Evaluation of the Rural Community Hospital Demonstration

CCA Extension Final Report (Covering 2016–2021)

Appendices to the Final Report

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Appendix A: Additional Material

A.1 Other Payment Systems Available to Small Rural Hospitals Under Medicare

This section describes the payment mechanisms and other rural hospital policy changes that may be relevant to RCHD hospitals, and that hospitals might consider as they decide to join or exit the RCHD.

As **Exhibit A1** shows, RCHD is one of five existing payment options that Medicare provides to help sustain small rural hospitals. In addition, small rural hospitals are also potentially eligible for several types of IPPS adjustments such as low-volume adjustments, or Disproportionate Share Hospital (DSH) payments.

According to the 2018 *Report to Congress,* 50 percent (11 out of 22) of RCHD hospitals participating in FY 2013 also qualified as Sole Community Hospitals (SCHs), and 36 percent (8 out of 22) qualified as Medicare Dependent Hospitals (MDHs) prior to joining the demonstration.[1] The 2018 *Report to Congress* also notes that 18 percent of RCHD hospitals withdrew between 2004 and 2013 to become CAHs, and 12 percent withdrew to become SCHs.[2]

[1] According to page 16 of the 2018 *Report to Congress,* 11 RCHD hospitals qualified as SCHs prior to the demonstration (11/33 = 33 percent), and eight RCHD hospitals qualified as MDHs (8/33 = 24 percent). In comparison, according to the Medicare Payment Advisory Commission (MedPAC), 64 percent of rural hospitals are CAHs, 17 percent are SCHs, 6 percent are MDHs, and 13 percent are standard PPS hospitals (MedPAC. [2021, November]. *Critical Access Hospitals payment system* [Policy brief]. https://www.medpac.gov/wp-content/uploads/2021/11/medpac_payment_basics_21_cah_final_sec.pdf).

[2] According to page 3 of the 2018 *Report to Congress,* six RCHD hospitals withdrew to become CAHs (6/33 = 18 percent), and four withdrew to become SCHs (4/33 = 12 percent).

Exhibit A1: Medicare Payment Programs and Demonstrations for Rural Hospitals[3]

Payment Option	Acute Care Services†	Swing-Bed Services[a]	Outpatient Services
Prospective Payment System (default)	Federal IPPS rate	Federal SNF PPS rate	Federal OPPS rate
Rural Community Hospital Demonstration (RCHD)	**Lesser of reasonable costs or target amounts based on base year costs updated to current year, case-mix, and volume**	**Lesser of reasonable costs or target amounts based on base year costs updated to current year, case-mix, and volume**	Federal OPPS rate plus 7.1% for services other than drugs & biologicals if SCH
1. Critical Access Hospital (CAH)*	101% of reasonable costs	101% of reasonable costs	101% of reasonable costs
2. Sole Community Hospital (SCH)	Greater of federal IPPS rate or base year costs updated to current year, case-mix, and volume	Federal SNF PPS rate	Federal OPPS rate plus 7.1% for services other than drugs & biologicals if SCH
3. Medicare Dependent Hospital (MDH)**	IPPS rates plus 75% of the amount by which updated hospital-specific base year cost exceeds the PPS rate	Federal SNF PPS rate	Federal OPPS rate
4.Low-Volume Adjustment***	Up to 125% of IPPS, MDH, or SCH payment	–	–

Abbreviations: CAH, Critical Access Hospital; DSH, Disproportionate Share Hospital; IME, Indirect Medical Education; IPPS, Inpatient Prospective Payment System; MDH, Medicare Dependent Hospital; OPPS, Outpatient Prospective Payment System; PPS, Prospective Payment System; RCHD, Rural Community Hospital Demonstration; SCH, Sole Community Hospital; SNF, Skilled Nursing Facility.

Notes: † The RCHD, SCH, and MDH programs use different base years that may result in higher or lower payments to hospitals; * CAHs are technically considered a different provider type; ** This payment provision applies to discharges after October 1, 2006. Without action from Congress, the MDH program is set to expire on April 1, 2025; *** This is applicable only under the IPPS payment scheme. For FY 2005–2010, hospitals had to have 200 or fewer total annual discharges to receive a low-volume adjustment. For FY 2011–2017, the threshold was increased to 1,600 Medicare discharges. For FYs 2023 and 2024, the minimum number of discharges increased to 500, and the threshold was increased to 3,800. Hospitals also had to be located more than 15 road miles from the nearest IPPS hospital, consistent with the discharge criterion that applied for FY 2019–2022.

[a] Swing bed refers to the use of hospital beds in providing SNF care.

Sources:

American Hospital Association. (2025, February 5). Fact sheet: Rural Hospital Support Act (S. 4009) & the Assistance for Rural Community Hospitals Act; Medicare payment for rural or geographically isolated hospitals. https://www.aha.org/fact-sheets/2022-08-30-fact-sheet-rural-hospital-support-act-s4009-assistance-rural-community

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[3] CMS. (2018, October). *Report to Congress: Rural Community Hospital Demonstration,* p. 9. https://innovation.cms.gov/files/reports/rch-rtc.pdf

Congressional Research Service. (2022, March 25). Medicare payment for rural or geographically isolated hospitals, 2021 (IG10023). https://crsreports.congress.gov/product/pdf/IG/IG10023/3
Medicare Payment Advisory Commission (MedPAC). (2023, October). Hospital acute inpatient services payment system [Payment Basics policy brief series]. CMS. (2022, February). Extension of changes to the low-volume hospital payment adjustment & the Medicare Dependent Hospital program. MLN Matters. Medicare Learning Network (MLN). https://www.cms.gov/files/document/mm13103-extension-changes-low-volume-hospital-payment-adjustment-medicare-dependent-hospital-program.pdf
MedPAC. (2023, October). Outpatient hospital services payment system [Payment Basics policy brief series].
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A.1.1 Critical Access Hospitals (CAHs)

CAHs are excluded from both IPPS and Outpatient Prospective Payment System (OPPS) payment rules and instead receive cost-based reimbursements. As such, the CAH program provides the highest level of Medicare cost-based reimbursement among the five payment programs or demonstrations in **Exhibit A1** above. The CAH program was established through the Medicare Rural Hospital Flexibility (Flex) Program, which was authorized in the Balanced Budget Act of 1997. The program is designed to ensure that Medicare beneficiaries in isolated rural communities have access to emergency room services and limited inpatient services.[4]

To be certified as a CAH, rural hospitals must be located more than 35 miles from other hospitals, must be located more than 15 miles from other hospitals in the case of mountainous terrain or only secondary roads, or must have been certified as a CAH prior to January 2006 based on the state's designation as a "necessary provider." A CAH must also maintain no more than 25 inpatient beds (both acute beds and swing beds, provided that the number of beds used at a given time for acute care does not exceed 15), have an average annual length of acute care stay of 96 hours or fewer per patient, and provide 24-hour emergency care seven days a week.[5]

As of December 2023, there were 1,366 certified CAHs in the United States, a number that has not grown much in recent years. One reason for this lack of growth is that prior to January 1, 2006, states had the option of waiving the proximity requirement by designating a hospital as a "necessary provider." As of 2011, 56 percent of existing CAHs met the proximity requirement through this option.[6] When the MMA of 2003 eliminated this option, few *new* hospitals obtained the CAH designation. Between 2006 and 2013, only 75 rural hospitals were newly

[4] MedPAC. (2001, June). *Report to the Congress: Medicare in rural America,* p. 34. https://www.medpac.gov/wp-content/uploads/import_data/scrape_files/docs/default-source/reports/Jun01_Entire_report.pdf

[5] CAHs must also be located in a state that participates in the State Flex Program, under which they can be certified as CAHs. Currently, all but five states participate in the Flex Program.

[6] These estimates are based on the report *Most Critical Access Hospitals Would Not Meet the Location Requirements If Required to Re-Enroll in Medicare* (OEI-05-12-00080) by the Office of Inspector General of the U.S. Department of Health and Human Services and published in August 2013. This report estimates that 64 percent of CAHs (846 of 1,329 CAHs in 2011) would not meet the distance requirement if required to re-enroll and, of those, 89 percent (749 of 846) were "necessary provider" CAHs.

designated as CAHs, but since 2005, 63 CAHs have closed, which has contributed to the stability in the number of CAHs over time.[7]

Prior to the sequestration adjustment[8], RCHD payments are capped at 100 percent of reasonable allowable costs, while CAHs receive 101 percent of reasonable and allowable costs. RCHD hospitals are not eligible to be CAHs, but as mentioned above, 18 percent of RCHD hospitals withdrew between 2004 and 2013 to become CAHs, according to the 2018 *Report to Congress*.

A.1.2 Sole Hospitals (SCHs) Community

Rural hospitals that provide acute care to Medicare beneficiaries but do not qualify as CAHs may be eligible for designation as a SCH. A SCH may receive inpatient reimbursement greater than the standard IPPS rates. For inpatient care, an SCH receives the greater of the standard IPPS rate or a reimbursement based on cost. Like the RCHD target payment methodology described above, the inpatient SCH cost reimbursement is calculated as base year costs per discharge updated using the IPPS update factor and a case-mix adjustment, multiplied by current year discharges. Hospitals may select either FY 1982, FY 1987, FY 1996, or FY 2006 cost reporting periods as a base year for determining payments, whichever yields the highest reimbursement. SCHs receive standard SNF PPS rates for post-acute care services.

In addition to the inpatient adjustment, SCHs also receive enhancements to OPPS payments. Starting in FY 2006, SCHs received a 7.1 percent augmentation to the OPPS rates for all outpatient services except drugs and biologicals. In addition, the Medicare Improvements for Patients and Providers Act of 2008, or MIPPA, expanded the Medicare hold-harmless transitional outpatient payment to SCHs with 100 or fewer beds for outpatient services in calendar year 2009.

The SCH designation is intended to support hospitals that are the primary inpatient providers for Medicare beneficiaries in their service areas. The hospital's service area is defined as the area that accounts for 75 percent of all inpatient discharges in the most recent 12-month cost reporting period. A rural hospital can qualify for SCH status if it satisfies one of the following criteria:

1. The hospital is located at least 35 miles from other, similar acute care hospitals.[7,9]

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[7] University of North Carolina, Sheps Center. (n.d.). *181 rural hospital closures since January 2005; closures by Medicare payment classification.* https://www.shepscenter.unc.edu/programs-projects/rural-health/rural-hospital-closures

[8] Sequestration adjustment refers to a reduction to Medicare payments made to healthcare providers. It's calculated by applying a predetermined percentage to the total payment amount.

[9] *The Federal Register*. Federal Register :: Request Access. (n.d.). https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-B/part-412/subpart-G

2. The hospital is classified as rural; is located between 25 and 35 miles from other, similar acute care hospitals; and accounts for 75 percent or more of all hospital inpatient discharges within a 35-mile radius in the most recent 12-month cost reporting period. Hospitals with fewer than 50 beds that do not meet the 75 percent criterion because some of their beneficiaries are forced to seek specialized health services outside of the hospital's service area are treated as satisfying the requirement.
3. The hospital is classified as rural and located between 15 and 25 miles from other, similar acute care hospitals, but, due to local topography or periods of prolonged severe weather conditions, those other hospitals are inaccessible for 30 days or more in two of three years.
4. The hospital is rural and, because of distance, speed limits, and predictable weather conditions, the travel time between the hospital and the nearest similar acute care hospital is at least 45 minutes.

RCHD hospitals can qualify as SCHs, and, if previously an SCH, they receive OPPS payments. In fact, the 2018 *Report to Congress* shows that 33 percent of RCHD hospitals also qualified to be SCHs, and 12 percent withdrew from the RCHD to become SCHs.

A.1.3 Medicare Dependent Hospitals (MDHs)

Rural hospitals not classified as a CAH or an SCH may receive additional payments if they qualify as MDHs.[10] The MDH program was established to help rural hospitals that are financially vulnerable under the IPPS methodology because Medicare patients constitute a substantial proportion of their total discharges. Rural hospitals with no more than 100 beds that have at least 60 percent of inpatient days or discharges covered by Medicare may qualify as MDHs.

For Medicare inpatient services, MDHs receive the higher of the IPPS rate or a blended rate. The blended rate is the IPPS rate plus 75 percent of the amount by which base year costs per discharge for Medicare patients trended forward exceed the IPPS rate. Hospitals may choose base year costs per discharge using FY 1982, FY 1987, or FY 2002 as their base year.[11] These hospitals receive SNF PPS rates for post-acute care services and OPPS rates for outpatient services.

The program was not approved for FY 2018, but the August 2019 IPPS Final Rule extended it for five years. Retroactive payments were provided.

[10] Congress has extended the MDH program several times since its establishment. At the time of preparing this report, the program had been extended through September 30, 2022.

[11] This payment provision applies to discharges after October 1, 2006. For discharges before October 2006, MDHs received the IPPS rates plus 50 percent of the amount by which the base year costs exceeded the IPPS rate. In addition, MDHs experiencing a significant decline in volume (more than a 5 percent decrease in discharges in one year) may qualify for payment adjustments to cover minimum staffing and fixed operating costs.

RCHD hospitals can simultaneously qualify as MDHs, and, according to the 2018 *Report to Congress,* 24 percent of RCHD hospitals also qualified to be MDHs.

A.1.4 Inpatient Payments for Rural Hospitals

This section discusses the inpatient payment adjustments that the RCHD-eligible hospitals could be eligible for if they were to remain under IPPS.

1. **Low-Volume Adjustment**

   Small hospitals with fewer than 3,800 Medicare discharges and located more than 15 miles from the nearest hospital may qualify for low-volume adjustments to their IPPS payments. The low-volume adjustment helps hospitals that have a high cost per discharge associated with low patient volume. Established under the MMA, the original adjustment was a 25 percent add-on to the IPPS payment for hospitals located more than 25 miles from the nearest hospital and with fewer than 200 total Medicare discharges annually. The ACA temporarily expanded the low-volume adjustment to include hospitals at least 15 miles from another hospital and with up to 1,600 Medicare inpatient discharges (including beneficiaries in Medicare Advantage plans) for FY 2011 and FY 2012. Subsequent legislation (American Taxpayer Relief Act of 2012, Bipartisan Budget Act of 2013, Medicare Access and CHIP Reauthorization Act of 2015, and Bipartisan Budget Act of 2018) extended the temporary changes through FY 2018. Qualifying hospitals receive an add-on payment using a sliding scale ranging from the 25 percent add-on for hospitals with fewer than 200 Medicare discharges down to a 1.6667 percent add-on for hospitals with 1,500–1,599 Medicare discharges.

   For FYs 2019 through 2022, the Bipartisan Budget Act of 2018 modified the definition of a low-volume hospital and the methodology for calculating the payment adjustment in the Social Security Act. Under these changes, qualifying hospitals must have fewer than 3,800 total discharges and be located more than 15 road miles from the nearest IPPS hospital, and the applicable percentage increase is based on a continuous, linear sliding scale ranging from an additional 25 percent payment adjustment for low-volume hospitals with 500 or fewer discharges to a 0 percent additional payment for low-volume hospitals with more than 3,800 discharges. These specific amendments were initially extended through December 16, 2022, and then were extended through December 23, 2022, by Section 101 of the Further Continuing Appropriations and Extensions Act, 2023, and subsequently further extended through September 30, 2024, by the Consolidated Appropriations Act, 2023. Hospitals cannot receive an IPPS low-volume adjustment while participating in the RCHD.

