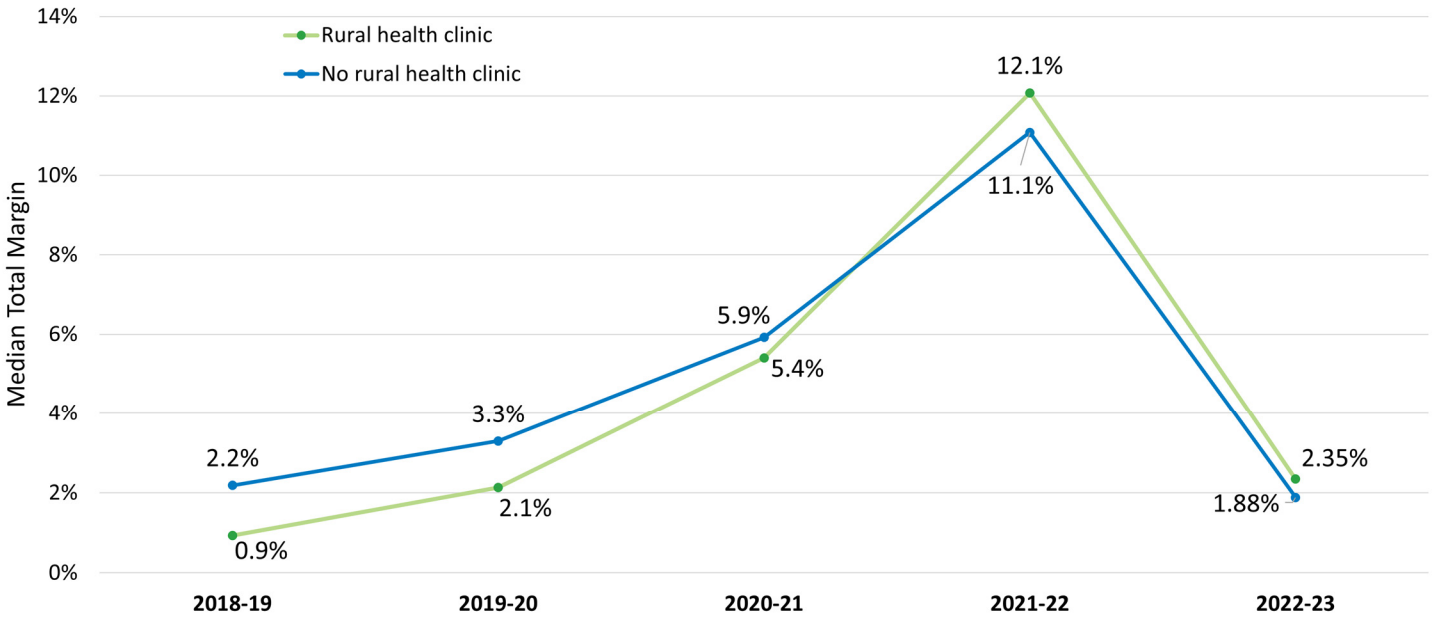
Figure 1. Median Total Margins of Rural Hospitals that Provided and Did Not Provide Long-Term Care by Year



Note: PHE funding started in 2020-21

Figure 2 shows the median total margins of rural hospitals that operated and did not operate RHCs in each of the five periods. Rural hospitals that did not operate RHCs had a higher median total margin than those that operated RHCs in the first three periods, but a lower total margin in the last two periods. Median profitability of rural hospitals that operated and did not operate RHCs increased over the four periods, but there was a large decrease in profitability of both in 2022-23. The distribution of total margins of rural hospitals that operated and did not operate a RHC by period is shown in Appendix B.

Figure 2. Median Total Margins of Rural Hospitals that Operated and Did Not Operate Rural Health Clinics by Year



Note: PHE funding started in 2020-21

DISCUSSION

There are three important findings in the study.

Rural hospitals that did not provide LTC had a higher median total margin than those that provided LTC in every period except 2018-19. The 2018-19 median may be different from previous years because of random variation or other factors that affected hospitals that provided LTC. Otherwise, these findings are consistent with our previous studies which found that rural hospitals that provided LTC were less profitable than those that did not provide LTC.[6,7] A study of Critical Access Hospitals that closed Skilled Nursing Facility (SNF) units cited a range of financial challenges related to payer mix, operating costs, cost allocation methods, and service utilization patterns. More specifically, the study found that the poor financial performance was due to low SNF reimbursement rates from Medicare and Medicaid, higher operating costs due to greater staffing levels, assumption of hospital overhead, increased diagnostic / therapy / pharmaceutical use, higher patient acuity, longer lengths of stay, negative impact on acute care reimbursement rates due to the need to allocate facility and overhead costs away from acute care services to the Prospective Payment System (PPS)-reimbursed SNF beds, and the ability to substitute cost-based swing beds for PPS-based SNF beds.[13]

Rural hospitals that did not operate RHCs had a higher median total margin than those that operated RHCs in the first three periods, but a lower total margin in the last two periods. The 2021-22 and 2022-23 medians may be different from previous years because of timing differences in hospital accounting recognition of PHE revenue versus PHE expenses on Medicare cost reports, random variation, or other factors that affected hospitals which operated RHCs. Otherwise, these findings are consistent with our previous study which found that rural hospitals that operated RHCs were less profitable than those that did not operate RHCs.[7] A previous study reported wide variation in the costs of providing RHC services. More specifically, the study found that independent RHCs had substantially lower average cost per visit ($123.64) than provider-based RHCs ($201.49). Provider-based RHCs had higher direct costs and overhead costs, and higher staffing costs and lower physician productivity in comparison to independent RHCs.[14] In addition, changes to the Medicare reimbursement method for provider-based RHCs were implemented beginning April 1, 2021.[15]