2. **Disproportionate Share Hospital (DSH)**

   The DSH and 340B pricing programs also involve payment add-ons available to some small, rural hospitals. The DSH program enhances payments for hospitals that serve a high share of low-income individuals, but the threshold depends on hospital size and location. The 340B program allows hospitals to purchase pharmaceuticals at lower costs or receive rebates from drug manufacturers. This is a revenue stream for CAHs that allows them pay lower pharmaceutical drug prices. While RCHD payments do not affect these payments directly, according to the Health Resources and Services Administration (HRSA), "To be eligible to participate in the 340B Drug Pricing Program, Sole Community Hospitals must also have a disproportionate share adjustment percentage equal to or greater than 11.75 percent for the most- recently filed Medicare cost report and meet the requirements of 42 USC 256b(a)(4)(L)(i)."[12]

3. **IPPS Change for Low Wage Index Hospitals**

   In 2019, CMS issued a final rule (CMS1716-F) that increased wage index values for hospitals with a wage index value below the 25th percentile wage index.[13] The wage indexes are increased by half the difference between the otherwise applicable wage index value for a qualifying hospital and the 25th percentile wage index value across all hospitals. This policy went into effect in FY 2020 and likely has affected hospitals in rural areas, which have lower wage indexes.[14] These wage indexes affect the IPPS which, in turn, affects hospitals with SCH and MDH status; RCHD hospitals, however, are not subject to the policy.

A.1.5 Effects of the Public Health Emergency (PHE)

Most of CMS' demonstrations and models were affected by changes in health care delivery associated with the Covid-19 pandemic PHE. The impact of the pandemic on rural hospitals varied depending on factors such as increased costs for personnel, personal protective equipment (PPE), restrictions on discretionary procedures, and regional outbreaks and the number of cases in each hospital area. These factors impacted evaluation results that utilized data during the Covid-19 pandemic years from FY 2020 through FY 2021.

[12] HRSA. (2018, May). *Sole Community Hospitals.* https://www.hrsa.gov/opa/eligibility-and-registration/hospitals/sole-community-hospitals#:~:text=To%20be%20eligible%20to%20participate,4)(L)(i))

[13] Inpatient Prospective Payment Systems for Acute Care Hospitals Final Rule, 84 F.R. 42044 (proposed August 16, 2019) (to be codified at 42 C.F.R. Parts 412, 413, and 495). https://www.federalregister.gov/documents/2019/08/16/2019-16762/medicare-program-hospital-inpatient-prospective-payment-systems-for-acute care-hospitals-and-the

[14] CMS. (2019, August 2). *Fiscal Year (FY) 2020 Medicare Hospital Inpatient Prospective Payment System (IPPS) and Long-Term Acute Care Hospital (LTCH) Prospective Payment System Final Rule* (CMS-1716-F) [Fact sheet]. https://www.cms.gov/newsroom/fact-sheets/fiscal-year-fy-2020-medicare-hospital-inpatient-prospective-payment-system-ipps-and-long-term-acute-0

To determine which RCHD hospitals were most affected by the Covid-19 pandemic, we analyzed Covid hotspots and compared the geographic location of the RCHD hospitals to the identified hotspots. The Centers for Disease Control and Prevention (CDC) defines counties with increasing Covid-19 incidence (hotspots) as having met all four of the following criteria[15]:

- >100 new Covid-19 cases in the most recent 7 days,
- An increase in the most recent 7-day Covid-19 incidence over the preceding 7-day incidence,
- A decrease of <60% or an increase in the most recent 3-day Covid-19 incidence over the preceding 3-day incidence, and,
- The ratio of 7-day incidence/30-day incidence exceeds 0.31

Additionally, hotspots must have met at least one of the following criteria:

- >60% change in the most recent 3-day Covid-19 incidence
- >60% change in the most recent 7-day incidence

Regions with the highest prevalence of cumulative Covid-19 cases included majority of the Midwest and southern regions of the United States, and some of the Mountain region in the western part of the United States[16]. A majority of the RCHD hospitals are in the regions most impacted by the Covid-19 PHE between 2020 and 2021.

[15] https://www.cdc.gov/mmwr/volumes/69/wr/pdfs/mm6933e2-H.pdf

[16] https://www.ers.usda.gov/covid-19/rural-america/

A.2 RCHD Payment Methodology

In this appendix, we describe in more detail how RCHD payments are calculated. RCHD payments are calculated by Medicare Administrative Contractors[17] (MACs) using the formulas described below.

In the base year, hospitals receive reimbursement set at the current reasonable and allowable costs for inpatient care in acute care beds or swing beds. In the years subsequent to the base year, hospitals receive the lesser of the current year reasonable and allowable costs or a target amount based on base year costs.

A.2.1 Base year cost reimbursement

Hospital reimbursement in the base year, for both acute care and swing-bed services, depends on how routine costs are calculated under the demonstration. Routine costs per day (RCD) are calculated according to the following formula:

$$RCD = \frac{(Days^{IP} \times TICD + Days^{SB} \times MSR)}{(Days^{IP} + Days^{SB})} \quad (1)$$

Where,

$TICD$ denotes the total inpatient cost per diem across all payers;

MSR denotes the Medicare rate for swing beds at the hospital;

$Days^{IP}$ is the total number of inpatient routine days across all payers; and

$Days^{SB}$ is the total number of swing-bed SNF days across all payers.

Following this, the **total inpatient routine costs** under the demonstration are given by:

$$IP\ ROUTINE\ COST\ = RCD\ X\ Days^{MIP} \quad (2)$$

Where, $Days^{MIP}$ is the total number of Medicare acute inpatient days.

And, similarly, **total swing-bed SNF routine costs** under the demonstration are given by:

$$SWING\ BED\ SNF\ ROUTINE\ COST\ = RCD\ X\ Days^{MSB} (3)$$

Where, $Days^{MSB}$ is the total number of Medicare swing-bed days.

[17] A private health care insurer that has been awarded a geographic jurisdiction to process Medicare Part A and Part B (A/B) medical claims or Durable Medical Equipment (DME) claims for Medicare Fee-For-Service (FFS) beneficiaries (https://www.cms.gov/Medicare/Medicare-Contracting/Medicare-Administrative-Contractors/What-is-a-MAC).

Base-year cost reimbursement for hospitals is derived from acute care and/or swing-bed routine costs, depending on the composition of services offered by the hospital and also includes costs for ancillary services. Ancillary costs are for services other than room, board, and medical and nursing services that are provided to hospital patients in the course of care and can be attributed to a hospital department and billed separately. They include laboratory, radiology, pharmacy, and physical therapy services.[18]

As shown above, the RCD is a weighted average of swing-bed and acute care bed costs, using Medicare rates, but total days across *all payers* and not just Medicare. By contrast, total routine costs are based *only* on Medicare days for each bed type (acute or swing).

Since swing beds have lower costs than acute care beds, the following would occur in the case of a 1-to-1 substitution from Medicare acute care beds to Medicare swing beds:

1. RCD would **decrease** because $Days^{IP}$ would decrease by the same as $Days^{SB}$ would increase, and $TICD > MSR$ because swing beds have lower cost than acute care beds.
    a. RCHD payments would therefore be **lower** than if the substitution to swing beds had not occurred, assuming that hospitals did not change their allocation of beds for other payers, which was the case.
2. Swing beds have lower costs than acute care beds, and due to the discrepancy between the calculation of the RCD (using total days) and routine costs (using only Medicare days), the decrease in costs would be **larger** than the **decrease** in the RCHD payments, resulting in **larger** Medicare inpatient margins by substituting Medicare acute care beds for Medicare swing beds.

Therefore, if hospitals can use Medicare swing beds for post-acute SNF care instead of acute care, they would receive slightly lower RCHD payments, but the substitution would have a positive impact on their Medicare inpatient margins. Hospitals receive substantially higher payments from Medicare swing beds under RCHD than they would under SNF PPS.

Additionally, the RCD, and thus RCHD payments, increase if the hospital has acute care beds rather than swing beds for non-Medicare payers. Hospitals thus have an incentive to have a higher number of Medicare swing beds and a higher number of acute care beds for other payers. This is not unique to the demonstration; it is a feature of the CAH swing-bed methodology.

[18] Provider Reimbursement Manual - Part 1 Chapter 22, Determination of Cost of Services to Beneficiaries (2019) Centers for Medicare & Medicaid Services. Retrieved from https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/2018Downloads/R478PR1.pdf

A.3 List of Active Hospitals as of FY 2021

Exhibit A2 in Appendix A list all the hospitals that are included in this report quantitative analysis, the authorization under which they first joined the RCHD, and whether they are *continuing* or *new* participant hospitals.

Exhibit A2: RCHD Hospitals that were active as of FY 2021

Hospital	Authorization	Participation Status in Federal Fiscal Year 2021
Columbus Community Hospital, NE	MMA	Continuing
Bartlett Regional Hospital, AK		
Central Peninsula Hospital, AK		
Brookings Hospital, SD		
Stormont Vail Health Flint Hills Campus, KS	ACA	Continuing
Lakes Regional Healthcare, IA		
Maine Coast Hospital, ME		
MercyOne Newton Medical Center, IA		
St. Anthony Regional Hospital & Nursing Home, IA		
Marion General Hospital, MS		
Bob Wilson Memorial Grant County Hospital, KS		
Delta County Memorial Hospital, CO		
Grinnell Regional Medical Center, IA		
Yampa Valley Medical Center, CO		
Anderson Regional Medical Center South, MS	CCA	New
Highland Community Hospital, MS		
Northern Light AR Gould Hospital, ME		
Montrose Memorial Hospital, CO		
Morton County Hospital, KS		
Trinity Regional Medical Center, IA		
Valley View Hospital, CO		
Avera Queen of Peace Hospital, SD		
Avera St. Luke's Hospital, SD		
Great Plains Regional Medical Center, OK		
St. Anthony Summit Medical Center, CO		
St. John's Medical Center, WY		

A.4 Reference Groups Used in Each Topic Area

Exhibit A3 describes in detail the reference groups that are used for each topic area in the report.

Exhibit A3: Reference Groups Used in Each Topic Area

Topic Area	Reference Group
TPA-1: Attributes	Non-participant eligible hospitals: rural, not eligible to be CAHs, fewer than 51 beds, and hospitals that provide 24-hour emergency services. TPA-1 presents the following three comparisons between RCHD and eligible non-participants: A. Continuing RCHD hospitals vs. eligible non-participants B. New RCHD hospitals vs. eligible non-participants C. All RCHD hospitals vs. eligible non-participants
TPA-2: Payments	RCHD hospital themselves are the reference group. Results are presented separately for: A. Continuing RCHD hospitals B. New RCHD hospitals C. All RCHD hospitals RCHD payments for acute care and swing beds are calculated relative to the standard IPPS and SNF PPS payments RCHD hospitals would have received in the absence of the demonstration.
TPA-3: Impact	Comparison groups constructed using entropy balancing and hospitals' baseline characteristics during the three-year period prior to the start of the CCA authorization (described in more detail in **Section A.7**). Before using entropy balancing to construct the comparison group, we excluded hospitals that: • Did not satisfy the RCHD eligibility restrictions in the baseline period • Were a CAH in every year in our sample TPA-3 presents the following two comparisons: A. Continuing RCHD hospitals vs. comparison group: In this case the comparison group provides information about what would have happened to continuing RCHD hospitals if they had participated in the ACA extension, but not in the CCA authorization. B. New RCHD hospitals vs. comparison group: In this case the comparison group provides information about what would have happened to the RCHD hospitals in the absence of the demonstration.

A.5 Period of Analysis

Exhibit A4 and **Exhibit A5** describe the period of analysis for each TPA in detail.

Exhibit A4: Periods of Analysis for Each Topic Area

Topic	Period of Analysis
TPA-1: Attributes	Pre-demonstration baseline: Three FYs prior to the hospital first joining the RCHD. • FYs 2002–2004 for continuing hospitals that first joined the RCHD under the MMA authorization • FYs 2008–2010 for continuing hospitals that first joined the RCHD under the ACA extension • FYs 2015–2017 for new hospitals that first joined the RCHD under the ACA extension
TPA-2: Payments	FYs 2005 to 2021
TPA-3: Impact	Baseline period: Three FYs prior to the start of the CCA authorization phase. Demonstration period: CCA authorization phase. It varies across hospitals and includes FYs 2015 to 2021.

As described in **Exhibit A4**, the period of analysis for TPA-3 includes the baseline period (three FYs prior to the start of the CCA authorization phase) and the demonstration period (during the CCA authorization phase),[19] RCHD hospitals started the CCA authorization in different FYs depending on when the hospital first joined the demonstration. **Exhibit A5** shows how the demonstration and baseline periods vary depending on when the hospital first joined the demonstration, which determines when the CCA authorization starts for each hospital.

It is important to note that because the baseline period is defined as three years prior to the beginning of the CCA phase, for *continuing* RCHD hospitals this period falls within the prior ACA extension phase. In other words, for *continuing* hospitals the baseline period identifies a time when these hospitals were already part of the demonstration. In contrast, the baseline period for *new* RCHD hospitals identifies a time when these hospitals were not yet part of the demonstration. As a result, the interpretation of the effects of the RCHD on hospitals' financial condition is different for *continuing* versus *new* hospitals. For *continuing* hospitals, the impact estimates measure the effect of participating in the CCA extension beyond the effects already realized when participating in the ACA authorization. For *new* hospitals, the impact estimates measure the effect of participating in the RCHD for the first time relative to not participating.

[19] In contrast, in *Interim Report One*, the baseline period was defined as the three years prior to the start of the MMA and ACA cohorts (the CCA cohort was not analyzed in *Interim Report One*).

Exhibit A5: Baseline and Demonstration Periods for TPA-3 Vary Depending on When Hospitals First Joined the RCHD

Hospital Type	Type of Hospital (No. of RCHD Hospitals)	FY When the CCA Authorization Began	Baseline Period (TPA-3)	Demonstration Period (TPA-3) (Capped at FY 2021)
Continuing	First joined the RCHD in FY 2005 under the MMA authorization (*N* = 3)	FY 2015	FY 2012–FY 2014	FY 2015–FY 2019
	First joined the RCHD in FY 2009 under the MMA authorization (*N* = 1)	FY 2016	FY 2013–FY 2015	FY 2016–FY 2020
	First joined the RCHD in FY 2011 under the ACA extension (*N* = 4)	FY 2016	FY 2013–FY 2015	FY 2016–FY 2020
	First joined the RCHD in FY 2012 under the ACA extension (*N* = 6)	FY 2017	FY 2014–FY 2016	FY 2017–FY 2020 (*N* = 1) or FY 2017–FY 2021 (*N* = 5)
New	First joined the RCHD in FY 2018 under the CCA extension (*N* = 12)	FY 2018	FY 2015–FY 2017	FY 2018–FY 2021

Note: For RCHD hospitals that started the CCA authorization period in FYs 2015, 2016, or 2017 (*N* = 14), this evaluation covers the entire CCA period. For RCHD hospitals that started the CCA authorization period in FY 2018 (*N* = 12), this evaluation covers four of the five years of the CCA authorization phase.

A.6 Data Sources

This section discusses the primary and secondary data sources used in this evaluation.

A.6.1 Primary Data

The experiences and perspectives of RCHD hospitals under the CCA authorization extension were collected by conducting telephone interviews with hospital administrators and reviewing relevant documents in 2021 and 2022. Interviews conducted addressed hospital financial performance and the impact of the RCHD. At the time of conducting the interviews, the CAA of 2021 had extended the demonstration for a third time, and interviews probed hospital decisions to continue participating in the RCHD. Also, we raised questions motivated by initial data analyses related to swing beds, discharges, ages of physical plants, and the general financial performance of participating and non-participating hospitals at baseline. Finally, we

discussed the Covid-19 pandemic, which drastically changed hospital operations. Interviews were conducted with only a subset of representative hospitals.[20]

We did not conduct additional interviews as part of this *Final Evaluation Report*. However, we used the interview data previously collected to supplement quantitative analyses to:

- Understand the characteristics of participating hospitals and how they relate to the payment approach,
- Understand hospitals' decisions to continue participation in the demonstration,
- Provide additional context for understanding RCHD payments received and the demonstration's impact on financial performance, and
- Describe implications of the Covid-19 pandemic for hospital operations and finances.

This is the first time that interview findings on the effects of the start of the Covid pandemic on hospital financial outcomes will be discussed. Previous evaluation reports did not analyze cost report data for the pandemic period, and this report is the first time these data will be analyzed, alongside interview findings.