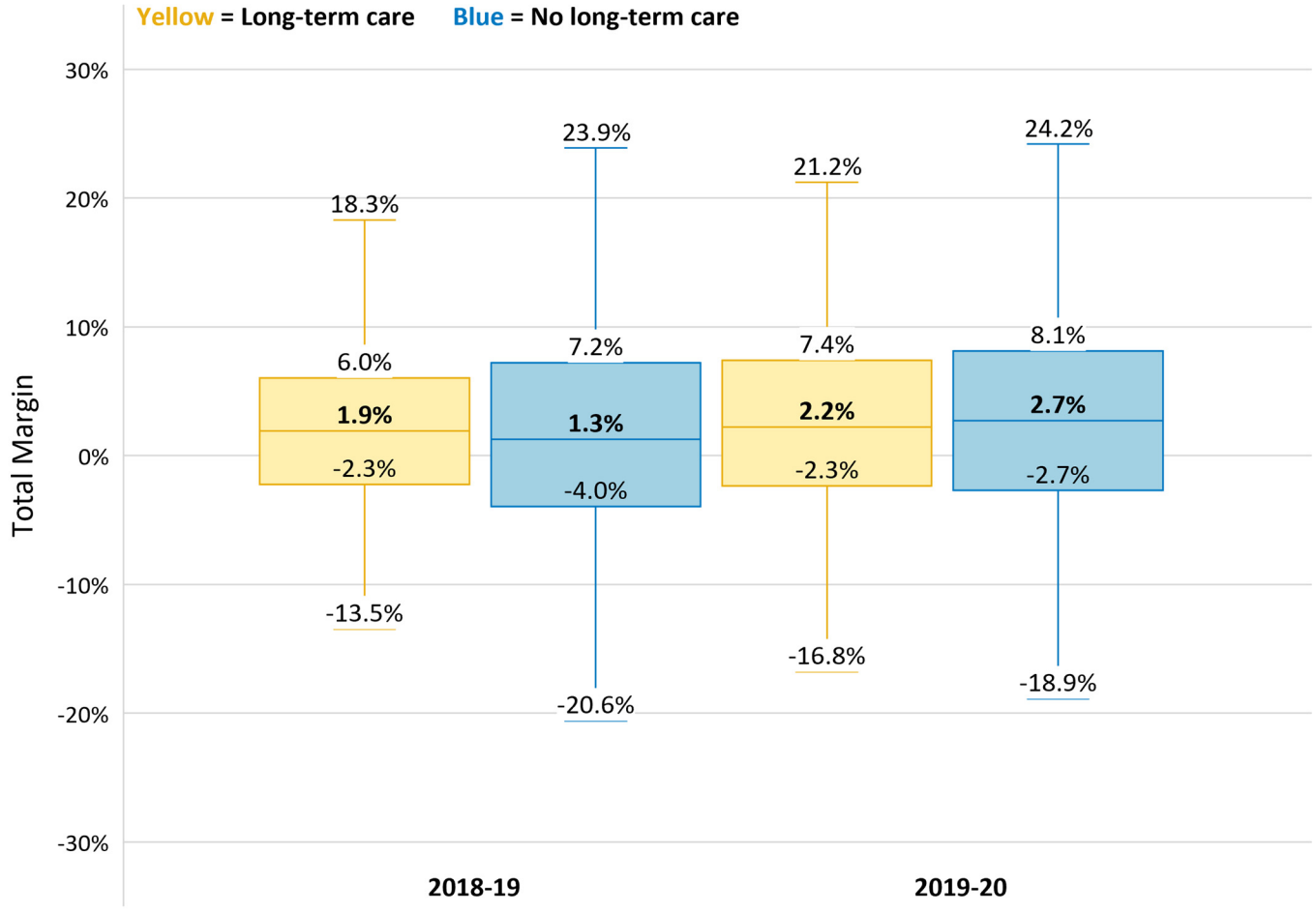
Finally, **profitability of rural hospitals in 2020-21 and 2021-22 was influenced by PHE funding** distributed during the COVID-19 pandemic.[16] The PHE funds were an important financial lifeline for many rural hospitals and likely contributed to the reduction in the number of rural hospital closures, with only three recorded closures in the year 2021 and seven in the year 2022. However, the PHE funds were temporary and are now fully distributed, and the effect is shown in the large decrease in profitability in 2022-23. Long-term financial pressures remain, and profitability of rural hospitals may be returning to pre-pandemic levels.[11] This puts rural hospitals at higher risk of financial distress, complete closure, or conversion of the hospital to some other type of non-inpatient health care facility. For these reasons, it is important for policy makers to carefully interpret profitability increases during the pandemic and to recognize the long-term financial challenges facing rural hospitals.[11]

This study found differences in profitability between rural hospitals that provided and did not provide LTC, and between rural hospitals that operated and did not operate RHCs. Given that PHE funding positively disrupted the financial trajectory of many hospitals, it will be important for policy makers to monitor the impact of provision of LTC and operation of RHCs on rural hospital profitability, especially now that PHE funding has ended, and pre-COVID profitability trends may re-emerge.

APPENDIX A:

Boxplot of Total Margins of Rural Hospitals that Provided and Did Not Provide Long-Term Care by Year

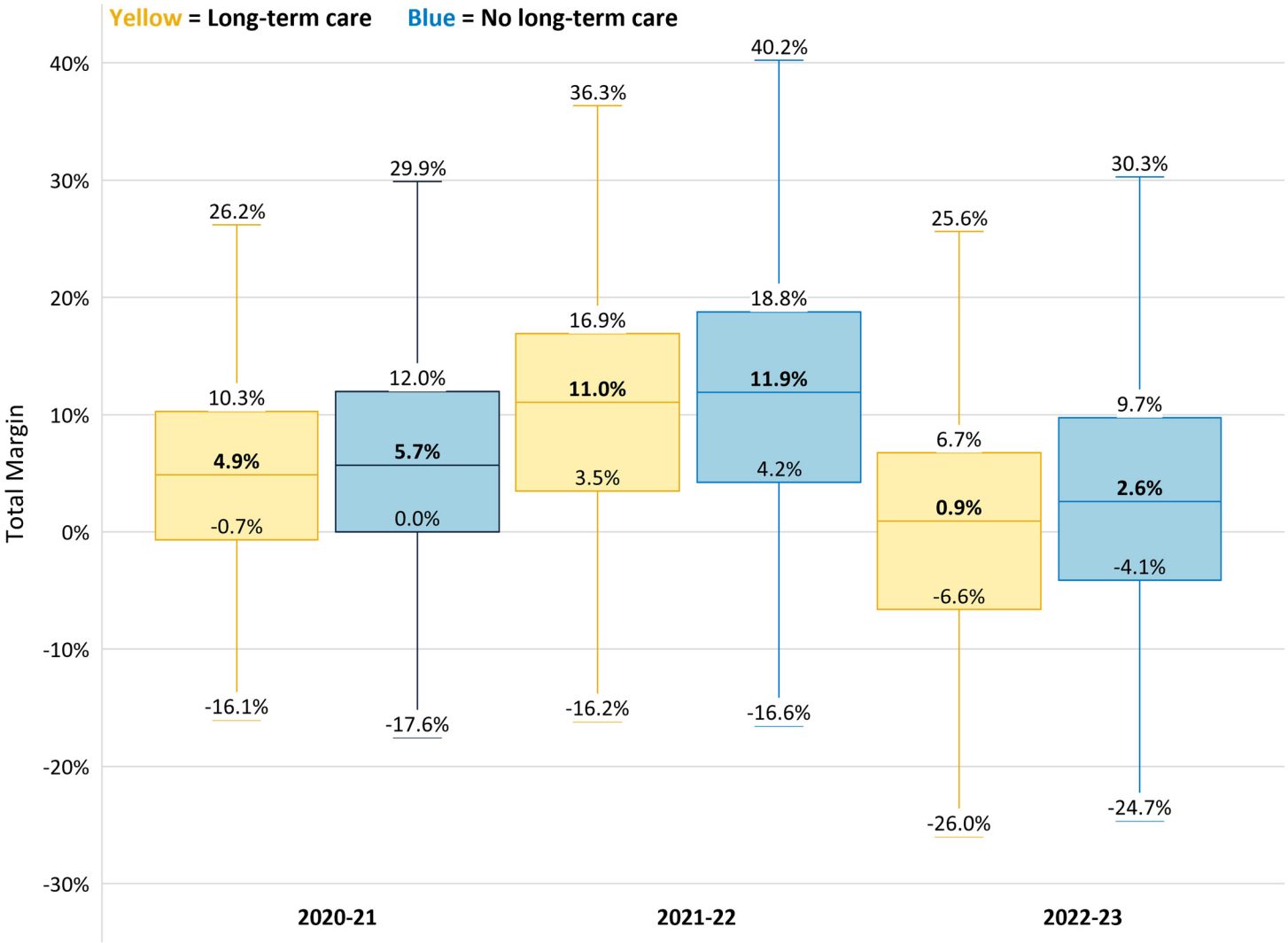
Appendix A shows a boxplot of total margins of all the rural hospitals that provide and do not provide LTC from the years 2018-19 to 2022-23. In the shaded box, the horizontal line in the middle is the median, the top of the box is the 75th percentile, and the bottom of the box is the 25th percentile total margin. The interquartile range (IQR) is the length of the box in a box-and-whisker plot. The "whiskers" above and below the shaded box represent values that lie more than one and a half times the length of the box from either end of the box. That is, the lower whisker is Q1 – 1.5×IQR, and the upper whisker is Q3 + 1.5×IQR.