A.6.2 Secondary Data

Numerous secondary data sources were used to evaluate hospital and market characteristics, as well as financial information, for both the RCHD hospitals and the comparison group of small rural hospitals, as in previous reports. Except for settled cost reports obtained directly from the MACs for the RCHD hospitals, all secondary data sources are publicly available and do not contain private information. **Exhibit A6** summarizes the secondary data sources used.

[20] Hospital cost reports in the HCRIS database can change status from year to year as cost reports move through financial audits. There are a total of five possible statuses: as submitted, settled with audit, settled without audit, reopened, and amended. As submitted cost reports are most likely to be subject to change in future years, they are the least stable.

Exhibit A6: Summary of Secondary Data Used Across Topic Areas

Data Source	TPA-1: Attributes	TPA-2: Payments	TPA-3: Impact
Healthcare Cost Report Information System (HCRIS)	Hospital margins Hospital characteristics	RCHD payments	Hospital margins (outcomes) Hospital characteristics (matching covariates and control variables)
Settled Cost Reports	N/A	RCHD payments	N/A
Hospital/Medicare IPPS Impact File	Rural status to determine eligible non-participants and comparison group	N/A	Rural status to determine eligible non-participants and comparison group
Surveillance, Epidemiology, and End Results (SEER)	County-level characteristics	N/A	County-level characteristics (matching covariates and control variables) Market typology (matching variable and stratification variable)

Notes: N/A = not applicable because the data source was not used for that topic area.

Below we describe each secondary data source in greater detail.

A.6.2.1 Healthcare Cost Report Information System (HCRIS)

Data from HCRIS was used to provide the following types of information:

- Hospital financial outcomes (described in more detail in **Exhibit A7.1**)
- Measures of hospital characteristics (described in more detail in **Exhibit A7.2**) including:
  - Patient volume and characteristics
  - Hospital staffing
  - Hospital capacity
  - Organizational characteristics
  - Other hospital characteristics
- Cost and charges, in total and for Medicare

HCRIS files are created from the annual cost reports submitted by hospitals and reviewed by the CMS MACs. Annual cost reports are the only source of information that provides the level of detail required by the analyses. HCRIS files typically become publicly available nine months after the end of the cost reporting year. Because of the audit and settlement process, data included in HCRIS may change over time for previously submitted cost reports. Thus, the data are updated on a quarterly basis as the cost reports are audited and settled.

Past analysis has indicated that HCRIS hospital cost reports tend to be more stable with a two or three-year lag.[21] Therefore, we analyzed the completeness and stability of the cost report data for the years FY 2021–FY 2023, to assess for which of these years data are complete and stable enough to include in the *Final Evaluation Report.* Overall, we found that it is advisable to include data only through FY 2021 as the latest year of our analysis, due to the following reasons:

- For FY 2023, cost reports for RCHD hospitals are generally missing (69 percent of cost reports of RCHD hospitals are missing).
- For FY 2022, less than 25 percent of cost reports for RCHD and non-participating hospitals are in "audited/settled" status (this figure is close to 40 percent for FY 2021 for RCHD hospitals).

A.6.2.2 Hospital/Medicare IPPS Impact File

The CMS Hospital Impact File provides the hospital-specific case-mix needed to calculate the target payments in the years following the base year. The file also indicates rural status, which was used to define the comparison hospitals. The impact files are updated annually and are currently available through 2024.

A.6.2.3 Settled Cost Reports for RCHD Hospitals

The MACs are responsible for calculating the reasonable costs and the target amounts and reconciling the interim payments based on the lesser of these amounts. The RCHD payments are included in the settled cost reports, which contain special worksheets (worksheets E–H), to calculate the target amount and determine whether the hospital will receive the target amount or reasonable costs. This worksheet is now included in the publicly available HCRIS data, but not the supporting documentation. The final settled cost reports contain the final reconciled Medicare inpatient revenues that were used to compare the IPPS and RCHD payments.

A.6.2.4 Surveillance, Epidemiology, and End Results (SEER)

County-level population characteristics are obtained from the National Cancer Institute SEER data. These characteristics include the percentage of the population 65 years of age and older, the percentage of the population in poverty, and the total population. In addition, we calculated population density using the total county population divided by the number of square miles in the county. This is the only dataset with regional data available for our entire period of analysis.

[21] Hospital cost reports in the HCRIS database can change status from year to year as cost reports move through financial audits. There are a total of five possible statuses: as submitted, settled with audit, settled without audit, reopened, and amended. As submitted cost reports are most likely to be subject to change in future years, they are the least stable.

A.6.2.5 Covid-19 Response Databases

The Centers for Disease Control and Prevention (CDC) works closely with jurisdictions to collect, analyze, and disseminate data on Covid-19 cases and deaths to monitor the pandemic and develop safety guidelines. Although Covid-19 reporting has been discontinued, the CDC makes multiple files with county-level information publicly available. The *Weekly United States Covid-19 Cases and Deaths by County* file contains weekly new and cumulative cases and deaths by county ending in September 2023.[22]

State timeseries data from U.S. Department of Health and Human Services on HealthData.gov contains Covid-19 hospitalization data that covers daily Covid hospitalization counts and percentages of hospitalizations due to Covid for 2020 and 2021 at the state level.

The evaluation team incorporated into the analysis the indicators that most clearly and meaningfully demonstrate the impact of Covid-19 on participating RCHD hospitals—namely, Covid-19 cases, deaths, and percentage of inpatient beds occupied by suspected or confirmed Covid-19 patients.

A.7 Methodology

In this section, we discuss the quantitative and qualitative evaluation methodologies used to assess the effects of the RCHD for *new* and *continuing* hospitals. A mixed-methods approach was used to answer the various research questions of interest and triangulate results from quantitative and qualitative analyses as appropriate. The qualitative analysis helped to provide background and context for the results from the quantitative analysis and to explore the mechanisms driving observed results.

A.7.1 Quantitative Methodology

This section describes the quantitative methodology used in this evaluation. **Sections A.7.1.1** and **A.7.1.2** describe the evaluation measures and methods.

A.7.1.1 Evaluation Measures

This section discusses the evaluation outcomes, and the variables used to measure hospital characteristics and the context in which hospitals operate. These variables were analyzed descriptively to answer research questions within TPA-1 (Attributes). Some of these variables were also used as DID controls under TPA-3 (Impact) and as matching covariates to find a comparison group within that topic area.

[22] Centers for Disease Control and Prevention. (2025). Provisional COVID-19 death counts in the United States by county. U.S. Department of Health and Human Services. https://data.cdc.gov/National-Center-for-Health-Statistics/Provisional-COVID-19-Death-Counts-in-the-United-St/kn79-hsxy/about_data

A.7.1.1.1 Hospital Financial Outcomes

Exhibit A.7.1 describes the specifications of the financial outcomes that were analyzed in this evaluation report and previous interim reports. Under TPA-1 (Attributes), outcomes were analyzed using descriptive statistics to summarize the financial condition of *new* and *continuing* RCHD hospitals and how they compare to eligible non-participants, prior to the start of the demonstration. TPA-2 (Payments) summarizes the additional RCHD acute care payments (over IPPS) and swing-bed payments (over SNF PPS) that hospitals received, using descriptive statistics. In addition, this topic area shows the average and the standard deviation of additional RCHD payments earned by RCHD hospitals during the non-base/non-rebase CCA years stratified by terciles of (a) CCA base or rebase year costs per discharge, (b) CCA base or rebase year acute care patient volume, (c) CCA base or rebase year swing-bed volume, and (d) the RCHD hospitals' market characteristics at baseline.

Under TPA-3 (Impact), these outcomes were used as the dependent variables for the DID regressions in the impact analysis.

The following section presents the list of outcome measures that were analyzed and their interpretation.

Outcome 1: **Medicare inpatient margin** measures Medicare inpatient profits as a percentage of Medicare inpatient revenue. Positive values indicate that allowable Medicare inpatient costs are less than total Medicare inpatient revenue; negative values indicate that allowable Medicare inpatient costs are greater than total Medicare inpatient revenue. This outcome includes SNF care delivered in swing beds.

Outcome 2: **Medicare combined margin** measures total Medicare profits as a percentage of total Medicare revenue. Total Medicare margins include both inpatient and outpatient revenue and costs. Positive values indicate profits, and negative values indicate loss.[23] Higher Medicare combined margins as a result of demonstration participation imply a positive impact on hospitals' financial condition.

[23] Both Medicare inpatient margins and Medicare combined margins are inclusive of Medicare sequestration. When applying outpatient sequestration, adjustments were made to 10 out of 5,382 hospital-year cost reports (0.19 percent) to account for incomplete or plausibly invalid data. For seven cost reports, we set Medicare outpatient revenue to $0 if the hospital's Medicare outpatient costs were $0 and set Medicare outpatient margins to missing. For three cost reports, we set Medicare outpatient margins to missing if their reported Medicare sequestration was greater than 40 percent. For cases where Medicare outpatient margins were set to missing, Medicare combined margins reflect Medicare inpatient margins.

Outcome 3: **Total profit margin** measures the percentage of total revenue from all sources that is profit or loss. A positive value indicates that total expenses are less than total revenues (a profit or positive net income). A negative value indicates that total expenses are greater than total revenues (a loss or negative net income). Total profit margin includes revenues and costs from all payers, as well as investment income. Higher total profit margins as a result of demonstration participation imply a positive impact on hospitals' financial condition.

Outcome 4: **Operating margin** measures the percentage of operating revenue that is profit or loss. A positive value indicates that total operating expenses are less than operating revenues (an operating profit). A negative value indicates that total operating expenses are greater than operating revenues (an operating loss). Operating revenues are a sum of net patient revenues and other revenue from sources such as the rental of hospital space. Higher operating margins as a result of demonstration participation imply a positive impact on hospitals' financial condition.

Outcome 5: **Days cash on hand (DCOH)** is a measure of liquidity that broadly represents the number of days a hospital can continue to pay its operating expenses with the current cash it has available. DCOH is a criterion used by lenders and rating agencies to gauge the financial health of hospitals.[24] While very high levels of DCOH may indicate that cash is not being deployed to areas of the business generating higher returns, generally, the higher the DCOH, the better hospitals are able to weather circumstances such as unexpected changes in admission rates or natural calamities and thus avoid closure.[25] More DCOH as a result of demonstration participation imply a positive impact on hospitals' financial condition.

Outcome 6: **Long-term debt to capitalization ratio***,* expressed as a percentage, shows how much debt a hospital has compared to the hospital's overall equity. Higher values indicate worse hospital financial positions because they imply a greater reliance on debt financing and a reduced ability to carry additional debt. A greater debt service burden also increases a hospital's sensitivity to sudden changes in service volume or payer mix. High-performing hospitals rely less on

[24] Understanding the Significance of Days Cash on Hand: Implications for Hospital Liquidity and Financial Health | Simbo AI - Blogs. https://www.simbo.ai/blog/understanding-the-significance-of-days-cash-on-hand-implications-for-hospital-liquidity-and-financial-health-273395/

[25] Allen, J. (2018, May 5). How many days cash on hand should a hospital have? *The Hospital Medical Director*. https://hospitalmedicaldirector.com/how-many-days-cash-on-hand-should-a-hospital-have

debt and more on equity, and higher bond ratings are usually associated with lower long-term debt to capitalization ratio values. A lower long-term debt to capitalization ratio as a result of demonstration participation implies a positive impact on a hospital's financial condition.

Outcome 7: **Ratio of salaries to net patient revenue,** expressed as a percentage, is an important indicator of the expense structure of hospitals. Higher values imply lower staffing efficiency on the part of hospitals, which is detrimental to hospital finances.[26] A lower ratio of salaries to net patient revenue as a result of demonstration participation implies a positive impact on hospitals' financial condition.

Outcome 8: **Hospital FTEs per occupied bed,** expressed as a ratio, is a measure of the efficiency of the provision of health care services. Higher values of FTEs per occupied bed imply that the hospital is spending more resources than other hospitals to provide health care services to the same number of beds. Lower FTEs per occupied bed as a result of demonstration participation may indicate an increase in the efficiency of the provision of health care services (and thus a positive impact on hospitals' financial condition). However, since lower values could also reflect lower quality of care, this measure should be interpreted with caution.

Outcome 9: **Average age of physical plant** (years) indicates the financial age of the fixed assets of the hospital. The older the average age of the plant, the greater the short-term need for capital investments.[27] A lower average age of plant as a result of demonstration participation is a positive outcome, as it indicates that hospitals were able to invest in their fixed assets.

Outcome 10: **Medicare share of inpatient discharges and Medicare share of inpatient days**, expressed as percentages, are measures of hospitals' dependence on Medicare reimbursement. A decline in Medicare's share of discharges/inpatient days indicates reduced dependence on Medicare and an increase in the share of Medicaid or commercial payers. Lower values for these two shares as a result of demonstration participation are a positive outcome provided that these declines are driven by an increase in overall discharges/inpatient days.

[26] Johnson, J. M. (2015). *Critical Access Hospitals: Top 10 key financial indicators.* National Rural Health Resource Center.

[27] HFMA. (2012, October 17). *Key hospital financial statistics and ratio medians: Glossary of formulas.* https://www.hfma.org/finance-and-business-strategy/1113

Outcome 11: **Medicare swing-bed revenue share**, expressed as a percentage, is a measure of how much Medicare inpatient revenue is coming from SNF care delivered in swing beds. Higher values for Medicare swing-bed revenue share as a result of demonstration participation may be a positive outcome for hospitals' financial condition, due to RCHD payment methodology for swing beds, which results in improved hospital Medicare inpatient margins if hospitals substitute Medicare acute care beds for swing beds.

Outcome 12: **Additional RCHD payments** reflect RCHD acute care and swing-bed payments over IPPS plus SNF PPS expressed in dollar terms. This outcome is calculated as the difference between the total RCHD payments (sum of the acute care and swing-bed payments hospitals received under RCHD) and the sum of the IPPS and SNF PPS payments that the hospital would have received under its previous rural hospital status. A positive number indicates that the hospital benefits from participating in the demonstration. A negative number indicates that the hospital can earn higher payments by going back to its original rural hospital status than by participating in the demonstration.

Outcome 13: **Percent increase in additional RCHD payments** measures additional RCHD payments in percentage terms. The numerator is *additional RCHD payments* (Outcome 12), and the denominator is the IPPS and SNF PPS payments the hospital would have received under its previous rural status. A higher number indicates that hospitals received larger RCHD payments relative to payments they would have received under their previous rural hospital status.

Outcome 14: **Additional RCHD acute care payments** are the difference between the RCHD acute care payments and the IPPS payments that the hospital would have received under its previous rural hospital status, expressed in dollar terms. The larger the difference, the more the hospital benefits from Medicare acute care payments as an RCHD participant. This outcome allows us to compare the results to a similar outcome calculated for swing-bed payments (additional RCHD swing-bed payments [Outcome 16]).

Outcome 15: **Acute care share of additional RCHD payments** is expressed in percentage terms. The numerator of this outcome is the *additional RCHD acute care payments* (Outcome 14). The denominator is the *additional RCHD payments* (Outcome 12). A higher acute care share of additional RCHD payments indicates that additional RCHD acute care payments play a larger role in the additional RCHD payments. This outcome allows us to compare the results to a

similar outcome calculated for swing-bed payments (swing-bed share of additional RCHD payments [Outcome 17]).

Outcome 16: **Additional RCHD swing-bed payments** are the difference between the RCHD swing-bed payments and the SNF PPS payments that the hospital would have received under its previous rural hospital status, expressed in dollar terms. The larger the difference, the more the hospital benefits from Medicare swing-bed service SNF payments as an RCHD participant.

Outcome 17: **Swing-bed share of additional RCHD payments** is expressed in percentage terms. The numerator is the *additional RCHD swing-bed payments* (Outcome 16). The denominator is the *additional RCHD payments* (Outcome 12). A higher swing-bed share of additional payments indicates that additional RCHD swing-bed payments play a larger role in the additional RCHD payments.

Outcome 18: **Additional RCHD payments, per discharge,** are expressed in dollar terms. The numerator is the *additional RCHD payments* (Outcome 12). The denominator is the total discharges (acute care and swing beds). Hospitals with a larger value for this measure have higher average RCHD payments per acute care and swing-bed SNF discharge.