Note: PHE funding started in 2020-21

APPENDIX A (continued):

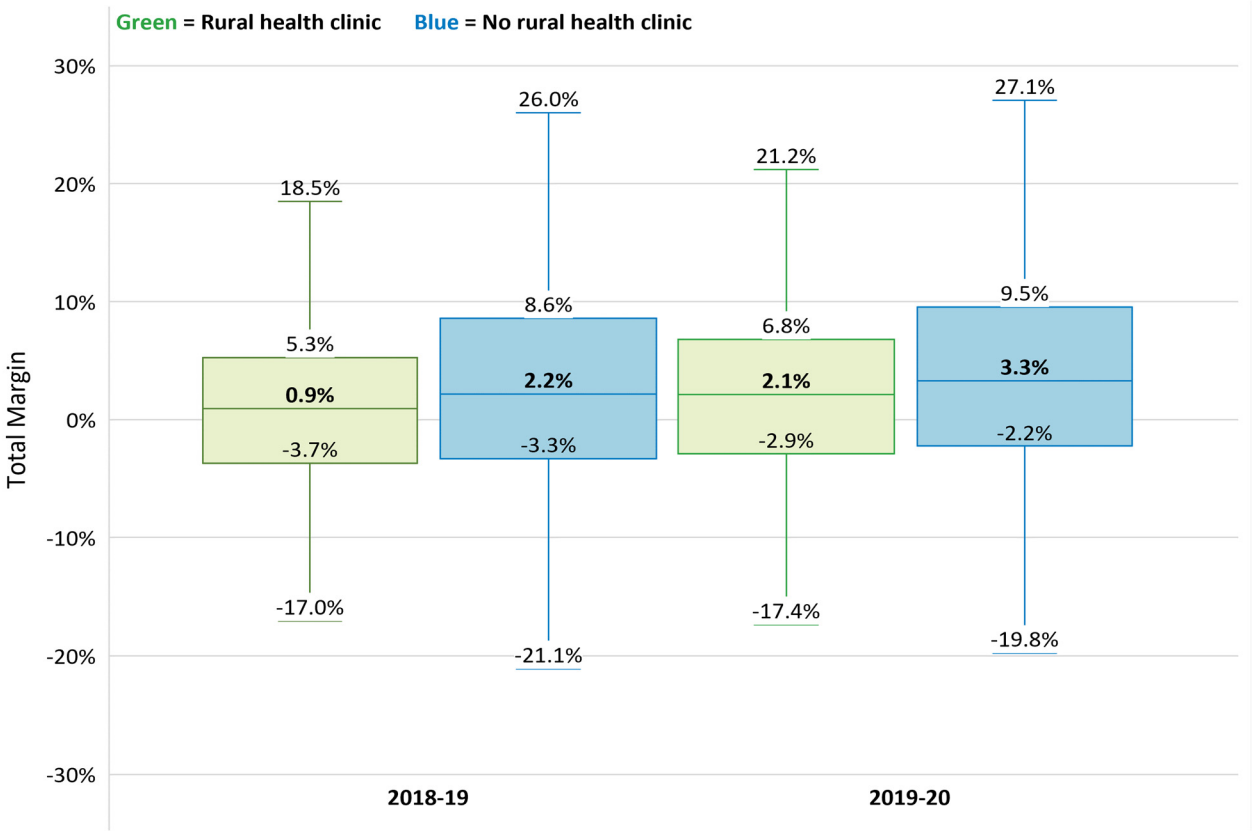
Boxplot of Total Margins of Rural Hospitals that Provided and Did Not Provide Long-Term Care by Year