Outcome 19: **Additional RCHD acute care payments, per discharge,** are expressed in dollar terms. The numerator is *additional RCHD acute care payments* (Outcome 14). The denominator is total acute care discharges. Hospitals with larger values for this outcome have higher average RCHD acute care payments per acute care discharge. This outcome allows us to compare the results to a similar outcome calculated for swing-bed payments (additional RCHD swing-bed payments, per discharge [Outcome 20]).

Outcome 20: **Additional RCHD swing-bed payments, per discharge,** are expressed in dollar terms. The numerator is *additional RCHD swing-bed payments* (Outcome 16). The denominator is total swing-bed discharges. Hospitals with larger values for this outcome have higher RCHD swing-bed payments per swing-bed discharge.

Exhibit A7.1: Evaluation Outcome Specifications

Measure	Specification
Medicare margins	
Medicare inpatient margin[†,‡]	$\left(\frac{\text{Medicare inpatient revenue} - \text{Medicare inpatient costs}}{\text{Medicare inpatient revenue}}\right) * 100$
Medicare combined margin[†,‡]	$\left(\frac{\text{Medicare inpatient \& outpatient revenue} - \text{Medicare inpatient \& outpatient costs}}{\text{Medicare inpatient \& outpatient revenue}}\right) * 100$
Overall profitability margins	
Total profit margin*[,†]	$\left(\frac{\text{Net income}}{\text{Net patient revenue + Total other income}}\right) * 100$
Operating margin*[,†]	$\left(\frac{\text{Net patient revenue + Other revenue} - \text{Total operating expenses}}{\text{Net patient revenue + Other revenue}}\right) *100$
Capital investment indicator	
Average age of physical plant*[,¥]	$\frac{\text{Accumulated depreciation}}{\text{Depreciation expense}*\left(\frac{365}{\text{Days in period}}\right)}$
Other financial indicators	
Days cash on hand*	$\frac{(\text{Cash + Temporary investments + Investments})*\text{Days in period}}{\text{Total expenses} - \text{Depreciation}}$
Long-term debt to capitalization ratio*	$\left(\frac{\text{Long-term debt}}{\text{Long-term debt + Net assets}}\right) *100$
Ratio of salaries to net patient revenue*	$\left(\frac{\text{Salary expense}}{\text{Net patient revenue}}\right) * 100$
Hospital FTEs per occupied bed[§]	$\frac{\text{Number of FTEs}}{\text{Adjusted occupied beds}**}$

Measure	Specification
Medicare revenue indicators	
Medicare share of inpatient discharges	$\left(\frac{\text{Medicare discharges}}{\text{Total discharges}}\right) * 100$
Medicare share of inpatient days*	$\left(\frac{\text{Medicare inpatient days}}{\text{Total inpatient days} - \text{Nursery bed days} - \text{Nursing facility (NF) swing-bed days}}\right) * 100$
Medicare swing-bed revenue share	$\left(\frac{\text{Medicare swing-bed revenue}}{\text{Medicare inpatient revenue}}\right) * 100$
RCHD payments	
Additional RCHD payments	$(\text{RCHD acute care payments}_{FY} + \text{RCHD swing-bed payments}_{FY}) - (\text{Medicare IPPS payments}_{FY} + \text{Medicare SNF PPS payments}_{FY})$
Percent increase in additional RCHD payments	$\left(\frac{\text{RCHD acute care and swing-bed payments}}{\text{IPPS + SNF PPS payments}}\right)_{FY} * 100$
Additional RCHD acute care payments	$\text{RCHD acute care payments}_{FY} - \text{Medicare IPPS payments}_{FY}$
Additional RCHD swing-bed payments	$\text{RCHD swing-bed payments}_{FY} - \text{Medicare SNF PPS payments}_{FY}$
Acute care share of additional RCHD payments	$\frac{\text{Additional RCHD acute care payments}}{\text{Additional RCHD payments}} * 100$
Swing-bed share of additional RCHD payments	$\frac{\text{Additional RCHD swing-bed payments}}{\text{Additional RCHD payments}} * 100$
Additional RCHD payments, per discharge	$\frac{\text{Additional RCHD payments}_{FY}}{(\text{Medicare acute care discharges} + \text{Medicare swing-bed discharges})_{FY}}$
Additional RCHD acute care payments, per discharge	$\frac{\text{Additional RCHD acute care payments}_{FY}}{\text{Medicare acute care discharges}_{FY}}$
Additional RCHD swing-bed payments, per discharge	$\frac{\text{Additional RCHD swing-bed payments}_{FY}}{\text{Medicare swing-bed discharges}_{FY}}$

Notes & Sources: * Definitions for these outcomes are from the Flex Monitoring Team's primer *How State Flex Coordinators Can Use Critical Access Hospital Measurement & Performance Assessment System (CAHMPAS) Data* and HCRIS; † In this evaluation, these outcomes are winsorized at -100 and 100; ‡ Definitions for these outcomes are from MedPAC and HCRIS; § In all analyses in this report, this outcome will be winsorized at the 99th percentile; ** (Inpatient days – Nursing facility (NF) swing days – Nursery days) * (Total patient revenue / (Total inpatient revenue – Inpatient NF revenue – Other long-term care revenue)) / Days in period; ¥ In all analyses in this report, this outcome will be winsorized at 60. Any value of this outcome for a hospital year that is greater than 60 will be set to 60.

A.7.1.1.2 Hospital Operational and Contextual Characteristics

Exhibit A7.2 lists the variables that were used to measure hospital operational and contextual characteristics. As described in the conceptual model in **Section 1.3**, these variables may determine hospitals' use of RCHD payments and the impact RCHD payments might have on hospital financial outcomes.

Under TPA-1 (Attributes), standard descriptive statistics and *t*-tests were used to describe and compare the attributes of *new* and *continuing* hospitals. *T*-tests were also used to compare the means of these variables across RCHD hospitals and eligible non-participants during the pre-demonstration baseline to understand which characteristics are associated with hospitals' decision to participate in the demonstration.

Under TPA-2 (Payments), average and standard deviation are used to describe and compare additional RCHD payments earned in non-base or non-rebase CCA years. Average additional RCHD payments will be calculated by hospital's CCA extension base or rebase year costs per discharge, acute care and swing-bed discharges and by hospital's baseline market.

Under TPA-3 (Impact), a subset of the characteristics shown in **Exhibit A7.2**, measured at baseline, were used to construct the comparison group. Additionally, some of these variables were used as covariates in the DID regressions.

Exhibit A7.2: Hospital Operational and Contextual Characteristics

Hospital Operational & Contextual Characteristics	Included in TPA-1: Attributes	Included in TPA-2: Payments	Included in TPA-3: Impact Matching Variable	Included in TPA-3: Impact Covariate
Hospital Operational Characteristics				
Organizational Characteristics				
Hospital for-profit status (public, non-profit, for-profit)	✓		✓	✓
Hospital system status (independent vs. system)	✓		✓	
Patient Volume				
Average daily census (ADC), acute care beds	✓			
ADC, swing beds	✓			
Number of acute inpatient beds	✓			

Hospital Operational & Contextual Characteristics	Included in TPA-1: Attributes	Included in TPA-2: Payments	Included in TPA-3: Impact Matching Variable	Included in TPA-3: Impact Covariate
Inpatient Discharges				
Number of Medicare discharges	✓			
Medicare acute care discharges		✓		
Swing-bed discharges		✓		
Number of Medicaid discharges	✓			
Number of total discharges	✓			
Clinical Complexity & Disproportionate Share				
Hospital case-mix index	✓			
Disproportionate share status	✓			✓
Hospital Base or Rebase Characteristics				
Total Medicare inpatient cost in base or rebase year		✓		
Total swing-bed cost in base or rebase year		✓		
Medicare acute care discharges in base or rebase year		✓		
Swing-bed discharges in base or rebase year		✓		
Hospital Contextual Characteristics				
Market Typology & Market Area Characteristics				
Market typology (Competitive, Frontier, Isolated)	✓	✓	✓	
Number of hospitals within 35-mile radius	✓			✓
Miles to the nearest acute care hospital	✓			✓
Number of CAHs within 35-mile radius	✓			✓
Local Socioeconomic Factors				
Total population	✓			
Population density	✓			✓
Population change				✓
Percentage of residents aged 65 years and over	✓		✓	✓

Hospital Operational & Contextual Characteristics	Included in TPA-1: Attributes	Included in TPA-2: Payments	Included in TPA-3: Impact Matching Variable	Included in TPA-3: Impact Covariate
Percentage of residents with high school education or less	✓			✓
Percent White non-Hispanic	✓		✓	✓
Percentage of residents below 150% of poverty line	✓		✓	✓
Percentage of residents who are unemployed	✓		✓	✓
Median household income	✓			✓
Median home value	✓			✓
State Medicaid expansion status	✓		✓	✓
Measures for Covid-19 incidence including deaths per 1,000 population; cases per 1,000 population, and percentage of inpatient beds occupied by suspected or confirmed Covid-19 patients				✓

A.7.1.1.2.1 Hospital Operational Characteristics

Hospital operational characteristics include measures of patient volume, discharges, and patient clinical complexity as measured by the case-mix index, as well as additional organizational characteristics that are important determinants of hospital finances. For instance, low patient volume impacts rural hospitals' ability to generate the revenues needed to cover fixed costs, update infrastructure, and invest in new services.[28] Organizational characteristics, such as hospital system membership, can help rural hospitals improve their financial and operational performance. For instance, hospital system membership may offer rural hospitals access to technology that would otherwise be costly to procure and maintain; it may also help with staff recruitment and retention, provide a stable source of referrals, and reduce hospital costs via group purchasing.[29]

[28] Mueller, K. J., Alfero, C., Coburn, A. F., Lundblad, J. P., MacKinney, A. C., McBride, T. D., & Weigel, P. (2018, December). *Assessing the unintended consequences of health policy on rural populations and places.* RUPRI Health Panel, University of Iowa. http://www.rupri.org/wp-content/uploads/Evaluating-the-Impact-of-Policy-Changes-on-Rural-Populations.pdf

[29] Oyeka, O., Ullrich, F., MacKinney, A. C., Lupica, J., & Mueller, K. J. (2018, November). *The rural hospital and health system affiliation landscape—a brief review.* RUPRI, University of Iowa. https://rupri.public-health.uiowa.edu/publications/policypapers/Rural%20Hospital%20and%20Health%20System%20Affiliation.pdf

A.7.1.1.2.2 Hospital Contextual Characteristics

Hospital contextual characteristics include different measures of competition hospitals face in their markets, which are described in more detail in the Market Typology and Market Area Characteristics subsection that follows. In addition, the Local Socioeconomic Factors and Controls for the Effects of the Public Health Emergency sections describe socioeconomic control variables as well as Covid-related controls.

A.7.1.1.3 Market Typology and Market Area Characteristics

This evaluation used the definition of a hospital's geographic market, given in the 2018 *Report to Congress,* as the ZIP Codes within a 35-mile radius of the hospital.[30] The CAH and SCH rural payment methodologies also use this radius in their eligibility criteria. As noted in **Section 1.3.5** of this report, the 2018 *Report to Congress* divided hospital markets into three separate groups (or typologies) based on population changes and market competition:

- Competitive markets have three or more hospitals within 35 miles,
- Frontier markets have low levels of competition (maximum of two hospitals within 35 miles) and a stable or growing population, and
- Isolated markets have low levels of competition (maximum of two hospitals within 35 miles) and a declining population.[31]

Because of data limitations in getting consistent ZIP Code-level data for all demonstration years, we used county-level data to measure population change.

A.7.1.1.4 Local Socioeconomic Factors

Variables to measure county demographics and state policy were included because these can influence hospitals' patient volume and finances. State Medicaid expansion can favorably impact rural hospitals because increased Medicaid coverage for previously uninsured patients reduces uncompensated care expenditures, thereby strengthening hospitals' financial positions.[32]

A.7.1.1.5 Controls for the Effects of the Public Health Emergency

We explicitly controlled for the effects of the Covid-19 pandemic by using county-level Covid-19 death rates per 1,000 population; county-level Covid-19 case rates per 1,000 population; and state-level percentages of inpatient beds occupied by suspected or confirmed Covid-19

[30] CMS. (2018, October). *Report to Congress: Rural Community Hospital Demonstration,* p. 32. https://www.cms.gov/priorities/innovation/files/reports/rch-rtc.pdf

[31] CMS. (2018, October). *Report to Congress: Rural Community Hospital Demonstration,* p. 32. https://www.cms.gov/priorities/innovation/files/reports/rch-rtc.pdf

[32] Lindrooth, R. C., Perraillon, M. C., Hardy, R. Y., & Tung, G. J. (2018). Understanding the relationship between Medicaid expansions and hospital closures. *Health Affairs, 37*(1), 111–120. https://doi.org/10.1377/hlthaff.2017.0976

patients. Consistent data on these Covid-19 controls were available throughout the analysis period covered by this report. Consequently, these variables were employed to capture changes in disease severity, serving as proxies for the pandemic's impact on hospital margins over the analysis period.

A.7.1.2 Evaluation Methods

A.7.1.2.1 Descriptive Analysis of RCHD Participants and Comparison Hospitals

Under TPA-1 (Attributes), descriptive statistics were used to analyze the financial outcomes described in **Section A.7.1.1.1** and the contextual and operational characteristics described in **Section A.7.1.1.2**. The focus of this topic area was on understanding how pre-demonstration baseline characteristics of *continuing* participants from previous authorization phases differ from those of *new* participants (those that joined under the CCA extension).

The evaluation also involved comparing the outcomes and characteristics of RCHD hospitals prior to when they joined the RCHD to outcomes and characteristics of eligible non-participant hospitals (see **Section 2.3** for the definition of eligible non-participants). As described in **Section 2.2**, for *continuing* hospitals, the evaluation involved the comparison of outcomes and characteristics to those of eligible non-participant hospitals using pre-demonstration baselines of FY 2002–2004 and FY 2008–2010, depending on when participating hospitals first joined the demonstration.[33] For *new* hospitals joining the demonstration in FY 2018 as part of the CCA extension, we compared outcomes and characteristics to those of eligible non-participant hospitals using a pre-demonstration baseline of FY 2015–2017.

Pre-demonstration baseline means, in each case, are simple averages of year-specific means. When reporting overall results for *continuing* and *new* hospitals combined, the pre-demonstration baseline pools hospital-year observations for FY 2002–2004, FY 2008–2010, and FY 2015–2017.

Bivariate *t*-tests were used to assess differences in attributes between *continuing* and *new* hospitals and to compare participants with non-participants. In addition, distributions were determined for select hospital-level variables (e.g., Medicare and overall profitability margins). These data appear later in this section.

As described in **Section 2.0** TPA-1 (Attributes) uses all eligible non-participants as a benchmark. The objective of TPA-1 (Attributes) is to compare RCHD participants to a broad and

[33] Continuing hospitals joining the demonstration between FY 2005 and FY 2010 as part of the MMA authorization have a pre-demonstration baseline of FY 2002–2004. Continuing hospitals joining the demonstration between FY 2011 and FY 2015 as part of the ACA extension have a pre-demonstration baseline of FY 2008–2010.

representative group of non-participants that also meet RCHD eligibility criteria but do not participate in the demonstration.

A.7.1.2.2 RCHD Payment Analysis

In the TPA-2 (Payments) section of this report (**Section 3.0**), several summary statistics (means; standard deviations; and 25th, 50th, and 75th percentiles) are presented on five payment outcomes—additional RCHD payments, additional RCHD acute care payments, additional RCHD swing-bed payments, swing-bed share of additional RCHD payments, and acute care share of additional RCHD payments (which are defined in **Section A.7.1.1.1**) between FY 2005 and FY 2021.

Unlike *Interim Report Two*, this report also presents a descriptive analysis that has the goal of identifying the influence of a hospital's base or rebase year payment mechanism characteristics (costs per discharge, acute care discharges, swing-bed discharges), or a hospital's baseline market typology, on magnitude of the additional RCHD payments received in future (non-base or non-rebase) years.