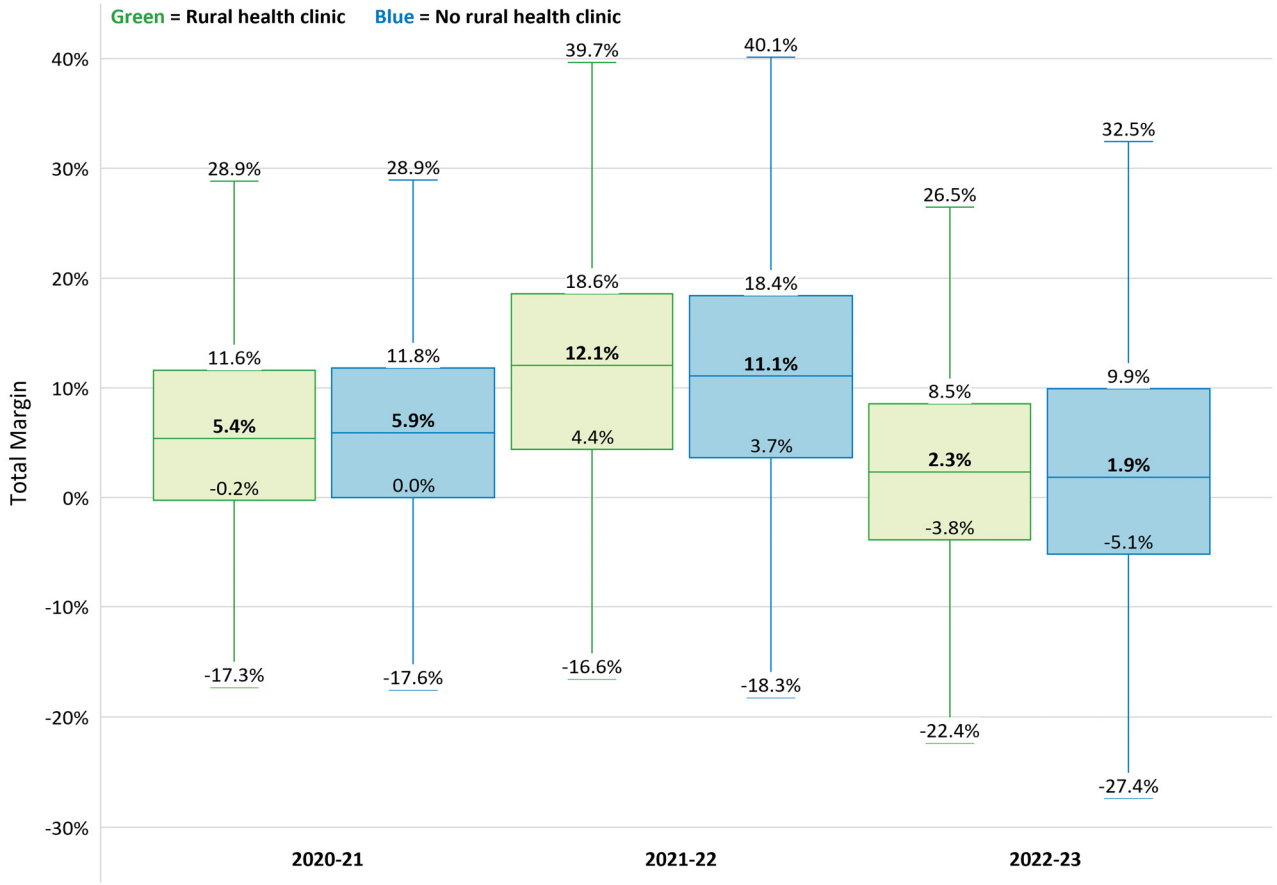


Note: PHE funding started in 2020-21

APPENDIX B:

Boxplot of Total Margins of Rural Hospitals that Operated and Did Not Operate Rural Health Clinics by Year