To achieve this goal we:

1. Restricted the analysis to hospital cost reports associated with the recent CCA extension phase.
2. Assigned hospitals to terciles based on the distribution of the payment mechanism characteristics in their base (*new* hospitals) or rebase year (*continuing* hospitals). Therefore, the lowest (Tercile 1), middle (Tercile 2), and highest (Tercile 3) terciles include hospital cost reports from the base or rebase year with costs per discharge, acute care discharges, or swing-bed discharges that are below the 33.33rd percentile, are at or above the 33.33rd percentile to the 66.67th percentile, and are at or above the 66.67th percentile, respectively.
3. Presented the average and standard deviation of additional RCHD payments received by hospitals in future years by payment mechanism characteristic terciles.
4. Assigned hospitals by their baseline (three years prior to first joining the RCHD) market typology (Isolated, Frontier, or Competitive).
5. Presented the average and standard deviation of additional RCHD payments received by hospitals in future years during the CCA extension period by baseline market typology.

A.7.1.2.3 Difference-in-Differences Analysis

The impact of the RCHD on the financial condition of hospitals was examined using a quasi-experimental impact evaluation methodology that employs a two-step approach. In the first

step, a comparison group of hospitals with characteristics similar to those of the participant hospitals was constructed. In the second step, a DID approach was used that accounted for hospitals joining the demonstration at different times. This approach, referred to as staggered DID, was implemented by defining hospital-specific post-demonstration (and baseline) periods, depending on when the hospital first joined the demonstration.

As in *Interim Report Two*, we analyzed demonstration impacts during the CCA phase. For each hospital, we defined the baseline period to be the three-year period prior to which a hospital first continued onto the CCA phase of the demonstration. The specific years that were used as baseline depended on the hospital's first RCHD participation year, which dictates the start of the CCA phase for the hospital. These years are described in **Exhibit A5**. As was the case in *Interim Report Two*, MMA and ACA cohort hospitals are "continuing" RCHD hospitals, which also participated in previous RCHD authorizations, whereas CCA cohort hospitals are "new" RCHD hospitals, which participated in the RCHD for the first time as part of the CCA authorization extension. To ensure that estimates are specific to the CCA phase, we excluded demonstration years that fall under the subsequent CAA phase.

There are several implications for selecting the baseline years for *continuing* hospitals in this way. For these hospitals, the baseline years are, in fact, years during which these hospitals were already participating in the demonstration, though under a different authorization. As a result of this, the DID model captures only demonstration effects that are *in addition* to the effects the demonstration already exerted in previous years for these same hospitals. For these reasons, all effects for these hospitals are to be interpreted relative to levels during the previous authorization phase (i.e., ACA extension). It follows that finding no effects of the RCHD among *continuing* hospitals should be interpreted as the RCHD having "no additional effect beyond the effect the demonstration already exerted under a previous authorization," which does not imply that the demonstration had no effect at all.

For *new* hospitals that first joined the RCHD under the CCA authorization extension, a three-year pre-demonstration baseline was used, which makes their estimates contemporaneous, by definition, because these hospitals first began demonstration participation in FY 2018. During this pre-demonstration baseline, these RCHD hospitals had not yet joined the demonstration.

A.7.1.2.3.1 Identifying Assumption

The identifying assumption of the DID model is that the outcome trend of the comparison group would have been parallel to the outcome trend of the RCHD group if the demonstration had not occurred. While the outcome trend of the RCHD group in the absence of the demonstration cannot be observed, standard statistical tests are usually conducted to show that the assumption is *likely* satisfied. These tests are discussed below. A comparison group

constructed by improving the balance between the RCHD and comparison groups is more likely to satisfy the identifying assumption required to obtain valid DID estimates. Next, the construction of these comparison groups is described.

A.7.1.2.3.2 Selection Criteria Applied to RCHD and Non-Participant Hospitals

For TPA-3 (Impact), the following criteria were applied that altered the number of hospitals and hospital-year observations for both RCHD and non-participant hospitals. Before any criteria were applied, there were 26 RCHD hospitals active as of FY 2021 and 2,178 non-participant hospitals. This universe of non-participant hospitals includes all hospitals ever classified as rural during FY 2000–FY 2021. The following are the criteria that were applied, and the number of hospitals reduced by each criterion, where the numbers removed are sequential from each step and the percentages are relative to the sample sizes before any criteria were applied:

1. Excluded all hospital-year observations where a hospital was a CAH[34]
    - RCHD hospitals removed: **0**
    - Non-participant hospitals removed: **563 (25.8 percent)**
2. Applied eligibility criteria to non-participant hospitals (rural status in all baseline years, not a CAH in any baseline year, fewer than 51 beds in all baseline years, offered emergency department services in all baseline years)
    - RCHD hospitals removed: **0**
    - Non-participant hospitals removed: **1,184 (54.4 percent)**
3. Removed all hospitals that were missing all baseline data for a matching covariate
    - RCHD hospitals removed: **0**
    - Non-participant hospitals removed: **58 (2.7 percent)**

After applying all criteria, there were **26** RCHD hospitals and **373** comparison hospitals overall.

A.7.1.2.3.3 Selection of the Comparison Groups

Our main sample consisted of hospitals from all three RCHD cohorts. In addition, we estimated impacts separately for *continuing* hospitals (MMA and ACA cohorts) and hospitals *new* to the demonstration (CCA cohort). The following are the steps we followed to construct the comparison group for the combined MMA, ACA, and CCA sample:

1. The RCHD hospitals were divided into matching groups by year of entry into the CCA authorization extension.

[34] Similar to the second interim report, these hospitals were removed because they were CAHs for every FY for which they had data in our sample.

2. A baseline period was defined for each hospital, depending on when it first joined the demonstration under the CCA authorization extension, as described in **Exhibit A5.** For the weighting algorithm in step 3, which uses observed variables in the baseline period, non-participant hospitals were assigned the same baseline period as the RCHD hospitals. For example, if a non-participant hospital had data for FY 2012–2021 and met the eligibility criteria in the baseline periods for hospitals joining the CCA phase in both FY 2015 and FY 2018, it could be potentially matched to both sets of hospitals using its baseline characteristics in FY 2012–2014 and FY 2015–2017, respectively.
3. Next, the pool of non-participant hospitals was restricted, within each baseline period, to those that were not CAHs, offered emergency department services, had rural status, and had fewer than 51 beds for all years of the baseline period.
4. Weighted comparison groups were constructed for each matching group by assigning weights to each non-participating hospital using baseline data. These weights were assigned using an entropy balancing[35] algorithm. This algorithm assigns weights to non-participant hospitals so that the means of the observed variables included in the algorithm are nearly exactly equal. In contrast to other weighting methodologies, such as propensity score weighting, entropy balancing directly incorporates the condition of equality of means of the matching variables into the weighting algorithm, which helps achieve baseline covariate balance in a more efficient and less iterative manner.
5. Finally, the weighted comparison groups were appended, as necessary, to create the *continuing* and *new* hospital comparison groups. For constructing the *continuing* hospital comparison group, weighted comparison groups constructed were appended using FY 2012–2014, FY 2013–2015, and FY 2014–2016 data. The *new* hospital comparison group simply consists of the comparison group constructed using FY 2015–2017 data.

Only a subset of baseline outcomes, hospital characteristics, hospital market areas, and county-level characteristics were used in the entropy balancing algorithms for each cohort due to issues achieving convergence of the algorithm which sometimes occur when balance conditions cannot simultaneously be satisfied across all specified matching variables. The strategy followed was to include in the algorithm a set of variables that we deemed to be the most important theoretically.[36] If the algorithm converged with all these variables, then we added

[35] Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis, 20*(1), 25–46. https://doi.org/10.1093/pan/mpr025

[36] We first prioritized baseline levels of or trends in Medicare inpatient margins and total profit margins. Next, we prioritized market area category, poverty rate, percentage White, state Medicaid expansion status, percentage of residents aged 65 years and older, and unemployment rate.

additional variables from the full set of variables (**Exhibit A7.2**). The full list of matching variables used is provided in Appendix E, **Exhibit E1.1.**

A.7.1.2.3.4 Comparison Group Testing

To evaluate the quality of the weighted comparison groups, two statistical tests were conducted. First, the RCHD and comparison hospitals were evaluated to check whether they were similar based on observable characteristics by conducting standardized bias tests. For such tests, a 10 percent threshold (in absolute value) is suggested for the standardized difference after adjustment.[37,38] These results are presented in Appendix E, **Exhibit E1.2**, and discussed in **Section E.1**.

Second, regression analysis and event-study graphs were used to evaluate whether the RCHD and comparison hospitals had parallel outcome trends during the baseline period. To increase the likelihood that the identifying assumption of the DID model would be satisfied, entropy-weighted comparison groups were chosen with baseline outcome trends parallel to the outcome trends of the RCHD group.[39] To assess whether RCHD and comparison groups had parallel baseline trends, thus providing evidence of satisfying the identifying assumption, a regression model was specified that estimates impacts of the RCHD for each relative year, where a relative year was defined as the number of years from the first year in which the hospital entered the CCA phase of the demonstration. This model, detailed below in equation (1), was used only to test for parallel baseline trends, not to estimate the impacts of the demonstration (the model we used to estimate average impacts of the demonstration is detailed subsequently, in equation [2]).[40]

$$Y_{ht} = \alpha_h + \alpha_t + \gamma_1 rel\ year\ minus\ 2 + \gamma_2 rel\ year\ minus\ 1 + \gamma_3 rel\ year\ 1 + \ldots + \gamma_7 rel\ year\ 5 + X_{ht} + \varepsilon_{ht} \qquad (\boldsymbol{Equation\ 1})$$

Where:

- Y_{ht} is the outcome of interest for hospital h in year t.

[37] Rosenbaum, P. R., & Rubin, D. B. (1985). Constructing a control group using multivariate matched sampling methods that incorporate the propensity score. *American Statistician, 39*(1), 33–38. https://doi.org/10.2307/2683903

[38] The calculation of standardized bias is defined by the formula:

$$\text{Bias} = \frac{\bar{X}_D - \bar{X}_C}{\left(\frac{\sigma_D^2 + \sigma_C^2}{2}\right)^{1/2}}$$

where $\bar{X}_D$ and $\bar{X}_C$ represent the sample means in the matched demonstration and comparison groups, respectively, for a given covariate, and σ_D^2 and σ_C^2 represent the variances in the full demonstration group and the full comparison group, respectively.

[39] We focused on achieving parallel baseline trends for Medicare inpatient margins and total profit margins.

[40] Borusyak, K.,Jaravel, X., & Spiess, J. (2022, April). *Revisiting event study designs.* https://ssrn.com/abstract=2826228

- α_t denotes FY fixed effects. That is, there is one indicator for each FY.
- α_h are hospital fixed effects. That is, there is one indicator for each hospital. These fixed effects control for all time-invariant (fixed) hospital characteristics.
- $rel\ year\ minus\ 2$ = 1 if an RCHD hospital started in the CCA phase three years after that year, and 0 for all comparison group hospitals in all time periods and all RCHD hospitals in any year that is not three years before the first year of the hospital in the CCA phase.
- $rel\ year\ minus\ 1$= 1 if an RCHD hospital started in the CCA phase two years after that year, and 0 for all comparison group hospitals in all time periods and all RCHD hospitals in any year that is not two years before the first year of the hospital in the CCA phase.
- $rel\ year\ 0$ = 1 if an RCHD hospital started in the CCA phase one year after that year, and 0 for all comparison group hospitals in all time periods and all RCHD hospitals in any year that is not one year before the first year of the hospital in the CCA phase. This indicator is omitted from the model (due to perfect multicollinearity), so the coefficients on each relative year indicator are interpreted relative to this time period.
- $rel\ year\ 1 \ldots rel\ year\ 5$ = 1 if an RCHD hospital started one to five years before that year, and 0 for all comparison group hospitals in all time periods and all RCHD hospitals in any year that is not one to five years after the first year of the hospital in the CCA phase.
- γ_1 and γ_2 are the coefficients of interest from this model. They represent the difference in baseline trends between the RCHD and comparison groups.
- X_{ht} represents time-varying hospital and market characteristics for hospital *h* in year *t*.
- ε_{ht} is the error term.

To assess parallel baseline trends, we assessed whether γ_1 and γ_2 were jointly significantly different from 0, using an *F*-test. If they were, we interpreted this as evidence of the lack of parallel baseline trends. The results of this test are reported in Appendix E, **Exhibit E1.3** and **Exhibit E1.4**. Accompanying event-study graphs are reported in Appendix E, **Exhibit E1.5** through **Exhibit E2.6**. These results are discussed in **Section E.1**.

A.7.1.2.3.5 Assessment of RCHD Impacts on Hospital Financial Outcomes

A staggered DID model was used to evaluate the impact of the RCHD on the financial condition of participant hospitals. This model is identical to the model used to test for parallel baseline trends except that demonstration period relative year indicators are collapsed into a single indicator in order to obtain average effects of the demonstration, and the baseline relative year indicators are not included. The model is specified as follows:

$$Y_{ht} = \alpha_h + \alpha_t + \gamma_{DD} D_{ht} + X_{ht} + \varepsilon_{ht} \qquad (\boldsymbol{Equation\ 2})$$

Where:

- Y_{ht} is the outcome of interest for hospital h in year t.
- α_t denotes FY fixed effects. That is, there is one indicator for each FY.
- α_h denotes hospital fixed effects. That is, there is one indicator for each hospital. These fixed effects control for all time-invariant (fixed) hospital characteristics.
- D_{ht} is the treatment dummy variable. In year *t*, $D_{ht} = 1$ if an RCHD hospital is in the CCA phase of the demonstration in that year. $D_{ht} = 0$ for all comparison group hospitals in all time periods and all RCHD hospitals not yet in the CCA phase of the demonstration in year *t*.
- γ_{DD} is the coefficient of interest that measures the impact of the CCA phase of the demonstration on RCHD hospitals. It measures the average change in outcome *Y* in the post-demonstration period compared to the baseline period for RCHD hospitals after it differences out the same change for comparison hospitals. The comparison group hospital trend serves as a counterfactual to measure what would have been the trend of the RCHD hospitals in the absence of the CCA phase of the demonstration.
- X_{ht} represents time-varying hospital and market characteristics for hospital *h* in year *t*.
- ε_{ht} is the error term.

A.7.1.2.3.6 Assessment of RCHD Impacts on Hospital Financial Outcomes, Before and After the Pandemic

To understand the impact of the pandemic on RCHD hospitals, we modified the model in equation (2) to separately estimate CCA-phase RCHD impacts during demonstration years prior to the pandemic and during years affected by the pandemic. The model is specified as follows:

$$Y_{ht} = \alpha_h + \alpha_t + \gamma_{DD1} D_{ht1} + \gamma_{DD2} D_{ht2} + X_{ht} + \varepsilon_{ht} \qquad (\boldsymbol{Equation\ 3})$$

Where:

- D_{ht1} is the treatment dummy variable for the pre-pandemic period. In year *t*, $D_{ht1} = 1$ if an RCHD hospital is in the CCA phase of the demonstration in that year and the year is prior to FY 2020 (pre-pandemic). $D_{ht1} = 0$ for all comparison group hospitals in all time periods and all RCHD hospitals not yet in the CCA phase of the demonstration in year *t*.
- D_{ht2} is the treatment dummy variable for the pandemic period. In year *t*, $D_{ht2} = 1$ if an RCHD hospital is in the CCA phase of the demonstration in that year and the year is FY

2020 or after (pandemic period). $D_{ht2} = 0$ for all comparison group hospitals in all time periods.

A.7.1.2.3.7 Reporting and Interpretation of Results

In this report, the impact estimate results for *continuing* and *new* hospitals are presented separately by estimating equation (2) separately for hospitals in each group.

Presenting impact results separately for *continuing* versus *new* hospitals is important because impact estimates for each group have different interpretations:

- For *continuing* hospitals, γ_{DD} in equation (2) measures the additional impact of continuing participation in the CCA authorization extension phase of the demonstration for hospitals that already participated in the ACA extension.
- For *new* hospitals, γ_{DD} in equation (2) measures the impact of participating in the RCHD, relative to not participating.

A.7.1.2.3.8 Randomization Inference

In addition to using traditional parametric methods of inference, the randomization inference technique was used to calculate *p*-values. Randomization inference may be more appropriate than parametric inference in cases with small sample sizes. With only 14 *continuing* hospitals and 12 *new* hospitals, that challenge was present in this evaluation.

A small sample size does not bias the coefficient estimates obtained when the DID specification described in equation (2) is estimated. However, a small sample size implies that inference based on parametric standard errors is unreliable because it depends on asymptotic approximations.[41]

Randomization inference was used to address this concern. Randomization inference, also known as permutation-based inference, is a non-parametric technique for calculating *p*-values. To implement this technique, a placebo demonstration treatment status was randomly assigned to different sets of comparison hospitals. The randomization inference *p*-values represent the proportion of times the placebo treatment effect was larger than the actual estimated treatment effect for RCHD hospitals. A *p*-value smaller than a predetermined threshold (e.g., the 10 percent level) suggests that the RCHD had an impact, whereas the frequent occurrence of large placebo effects compared to estimated treatment effects (i.e., large *p*-values) would suggest that the demonstration had no statistically significant impact.

[41] Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J. (2013). Does management matter? Evidence from India. *The Quarterly Journal of Economics, 128*(1), 1–51. https://doi.org/10.1093/qje/qjs044

When presenting results, the results of estimating equation (2) and two sets of *p*-values are shown: parametric (or traditional) *p*-values and non-parametric *p*-values based on randomization inference. In our experience and the existing literature, when sample sizes are large enough, traditional *p*-values and randomization inference *p*-values are almost identical.[42,43,44] However, in cases with smaller sample sizes, randomization inference *p*-values are more appropriate.[45]

The following three rules were used to report and interpret traditional and randomization inference *p*-values:

- Both traditional and randomization inference *p*-values are reported for all regression results in the results tables.
- For purposes of defining whether there is an impact of the RCHD on an outcome, the randomization inference *p*-value takes precedence over the traditional *p*-value, if they are inconsistent.
- When discussing the results, all cases where there are inconsistencies between traditional and randomization inference *p*-values are noted.

A.7.2 Qualitative Methodology

Two members of the qualitative analysis team conducted all interviews, and, with permission from interviewees, recorded interviews for transcription purposes and subsequent analyses. These same senior researchers coded the interview transcripts using NVivo software, with high-level codes aligned with the key research questions. To ensure coding consistency, they compared and reconciled results, created coding rules for complex themes, and identified common themes for analysis using NVivo groupings. The interview guides and coding schemes are found in Appendix B.

[42] Courtemanche, C., Marton, J., Ukert, B., Yelowitz, A., & Zapata, D. (2018). Effects of the Affordable Care Act on health care access and self-assessed health after 3 years. *Inquiry: The Journal of Health Care Organization, Provision, and Financing*, *55*, 0046958018796361. https://doi.org/10.1177/0046958018796361

[43] Courtemanche, C., Marton, J., Ukert, B., Yelowitz, A., & Zapata, D. (2017). Early impacts of the Affordable Care Act on health insurance coverage in Medicaid expansion and non-expansion states. *Journal of Policy Analysis and Management, 36*(1), 178–210.

[44] Courtemanche, C. J., & Zapata, D. (2014). Does universal coverage improve health? The Massachusetts experience. *Journal of Policy Analysis and Management, 33*(1), 36–69. https://doi.org/10.1002/pam.21737

[45] Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., & Roberts, J. (2013). Does management matter? Evidence from India. *Quarterly Journal of Economics, 128*(1), 1–51. https://doi.org/10.1093/qje/qjs044

Appendix B: Interview Guides and Qualitative Coding Table

B.1 Interview Guides for Exiting, New, and Continuing Hospitals

B.1.1 Interview Discussion Guide - Exiting MMA Hospitals

B.1.1.1 Introduction

My name is ___, and I am a researcher from Mission Analytics Group. Thank you for agreeing to participate in an interview about the Rural Community Hospital Demonstration – the RCHD. IMPAQ International and its partner, Mission Analytics Group, have been contracted by the Centers for Medicare and Medicaid Services (CMS) to serve as the independent evaluator for the RCHD. This evaluation will examine the demonstration's effects on Medicare payments and hospital financial condition, with a focus on hospital experience under the third solicitation. The evaluation team includes a group of researchers who led the previous RCHD evaluations.

In preparation for our interview today, we have reviewed materials related to your hospital, including your application to the RCHD and annual reports, notes from the previous RCHD interview(s), and cost report data. We want to use this interview to learn more about whether the impact of the demonstration on your hospital's finances has changed over time and if so, what might be driving those changes. We would also like to hear any relevant updates on your hospital operations and market environment and your plans for sustainability after the demonstration.

Before we begin, I'd like to take a minute to review the informed consent for the interview and how we will handle the information you provide:

1 We will use the information you share with us for research purposes only.

2 All of your responses will be kept confidential. You will not be identified in any published materials.

3 No one, except the research team, will have access to the specific information you provide, and we will only report summary information from our full set of interviews.

4 This interview will last approximately 1 hour.

Now that we have gone through the informed consent information, **do you agree to be interviewed?**

5 Yes

6 No

With your permission, we would like to audio-record the interview to ensure that we record and analyze your remarks accurately. Only the research team will have access to the recording. **Would it be okay to audio-record the interview?**

[If Yes, start recording by pressing RECORD, then continue]

The recording has started, for the record can you confirm that you agree to have this interview audio-recorded?

Do you have any questions about the interview before we begin?

[If YES, answer any questions]

- When we spoke to you last, your main responsibilities were [*summarize*]. Is that still true?

7 Or

- To start, please tell me a little bit about yourself. How long have you been serving as [JOB TITLE] in your hospital? What are your current responsibilities? What did you do before?

B.1.1.2 Demonstration Payments

Let's start by talking about your decision to continue participating in the demonstration under the second extension and factors that might influence your demonstration payments.

1. According to my records, you have been participating in the demonstration since *[year]*. When the demonstration was extended in 2016, what made the hospital decide to continue? Please describe the **decision-making process**.
    a. Did you and others in hospital leadership weigh the pros and cons of other payment options? If so, which ones and what did you consider? Did any recent changes to these programs make you reconsider your participation in the RCHD? *Probe on specific payment options: IPPS, including August 2019 Final Rule, which increased wage index values for some hospitals, Sole Community Hospital (SCH), Critical Access Hospital (CAH), Medicare Dependent Hospital (MDH), Low-Volume Adjustment.*
    b. Did your hospital have any **technical support** during the decision-making process – e.g., through your health care system administrator or a contractor?
    c. What types of analyses were conducted?
2. Now, let's talk about the **payments** themselves and how they have impacted your **Medicare inpatient margins**. According to cost report data from the previous evaluation *[briefly describe Medicare inpatient margins prior to the demonstration until 2016].*

a. How would you describe your hospital's Medicare inpatient margins before and after joining the demonstration?

b. How have they changed since 2016?

3. Now, let's talk about the **aspects of your hospital's finances or operations that may have impacted your hospital's RHC payments**, over time and potentially relative to other eligible hospitals.

   a. After the base year, has your hospital received payments based on the target amount or cost? [*If target amount*] What are the reasons costs were higher in the base year? [*If cost*] How has your hospital contained costs, so they are less than the projected target amount?

   b. How did the rebasing under the most recent extension affect your hospital's payments?

   c. The previous evaluation indicated that swing-bed designation and the provision of skilled nursing services in these beds could affect hospital payments. According to the cost reports, *[briefly describe hospital's use of swing beds and changing average daily census until 2016].* Do you think swing-bed designation could have affected your hospital's demonstration payments? How so?

   d. What other aspects of your hospital's operations do you think could have impacted your hospital's payments?

   e. Has the payment structure affected your cost controls?

4. What would you change about the demonstration payments so they better support your hospital? [*Probe: the equation for calculating the target amount, the auditing/adjustment process*]

5. Have you considered withdrawing from the demonstration? Why? Why did you decide to stay?

B.1.1.3 Overall Financial Performance and Impact of the Demonstration

Now, I'd like to focus our conversation on your hospital's overall financial performance and the impact of the demonstration, including programs and projects that you have implemented with demonstration payments. Based on what I have seen, I understand that *[summarize hospital overall profitability margins].*

1. How would you characterize your hospital's financial viability?

   a. What **factors influence your hospital's viability** (e.g., payer mix, competition, declining population, staff recruitment and retention, other revenue sources, such as a local government subsidy).

b. What is your hospital's strategy for achieving or sustaining **long-term** financial viability (e.g., joining a health care system, adding or removing service lines, marketing, cutting costs)?

2. Now let's talk about the role of the demonstration on hospital finances and other community benefits.

   a. How important is the demonstration to your hospital's financial viability? In other words, how would you describe your overall profitability margins before and after you joined the demonstration?

   b. Based on what I have seen, I understand that [summarize the **programs and projects** the hospital has implemented with demonstration payments]. Is that still accurate?

      i. Have you implemented any new projects?

      ii. Would these projects still be operating without the demonstration payments?

      iii. What have been the community impacts of these projects? How many Medicare and non-Medicare beneficiaries have been impacted? How have you tracked the impact?

B.1.1.3.1 Sustainability: Post-Demonstration Plans

1. What are your hospital's plans to sustain financial viability after the demonstration?

   a. Will your hospital pursue new or revert back to previous payment options, such as CAH, SCH, or MDH?

   b. Will the hospital implement major structural changes (e.g., convert to nursing facility or outpatient health care center, join a health care system, add or remove service lines, cut costs)?

2. What might happen to the projects that have been supported by the demonstration when the payments end? What has your hospital done to improve sustainability of the projects?

B.1.1.3.2 Hospital Profile

Now, I'd like to update the general information I have about the hospital. Based on what I've read, I understand that *[summarize information from other sources about hospital structure, size, operations].* Is that accurate? Let's talk about what has changed regarding:

1. Your hospital's **ownership, governance, or structure**

   a. Free-standing facility versus part of a hospital network

   b. Affiliation with a government entity

   c. Contracts with other organizations

2. Your hospital's **service lines**
    a. Types and levels of inpatient services
    b. When and where patients are transferred if the hospital does not provide the service (inpatient or outpatient)
    c. Services that generate revenue or operate at a loss
    d. Services recently added or dropped
3. Your hospital's **staffing**
    a. Size and skill mix of workforce
    b. Use of temporary, transient, or contract labor
    c. Recruitment/retention
4. Strategic challenges

B.1.1.3.3 Health Care Market

Finally, let's discuss your health care market, including the local economy, population demographics, and other health care providers in the area. Again, based on what I have read, I understand that *[summarize information from other sources about health care environment].* Let's talk about what has changed regarding:

1. The **economy** of the region (or service area) and any anticipated changes
    a. Strength of local economy
    b. Major employers and potential dependency
    c. Ways in which the local economy is affecting hospital operations
2. **Population demographics,** health needs and impact on hospital operations
3. The **health care providers** in the region and the health care services available (e.g., availability of primary care physicians and specialists)
    a. Competition for outpatient care (e.g., physician-owned ambulatory surgery centers, diagnostic tests)
    b. Competition for inpatient care
    c. Strategies to increase competitiveness
4. The **health insurance market** in the area
    a. Managed care penetration
    b. Main insurance providers

c. Payer mix, including uninsured or private pay individuals, hospital participation in the Disproportionate Share Hospital (DSH) program for Medicare or Medicaid, and impact of the Affordable Care Act and or other federal, state or local policies on payer mix

d. Participation in an Accountable Care Organization (ACO) and arrangement

5. The **labor market** for health care professionals in your area

Is there anything else you would like to add about your hospital or its experience under the demonstration? Thank you for taking the time to talk to us today.

B.1.2 Interview Discussion Guide - New Hospitals under the CCA

B.1.2.1 Introduction

My name is ___, and I am a researcher from Mission Analytics Group. Thank you for agreeing to participate in an interview about the Rural Community Hospital Demonstration – the RCHD. IMPAQ International and its partner, Mission Analytics Group, have been contracted by the Centers for Medicare and Medicaid Services (CMS) to serve as the independent evaluator for the RCHD. This evaluation will examine the demonstration's effects on Medicare payments and hospital financial condition, with a focus on hospital experience under the third solicitation. The RCHD was initially authorized in 2003 under the Medicare Modernization Act, extended in 2008 under the Affordable Care Act, and then extended once again under the Cures Act. Your hospital joined during this last solicitation. The evaluation team includes a group of researchers who led the previous RCHD evaluations.

In preparation for our interview today, we have reviewed your hospital's website, application to the RCHD, and cost report data through 2016. We have also reviewed public information on your hospital area's economy and demographics. We hope to use this interview as a way to for you to provide us with updated and more detailed information.

Before we begin, I'd like to take a minute to review the informed consent for the interview and how we will handle the information you provide:

8 We will use the information you share with us for research purposes only.

9 All of your responses will be kept confidential. You will not be identified individually in any published materials.

10 No one, except the research team, will have access to the specific information you provide, and we will only report summary information from our full set of interviews.

11 This interview will last approximately 1 hour.

Now that we have gone through the informed consent information, **do you agree to be interviewed?**

12 Yes

13 No

With your permission, we would like to audio-record the interview to ensure that we record and analyze your remarks accurately. Only the research team will have access to the recording. **Would it be okay to audio-record the interview?**

[If Yes, start recording by pressing RECORD, then continue]

The recording has started. For the record can you confirm that you agree to have this interview audio-recorded?

Do you have any questions about the interview before we begin?

[If YES, answer any questions]

To start, please tell me a little bit about yourself. How long have you been serving as [*job title*] in your hospital? What are your current responsibilities? What did you do before?

B.1.2.2 Environment

Now, I'd like to make sure I understand the environment your hospital operates in, including the local economy and population demographics. From what I have read, I understand that *[summarize]*. Is that right? What else can you tell me about:

1. The **economy** of the region (or service area)
    a. What types of jobs are prevalent (e.g., tourism, agriculture, etc.)? Do these jobs tend to be seasonal or stable throughout the year?
    b. Who are the major employers? Is your hospital a major employer in the community?
    c. Is the economy changing? How so? Are any of these changes affecting hospital operations and service use?
2. The **social environment** of the area
    a. Based on what I've read, [describe area demographic characteristics]. Is there something you'd like to add?
    b. Is the population changing in any important way? Has changing demographics affected the hospital's operations, or could it affect operations in the future?

Is there anything else we should know about the environment your hospital operates in that makes it unique or creates particular challenges?

B.1.2.3 Hospital Profile

Now, I'd like to focus on _____ Hospital, in particular. Again, based on what I've read, I understand that *[summarize information from other sources about hospital structure, size, operations].* Is that accurate? What else can you tell me about:

1. Your hospital's **ownership, governance, or structure**
    a. Has your hospital changed ownership structure since you submitted the application? Has your hospital experienced any other major ownership changes? [*If applicable*] Why did the hospital change ownership structure?

b. Are there any partnerships or affiliations that are a key part of your hospital's operations?

2. Your hospital's **service lines**
    a. What types and levels of inpatient services do you provide? For what services do you typically transfer patients? Where do you transfer them?
    b. What inpatient services are your hospital's primary generators of revenue? Which ones operate at a loss?
    c. How important are outpatient services as a source of revenue?
    d. Have you recently added or dropped service lines, or do you plan to? Why?
3. Your hospital's **staffing**
    a. According to your 2016 cost report, your hospital had [*number*] full-time equivalents (FTEs). How would you describe the mix of your workforce in terms of clinical and non-clinical staff, specialists, and physicians versus other clinical staff, such as PAs and NPs?
    b. To what extent do you rely on temporary, transient, or contract labor? What types of services do these individuals provide?
    b. Does your hospital own any physician practice groups? Have you recently acquired any practice groups? Why did your hospital acquire them? [*Probe: to improve your hospital's financial viability and/or to keep these practices open to maintain community access*]
    c. How would you describe staff recruitment/retention? Turnover?
4. Your hospital's **key strategic challenges**
    a. What do you see as the 2-3 top strategic challenges for the hospital?
    b. How are you responding to these challenges?