Note: PHE funding started in 2020-21

REFERENCES AND NOTES

1. Rural Hospital Closures Threaten Access Solutions to Preserve Care in Local Communities. American Hospital Association, 2022. https://www.aha.org/system/files/media/file/2022/09/rural-hospital-closures-threaten-access-report.pdf.
2. 80 complete closures and 66 converted closures as shown at Rural Hospital Closures. NC Rural Health Research Program, UNC-Sheps Center. Accessed on May 27, 2024. https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures.
3. Kaufman BG, Thomas SR, Randolph RK, Perry JR, Thompson KW, Holmes GM, Pink GH. The Rising Rate of Rural Hospital Closures. *Journal of Rural Health*, 2015;32(1):35–43. https://doi.org/10.1111/jrh.12128.
4. Maxwell AW, Howard HA, Pink GH. Rural Hospitals with Long-term Unprofitability. NC Rural Health Research Program, Sheps Center, UNC-Chapel Hill, April 2020. FB 162. https://www.shepscenter.unc.edu/product/rural-hospitals-with-long%E2%80%90term-unprofitability/.
5. Rural Long-Term Care Facilities Overview - Rural Health Information Hub. (n.d.). www.ruralhealthinfo.org. https://www.ruralhealthinfo.org/topics/long-term-care.
6. Pink GH, Holmes GM, D'Alpe C, Strunk LA, McGee P, Slifkin RT. Financial Indicators for Critical Access Hospitals. *Journal of Rural Health*, 2006;22(3):229–236. https://doi.org/10.1111/j.1748-0361.2006.00037.x.
7. Hawkins WL, Reiter KL, Pink GH. Reassessing Financial Peer Groups for Critical Access Hospitals. Flex Monitoring Team, November 2016. https://www.flexmonitoring.org/sites/flexmonitoring.umn.edu/files/media/pb44.pdf.
8. Rural Health Clinic Overview - Rural Health Information Hub. (n.d.). www.ruralhealthinfo.org, https://www.ruralhealthinfo.org/topics/rural-health-clinics.
9. Hospitals and Health Systems Face Unprecedented Financial Pressures Due to COVID-19. American Hospital Association, May 2020. https://www.aha.org/guidesreports/2020-05-05-hospitals-and-health-systems-face-unprecedented-financial-pressures-due.
10. Pink GH, Gurzenda S, Holmes GM. Rural Hospital Profitability during the Global COVID-19 Pandemic Requires Careful Interpretation. NC Rural Health Research Program, Sheps Center, UNC-Chapel Hill, March 2022. https://www.shepscenter.unc.edu/product/rural-hospital-profitability-during-the-global-covid-19-pandemic-requires-careful-interpretation/.
11. FORHP defines the following areas as rural: All non-metro counties, all metro census tracts with RUCA codes 4-10, and large area Metro census tracts of at least 400 sq. miles in area with population density of 35 or less per sq. mile with RUCA codes 2-3. FORHP considers all outlying metro counties without an urbanized area (50,000 or more people) to be rural. Defining Rural Population, Health Resources and Services Administration. https://www.hrsa.gov/rural-health/about-us/what-is-rural.
12. We define provision of LTC as: Whether Worksheet S-3, Part I, column 8, lines 19, 20, and/or 21 [Skilled Nursing Facility; Nursing Facility; Other Long-Term Care] are strictly positive and non-missing. Column 8 is "Total All Patients." Note that this category does not include hospitals that provide long-term care only through swing beds.
13. Gale J, Croll Z, Gregg W, Ma A, Coburn A. Why Do Some Critical Access Hospitals Close Their Skilled Nursing Facility Services While Others Retain Them? Flex Monitoring Team, 2012. https://www.flexmonitoring.org/sites/flexmonitoring.umn.edu/files/media/policybrief31-cah-snf-services.pdf.
14. Gale J, Croll Z, Croom J, Munk L, Jonk Y. Community Characteristics and Financial and Operational Performance of Rural Health Clinics in the United States: A Chartbook. University of Southern Maine, Muskie School of Public Service, Maine Rural Health Research Center, 2022. https://digitalcommons.usm.maine.edu/cgi/viewcontent.cgi?article=1016&context=clinics.
15. MLN matters: Update to rural health clinic (RHC) payment, limits. Centers for Medicare & Medicaid Services, 2021. https://www.cms.gov/files/document/mm12185.pdf.
16. McFadyen LB, Pink GH, Gurzenda G, Thompson KW, Reiter KL. The Impact of COVID-19 Funding on Profitability of Critical Access Hospitals. Flex Monitoring Team, June 2023. https://www.flexmonitoring.org/sites/flexmonitoring.umn.edu/files/media/Impact_of_COVID19_funding_on_Profitability_of_CAHs.pdf.

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