B.1.2.4 Health Care Market

What about the health care market in your area? Again, based on what I have read, I understand that *[summarize information from other sources about health care environment].* Is that accurate? What else can you tell me about:

1. The **health care providers** in the region and the health care services available (e.g., availability of primary care physicians and specialists)
    a. Are there competing providers for inpatient care in your community, such as any specialty hospitals, regional hospitals or other small rural hospitals, such as CAHs? What about outpatient care (e.g., physician-owned ambulatory surgery centers)? Is this putting pressure on the hospital to update and expand its facilities?

b. Is that changing in any important way?

c. What makes you competitive in your health care market? What service lines are your hospital's most and least competitive?

d. What could you do/have you done to become more competitive?

2. The **health insurance market** in the area

a. How would you describe your hospital's payer mix, including uninsured or private pay individuals?

b. Has it changed over the years? How has the Affordable Care Act or other federal, state or local policies affected your hospital's payer mix?

c. What share of Medicare beneficiaries are enrolled in Medicare Advantage? Similarly, is your state's Medicaid program primarily managed care or fee for service?

d. What are the largest health insurers in the area? Are they typically Health Maintenance Organizations (HMOs) or Preferred Provider Organizations (PPOs)? How would you describe competition in the health insurance market and changes in plan types (e.g., high deductible plans) and cost sharing?

3. Is your hospital part of an **Accountable Care Organization** (ACO)?

a. If so, please describe the model and how it has impacted your hospital operations, quality of care, and finances.

b. What is the penetration of ACOs in your area?

4. The **labor market** for health care professionals in your area

a. Are there shortages of key professionals? How do you attract and retain staff to your hospital?

b. Is the labor market for hospital or health care professionals changing in any important way?

5. The **health needs** of the population

a. Are there particular health care needs that characterize the population of your service area (e.g., prevalence of chronic disease, disability, aging population)?

b. Are these needs changing in any important way?

B.1.2.5 The Demonstration Compared To Other Payment Options

Now, we'd like to talk about why your hospital chose to apply for the demonstration and its tradeoffs compared to other payment strategies.

1. Why did the hospital **apply** for the RCHD?
2. Please describe the **decision-making process**.
    a. Did you and others in hospital leadership weigh the pros and cons of other payment options? If so, which ones and what did you consider? Did any recent changes to these programs make you reconsider your hospital's participation in the RCHD? [*Probe on specific payment options: IPPS, including August 2019 Final Rule, which increased wage index values for some hospitals, Sole Community Hospital (SCH), Critical Access Hospital (CAH), Medicare Dependent Hospital (MDH), Low-Volume Adjustment.]*
        i. [*If applicable*] As we understand it, your hospital had been **designated as a SCH**, which entitled you to cost-based reimbursement for Medicare inpatient services. Is this correct? If so, were your payments based on current IPPS rates, or base year costs per discharge updated to the current year?
    b. Did your hospital have any **technical support** during the decision-making process – e.g., through your health care system administrator or a contractor?
    c. What types of analyses were conducted?
    d. Why didn't your hospital apply during the **first or second solicitation** (e.g., not eligible)? Did you know about the demonstration? If your hospital had been eligible, would the hospital have applied?
3. Now, let's talk about the **RHC payments themselves.**
    a. After the base year, has your hospital received payments based on the target amount or cost? [*If target amount*] What are the reasons costs were higher in the base year? [*If cost*] How has your hospital contained costs, so they are less than the projected target amount?
    b. The previous evaluation indicated that swing-bed designation and the provision of skilled nursing services in these beds could affect hospital payments. Do you think swing-bed designation could have affected your hospital's demonstration payments? How so?
    c. What other aspects of your hospital's operations do you think could have impacted your payments?
    d. How do RCHD payments compare to other payment options such as IPPS? Are they sufficient to maintain operations?
4. What would you change about the demonstration payments so they better support your hospital? [*Probe: the equation for calculating the target amount, the auditing/adjustment process*]

5. Have you ever considered **withdrawing** from the demonstration? Why?

B.1.2.6 Finance Performance

We have reviewed cost report data as part of this evaluation, but I'd also like to get your perspective on the hospital's financial situation. Let's first talk about what is generally influencing your hospital's financial viability. Then, we can move on to the effects of the demonstration. Based on what I have seen, I understand that *[summarize information from other sources about the hospital's financial situation and influencing factors prior to the demonstration].* Is that accurate?

1. What are the **major positive and negative forces** affecting your hospital's financial condition? Have any of these forces changed since joining the demonstration?
2. How would you describe the **uncompensated care** (bad debt + free care) before the demonstration started?
    a. Are you designated as a Disproportionate Share Hospital (DSH) for purposes of Medicare reimbursement? Medicaid?
    b. Do you receive any compensation from local government authorities or other sources for free care?
3. What **non-operating sources of revenue** have you relied on (e.g., local government subsidy, investments, donations, rent)?
4. What is your perception of your hospital's **access to capital?** Are capital projects funded in part through local bond issues?
5. *[If financial viability is a concern]* How would you describe your hospital's **strategy for achieving or sustaining long-term financial viability**?

B.1.2.7 Impact of the Demonstration on Financial Performance and Community Benefits

Now, let's talk about how the demonstration has affected your hospital's financial viability.

1. How would you describe your hospital's **Medicare inpatient margins** before and after joining the demonstration?
2. How do you think the demonstration's cost-based reimbursement affected your **financial bottom line**? In other words, how would you describe your overall profitability margins before and after you joined the demonstration?
3. Is the demonstration's financial impact what you **expected**?

Now, I'd like to focus our conversation on how your community may have been impacted by the demonstration. Based on what I read in your application, I understand that *[summarize the programs and projects the hospital planned to implement with demonstration payments].* Is that accurate?

1. How are you using the **additional payments** from the demonstration? What were your hospital's initial goals for the demonstration payments? *[If applicable]* Why the change? [*Probe on whether payments were used to support operational costs or were invested in areas that would improve hospital financial viability or efficiency.*]
2. Were these projects or activities **already planned or underway** before you participated in the demonstration, or were they new?
3. Would these projects still be operating without the demonstration payments?
4. What have been the **community impacts** of these projects or activities? How many Medicare and non-Medicare beneficiaries have been impacted? How do you **track** community impacts?
5. Is there anything else that is important for us to understand about your hospital's participation in the demonstration, or the projects you have undertaken?

Thanks for taking the time to talk to us today. This has been very helpful, and we look forward to talking to you one more time before the demonstration ends to see how things are progressing.

B.1.2.8 ALTERNATE PAYMENT OPTIONS

B.1.2.8.1 Separate Designation

1. **Inpatient Prospective Payment System (IPPS):** Payment per inpatient discharge based on Diagnostic Related Group (DRG) and wage index. The August 2019 IPPS Final Rule increases the wage index for rural hospitals; hospitals that have a wage index value below the 25th percentile get an increase that is "half the difference between the otherwise applicable wage index value for that hospital and the 25th percentile wage index value across all hospitals." In addition, a hospital's final wage index for FY 2020 will not be less than 95 percent of its final wage index for FY 2019.
2. **Sole Community Hospital (SCH):**

   Criteria: A hospital has to satisfy one of the following conditions to be in this category:

   - Be at least 35 miles from a hospital;

- No more than 25 percent of Medicare inpatient beneficiaries admitted to another hospital within the service area or 35-mile radius or have fewer than 50 beds and some exceptions to the 25 percent service area rule;
- Be between 15 and 25 miles from another hospital but inaccessible due to weather or topography;
- The travel time to nearest hospital is 45 minutes due to speed limits, weather, etc.

  Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. Capital payments are like all IPPS hospitals. Payments have not been rebased since 2006. SCHs also receive a 7.1 percent augmentation to the Outpatient Prospective Payment System (OPPS) rates for all outpatient services except drugs and biologicals. RCHD hospitals retain their SCH designation and thus, continue to receive this OPPS enhancement.

3. **Medicare Dependent Hospital (MDH):**

   Criteria: Have least 60 percent of inpatient days or discharges attributable to Medicare beneficiaries, located in a rural area, have 100 or fewer beds, and not be classified as a SCH. Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. The MDH program was not approved for FY 2018, but the August 2019 IPPS Final Rule extended the program for five years. Retroactive payments will be provided. Payments have not been rebased since 2002.

4. **Critical Access Hospital:**

   Criteria: Fewer than 26 acute care beds, located more than 35 miles from another hospital, average length of stay of 96 hours, and 24/7 emergency care services. States could waive the proximity limit prior to 2006. Hospitals receive 101 percent of inpatient and outpatient costs, but payments were affected by sequestration.

B.1.2.8.2 Payment Add-ons

1. **Low-Volume Adjustment (*offset by RCHD payment*):** 2011-2017

   Criteria: Have fewer than 1,600 Medicare discharges and be located 15 miles or more from the nearest subsection (d) hospital. Extended with the same criteria for 2018 under the Bipartisan Budget Act of Feb. 2018. For 2020-2023, the August 2019 IPPS Final Rule increases the number of total discharges to 3,800. Payments are adjusted by number of discharges, starting with a 25 percent add-on for hospitals with fewer than 500 discharges.

2. **Disproportionate Share Hospital (DSH):**

   Criteria: Serve a significantly disproportionate number of low-income individuals. Payment add-on is based on number of beds and the “disproportionate patient percentage (DPP).

B.1.3 Interview Discussion Guide - Continuing, ACA Hospitals

B.1.3.1 Introduction

My name is ___, and I am a researcher from Mission Analytics Group. Thank you for agreeing to participate in an interview about the Rural Community Hospital Demonstration – the RCHD. IMPAQ International and its partner, Mission Analytics Group, have been contracted by the Centers for Medicare and Medicaid Services (CMS) to serve as the independent evaluator for the RCHD. This evaluation will examine the demonstration's effects on Medicare payments and hospital financial condition, with a focus on hospital experience under the third solicitation. The evaluation team includes a group of researchers who led the previous RCHD evaluation.

In preparation for our interview today, we have reviewed materials related to your hospital, including your application to the RCHD and annual reports, notes from the previous interview(s), and cost report data. We want to use this interview to learn more about whether the impact of the demonstration on your hospital's finances has changed over time and if so, what might be driving those changes. We would also like to hear any relevant updates on your hospital operations and market environment.

Before we begin, I'd like to take a minute to review the informed consent for the interview and how we will handle the information you provide:

14 We will use the information you share with us for research purposes only.

15 All of your responses will be kept confidential. You will not be identified in any published materials.

16 No one, except the research team, will have access to the specific information you provide, and we will only report summary information from our full set of interviews.

17 This interview will last approximately 1 hour.

Now that we have gone through the informed consent information, **do you agree to be interviewed?**

18 Yes

19 No

With your permission, we would like to audio-record the interview to ensure that we record and analyze your remarks accurately. Only the research team will have access to the recording. **Would it be okay to audio-record the interview?**

[If Yes, start recording by pressing RECORD, then continue]

The recording has started, for the record can you confirm that you agree to have this interview audio-recorded?

Do you have any questions about the interview before we begin?

[If YES, answer any questions]

20 When we spoke to you last, your main responsibilities were [*summarize*]. Is that still true?

Or

To start, please tell me a little bit about yourself. How long have you been serving as [JOB TITLE] in your hospital? What are your current responsibilities? What did you do before?

B.1.3.2 Demonstration Payments

Let's start by talking about your hospital's decision to continue participating in the demonstration when it was extended and factors that might influence your hospital's demonstration payments.

1. According to my records, the hospital joined the demonstration under the ACA in *[year]*. When the demonstration was extended, what made the hospital decide to continue? Please describe the **decision-making process**.
    a. Did you and others in hospital leadership weigh the pros and cons of other payment options? If so, which ones and what did the hospital consider? Did any recent changes to these programs make you reconsider your hospital's participation in the RCHD? [*Probe on specific payment options: IPPS, including August 2019 Final Rule, which increased wage index values for some hospitals, Sole Community Hospital (SCH), Critical Access Hospital (CAH), Medicare Dependent Hospital (MDH), Low-Volume Adjustment]*
    b. Did your hospital have any **technical support** during the decision-making process – e.g., through your health care system administrator or a contractor?
    c. What types of analyses were conducted?
    d. *[If hospital is in one of the original eligible states]* Why did the hospital decide not to participate in the demonstration when it began in 2004?
2. Now, let's talk about the **payments** themselves and how they have impacted your **Medicare inpatient margins**. According to cost report data from the previous evaluation *[briefly describe Medicare inpatient margins prior to the demonstration until 2016].*
    a. How would you describe your Medicare inpatient margins before and after joining the demonstration?

b. How have payments and your Medicare inpatient margins changed since 2016?

3. Now, let's talk about the **aspects of your hospital's finances or operations that may have impacted your hospital's RHC payments**, over time and potentially relative to other eligible hospitals.
   a. After the base year, has your hospital received payments based on the target amount or cost? [*If target amount*] What are the reasons costs were higher in the base year? [*If cost*] How has your hospital contained costs, so they are less than the projected target amount?
   b. How did the rebasing under the extension affect your hospital's payments?
   c. The previous evaluation indicated that swing-bed designation and the provision of skilled nursing services in these beds could affect hospital payments. According to the cost reports, *[briefly describe hospital's use of swing beds and changing average daily census until 2016].* Do you think swing-bed designation could have affected your hospital's demonstration payments? How so?
   d. What other aspects of your hospital's operations do you think could have impacted your hospital's payments?
   e. How do RCHD payments compare to other payment options such as IPPS? Are they sufficient to maintain operations?
   f. Has the payment structure affected your cost controls?
4. What would you change about the demonstration payments so they better support your hospital? [*Probe: the equation for calculating the target amount, the auditing/adjustment process.*]
5. Have you considered withdrawing from the demonstration? Why? Why did you decide to stay?

B.1.3.3 Overall Financial Performance and Impact of the Demonstration

Now, I'd like to focus our conversation on your hospital's overall financial performance and the impact of the demonstration, including programs and projects that you have implemented with demonstration funds. Based on what I have seen, I understand that *[summarize hospital overall profitability margins].*

1. How would you characterize your hospital's financial viability?
   a. What **factors influence your hospital's viability** (e.g., payer mix, competition, declining population, staff recruitment and retention, other revenue sources, such as local government subsidy).

b. What is your hospital's strategy for achieving or sustaining **long-term** financial viability (e.g., joining a health care system, adding or removing service lines, marketing, cutting costs)?

2. Now let's talk about the role of the demonstration on hospital finance and other community benefits.
   a. How important is the demonstration to your hospital's financial viability? In other words, how would you describe your overall profitability margins before and after you joined the demonstration?
   b. Based on what I have seen, I understand that *[summarize the **programs and projects** the hospital has implemented with demonstration payments]*. Is that still accurate?
   c. Have you implemented any new projects or activities? *[Probe on whether payments were used to support operational costs or were invested in areas that would improve hospital financial viability or efficiency.]*
   d. Would these projects still be operating without the demonstration payment?
   e. What have been the community impacts of these projects? How many Medicare and non-Medicare beneficiaries have been impacted? How do you **track** community impacts?
3. Is there anything else that is important for us to understand about your hospital's participation in the demonstration, or the projects you have undertaken?

B.1.3.4 Hospital Profile

Now, I'd like to update the general information I have about the hospital. Based on what I've read, I understand that *[summarize information from other sources about hospital structure, size, operations].* Is that accurate? Let's talk about what has changed regarding:

1. Your hospital's ownership, governance, or structure
   a. Free-standing facility versus part of a hospital network
   b. Affiliation with a government entity
   c. Contracts with other organizations
2. Your hospital's **service lines**
   a. Types and levels of inpatient services
   b. When and where patients are transferred if the hospital does not provide the service (inpatient and outpatient)
   c. Services that generate revenue or operate at a loss

d. Services recently added or dropped

3. Your hospital's **staffing**
    a. Size and skill mix of workforce
    b. Use of temporary, transient, or contract labor
    c. Recruitment/retention
4. Strategic challenges

B.1.3.5 Health Care Market

Finally, let's discuss your health care market, including the local economy, population demographics, and other health care providers in the region. Again, based on what I have read, I understand that *[summarize information from other sources about health care environment].* Let's talk about what has changed regarding:

1. The **economy** of the region (or service area)
    a. Strength of local economy and any anticipated changes
    b. Major employers
    c. Ways in which the local economy is affecting hospital operations
2. **Population demographics**, health needs and impact on hospital operations
3. The **health care providers** in the area and the health care services available (e.g., availability of primary care physicians and specialists)
    a. Competition for outpatient care (e.g., physician-owned ambulatory surgery centers, diagnostic tests)
    b. Competition for inpatient care
    c. Strategies to increase competitiveness
4. The **health insurance market** in the area
    a. Managed care penetration
    b. Main insurance providers
    c. Payer mix, including uninsured or private pay individuals, hospital participation in the Disproportionate Share Hospital (DSH) program for Medicare or Medicaid, and impact of the Affordable Care Act and or other federal, state or local policies on payer mix
5. Is your hospital part of an **Accountable Care Organization** (ACO)?

6. If so, please describe the model and how it has impacted your hospital operations, quality of care, and finances.
7. What is the penetration of ACOs in your area?
8. The **labor market** for health care professionals in your area

Thanks for taking the time to talk to us today. This has been very helpful, and we look forward to talking to you one more time before the demonstration ends to see how things are progressing.

B.1.3.6 ALTERNATE PAYMENT OPTIONS

B.1.3.6.1 Separate Designation

1. **Inpatient Prospective Payment System (IPPS):** Payment per inpatient discharge based on Diagnostic Related Group (DRG) and wage index. The August 2019 IPPS Final Rule increases the wage index for rural hospitals; hospitals that have a wage index value below the 25th percentile get an increase that is "half the difference between the otherwise applicable wage index value for that hospital and the 25th percentile wage index value across all hospitals." In addition, a hospital's final wage index for FY 2020 will not be less than 95 percent of its final wage index for FY 2019.
2. **Sole Community Hospital (SCH):**

   Criteria: 1) At least 35 miles from a like hospital; *OR* 2a) No more than 25 percent of Medicare inpatient beneficiaries admitted to another hospital within the service area or 35-mile radius or 2b) Fewer than 50 beds and some exceptions to the 25 percent service area rule; *OR* 3) Between 15 and 25 miles from another hospital but inaccessible due to weather or topography; *OR* 4) Travel time to nearest hospital is 45 minutes due to speed limits, weather, etc. Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. Capital payments are like all IPPS hospitals. Payments have not been rebased since 2006. SCHs also receive a 7.1 percent augmentation to the Outpatient Prospective Payment System (OPPS) rates for all outpatient services except drugs and biologicals. RCHD hospitals retain their SCH designation and thus, continue to receive this OPPS enhancement.
3. **Medicare Dependent Hospital (MDH):**

   Criteria: Have least 60 percent of inpatient days or discharges attributable to Medicare beneficiaries, located in a rural area, have 100 or fewer beds, and not be classified as a SCH. Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. The MDH program was not approved for FY 2018, but the August 2019

IPPS Final Rule extended the program for five years. Retroactive payments will be provided. Payments have not been rebased since 2002.

4. **Critical Access Hospital:**

   Criteria: Fewer than 26 acute care beds, located more than 35 miles from another hospital, average length of stay of 96 hours, and 24/7 emergency care services. States could waive the proximity limit prior to 2006. Hospitals receive 101 percent of inpatient and outpatient costs, but payments were affected by sequestration.

B.1.3.6.2 Payment Add-ons

1. **Low-Volume Adjustment (*offset by RCHD payment*):** 2011-2017

   Criteria: Have fewer than 1,600 Medicare discharges and be located 15 miles or more from the nearest subsection (d) hospital. Extended with the same criteria for 2018 under the Bipartisan Budget Act of Feb. 2018. For 2020-2023, the August 2019 IPPS Final Rule increases the number of total discharges to 3,800. Payments are adjusted by number of discharges, starting with a 25 percent add-on for hospitals with fewer than 500 discharges.

2. **Disproportionate Share Hospital (DSH):**

   Criteria: Serve a significantly disproportionate number of low-income individuals. Payment add-on is based on number of beds and the "disproportionate patient percentage (DPP)."

B.1.4 Round 2 Interview Discussion Guide

B.1.4.1 Introduction

My name is ___, and I am a researcher from Mission Analytics Group. Thank you for agreeing to participate in an interview about the Rural Community Hospital Demonstration—the RCHD. IMPAQ International and its partner, Mission Analytics Group, have been contracted by the Centers for Medicare and Medicaid Services (CMS) to serve as the independent evaluator for the RCHD. This evaluation examines the demonstration's effects on Medicare payments and hospital financial condition, with a focus on hospital experience under the third solicitation. The evaluation team includes a group of researchers who led the previous RCHD evaluation.

In preparation for our interview today, we have reviewed materials related to your hospital, including your application to the RCHD, notes from the previous interview(s), and cost report data. We'll also be sharing cost report data with you to explore some evaluation themes. We want to use this interview to learn more about:

21 Your decision to continue participation in the demonstration under the Consolidated Appropriations Act (CAA) extension.

22 How the demonstration has impacted your Medicare and overall profitability margins and what might be driving that impact.

23 Your perceptions of why some hospitals decide to participate in the demonstration and do better under the demonstration than others.

24 We would also like to hear any relevant updates on your hospital operations and market environment.

Before we begin, I'd like to take a minute to review the informed consent for the interview and how we will handle the information you provide:

25 We will use the information you share with us for research purposes only.

26 All of your responses will be kept confidential. You will not be identified in any published materials.

27 No one, except the research team, will have access to the specific information you provide, and we will only report summary information from our full set of interviews.

28 This interview will last approximately one hour.

Now that we have gone through the informed consent information, **do you agree to be interviewed?**

29 Yes

30 No

With your permission, we would like to audio-record the interview to ensure that we record and analyze your remarks accurately. Only the research team will have access to the recording. **Would it be okay to audio-record the interview?**

[If Yes, start recording by pressing RECORD, then continue]

The recording has started. For the record, can you confirm that you agree to have this interview audio-recorded?

Do you have any questions about the interview before we begin?

[If YES, answer any questions]

31 When we spoke to you last, your main responsibilities were [*summarize*]. Is that still true?

Or

To start, please tell me a little bit about yourself. How long have you been serving as [JOB TITLE] in your hospital? What are your current responsibilities? What did you do before?

B.1.4.2 Decision to Continue/ Discontinue Participation

Let's start by talking about your hospital's decision to continue participating in the demonstration when it was extended under the CAA.

1. According to my records, the hospital joined the demonstration under the [*MMA/ACA/CCA*] in *[year]*. When the demonstration was extended under the CAA, what made the hospital decide to continue? Please describe the **decision-making process**.
    a. Did you and others in hospital leadership weigh the pros and cons of other payment options?
    b. If so, which ones and what did the hospital consider?
    c. Have there been any recent changes to these programs to make you reconsider your hospital's participation in the RCHD? (*e.g., extension of the Low Volume Adjustment)*
    d. Did your hospital have any **technical support** during the decision-making process—e.g., through your health care system administrator or a contractor? What types of analyses were conducted?

B.1.4.3 RCH Payments and Impact on Hospital Medicare Margins

1. Let's talk about the RCH **payments** themselves and the **aspects of your hospital's finances or operations that may have impacted your hospital's RCH payments**, over time and potentially relative to other eligible hospitals. *[Share fact sheet via screen sharing and talk through payments over time.]*
    a. After the base year, has your hospital received payments based on the target amount or cost? [*If target amount*] Why have costs been higher than the projected target amount? [*If cost*] How has your hospital contained costs, so they are less than the projected target amount?
    b. What is your most recent base year? Did the types of costs included in the base year affect your hospital's payments? Do you think the costs in the base year are reflective of your typical costs? Why or why not?
    c. *[Describe how costs will be rebased under the CAA extension.]* What are the implications of the rebasing on your RCH payments? *[Probe: impact of the Covid-19 pandemic on 2020 or 2021 costs, depending on the new base year.]*
    d. [*For MMA hospitals*] Was there a gap in RCH payments? How did that gap impact your hospital?
    e. Evaluation findings indicate that the provision of skilled nursing services in these beds affect hospital payments. According to the cost reports, *[briefly describe hospital's use of swing beds, swing-bed discharges, and share of RCH payments attributable to swing beds].* Do you think the provision of skilled nursing services in swing beds has affected your hospital's demonstration payments? How so? Have you changed your use of swing beds or do you plan to under the demonstration? Why or why not?
    f. Evaluation findings also indicate that hospitals with more discharges receive relatively higher payments under the demonstration than hospitals with fewer discharges. How does this trend relate to your hospital? Have your hospital's discharges changed over time? Why or why not?
    g. What other aspects of your hospital's operations do you think could have impacted your hospital's RCH payments, especially over time (e.g., case-mix)?
2. Has the payment structure affected your cost controls?
3. RCH payments are related to Medicare inpatient margins. According to data from the most current cost report *[share fact sheet via screen sharing and talk through Medicare margins over time].*

a. How would you describe your Medicare inpatient margins before and after joining the demonstration?

b. How have payments and your Medicare inpatient margins changed over time since joining the demonstration? [*relate discussion to previous conversation on RCH payments*]

B.1.4.4 Overall Financial Performance

Now, I'd like to focus our conversation on your hospital's overall financial performance.

1. How would you characterize your hospital's financial performance?
2. What **factors influence your hospital's performance** (e.g., competition; changing inpatient discharges [*relate back to previous discussion*]; declining population)?
3. How did the Covid-19 pandemic affect your hospital's operations and financial performance? Are any of these changes long-lasting?
4. What strategies is your hospital implementing to remain financially viable (e.g., cutting costs, adding new services, improving infrastructure, marketing)?

B.1.4.5 Impact of the Demonstration

We'd like to understand the impact of the demonstration on your hospital, including programs and projects that you have implemented with demonstration funds.

1. How important is the demonstration to your hospital's financial viability? In other words, how would you describe your overall profitability margins before and after you joined the demonstration? *[Share fact sheet via screen sharing]*
2. *[If applicable]* It looks like your Medicare margins have improved under the demonstration, but your overall profitability margins have not increased in a significant way. Why do you think that is?
3. How has your hospital used demonstration funds?
   a. Based on what I have seen, I understand that *[use of funds as described in previous interviews]*. Is that still accurate or have you changed your approach? *[Probe on whether payments were used to support operational costs or were invested in areas that would improve hospital financial viability or efficiency.]*
   b. Would these projects still be operating without the demonstration payment?
   c. Evaluation findings indicate that hospitals that participate in the demonstration have younger physical plants, including equipment, than eligible hospitals that do not participate. Has your hospital made investments in plans during the demonstration, relative to investments made prior to participating in the demonstration? Did demonstration funds support these upgrades?

d. What have been the community impacts of these projects? How many Medicare and non-Medicare beneficiaries have been impacted? How do you **track** community impacts?

B.1.4.6 Perceptions of Why Some Hospitals Decide to Participate in the Demonstration

We'd like to share some other evaluation findings with you to get your perceptions of why some of these trends may exist. We found that hospitals that participate in the demonstration are more likely at baseline to [s*hare list via screen sharing*]:

32 Have higher patient volumes and acute care average daily census (focusing on discharges)

33 Treat more clinically complex patients compared to eligible non-participants

34 Be in non-Competitive markets

35 Have more acute care beds (42 beds vs. 35)

36 Be in a better financial situation, despite having lower Medicare margins

It's understandable that participating RCHD hospitals tend to have lower Medicare margins than eligible non-participating hospitals; this motivates their participation in the demonstration. However, at baseline, they also tend to do better overall financially and share characteristics that are indicators of financial strength.

1. Why do you think hospitals that decided to join the demonstration have higher overall profitability margins than hospitals that decided not to join the demonstration?
2. Hospitals that decided to join the demonstration are also more likely to be non-profit hospitals. Why do you think this is? Do you think that ownership status affects demonstration participation? Why or why not?

B.1.4.7 Updates to Hospital Profile (Time Permitting)

Finally, I'd like to update the general information I have about the hospital. Let's talk about what has changed regarding the following since we last spoke and how these changes have impacted your hospital:

1. **Market competition** within and outside of 35-mile service area
2. Your hospital's ownership, governance, or structure
3. Your hospital's **service lines**
4. Your hospital's **staffing**
5. The **economy** of the region (or service area)

6. **Population demographics,** health needs, and impact on hospital operations
7. The **health care providers** in the area and the health care services available (e.g., availability of primary care physicians and specialists)
8. The **health insurance market** in the area
9. The **labor market** for health care professionals in your area

Thanks for taking the time to talk to us today. This has been very helpful.

B.1.4.8 ALTERNATE PAYMENT OPTIONS

B.1.4.8.1 Separate Designation

1. **Inpatient Prospective Payment System (IPPS):** Payment per inpatient discharge based on Diagnosis Related Group (DRG) and wage index. The August 2019 IPPS Final Rule increases the wage index for rural hospitals; hospitals that have a wage index value below the 25th percentile get an increase that is "half the difference between the otherwise applicable wage index value for that hospital and the 25th percentile wage index value across all hospitals." In addition, a hospital's final wage index for FY 2020 will not be less than 95 percent of its final wage index for FY 2019.
2. **Sole Community Hospital (SCH):**

   Criteria: 1) At least 35 miles from a like hospital; OR 2a) No more than 25 percent of Medicare inpatient beneficiaries admitted to another hospital within the service area or 35-mile radius or 2b) Fewer than 50 beds and some exceptions to the 25 percent service area rule; OR 3) Between 15 and 25 miles from another hospital but inaccessible due to weather or topography; OR 4) Travel time to nearest hospital is 45 minutes due to speed limits, weather, etc. Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. Capital payments are like all IPPS hospitals. Payments have not been rebased since 2006. SCHs also receive a 7.1 percent augmentation to the Outpatient Prospective Payment System (OPPS) rates for all outpatient services except drugs and biologicals. RCHD hospitals retain their SCH designation and thus continue to receive this OPPS enhancement.
3. **Medicare Dependent Hospital (MDH):**

   Criteria: Have least 60 percent of inpatient days or discharges attributable to Medicare beneficiaries, located in a rural area, have 100 or fewer beds, and not be classified as an SCH. Inpatient operating payments are based on the higher of the hospital-specific payment rate or the federal rate. The MDH program was not approved for FY 2018, but the August 2019 IPPS Final Rule extended the program for five years. Retroactive payments will be provided. Payments have not been rebased since 2002.

4. **Critical Access Hospital:**

   Criteria: Fewer than 26 acute care beds, located more than 35 miles from another hospital, average length of stay of 96 hours, and 24/7 emergency care services. States could waive the proximity limit prior to 2006. Hospitals receive 101 percent of inpatient and outpatient costs, but payments were affected by sequestration.

B.1.4.8.2 Payment Add-Ons

1. **Low-Volume Adjustment (*offset by RCHD payment*):** 2011–2017

   Criteria: Have fewer than 1,600 Medicare discharges and be located 15 miles or more from the nearest subsection (d) hospital. Extended with the same criteria for 2018 under the Bipartisan Budget Act of February 2018. For 2020 to 2023, the August 2019 IPPS Final Rule increases the number of total discharges to 3,800. Payments are adjusted by number of discharges, starting with a 25 percent add-on for hospitals with fewer than 500 discharges.

2. **Disproportionate Share Hospital (DSH):**

   Criteria: Serve a significantly disproportionate number of low-income individuals. Payment add-on is based on number of beds and the disproportionate patient percentage (DPP).

B.1.5 Round 2 CCA Hospital Fact Sheet Template

Exhibit B1: Rural Community Hospital Demonstration (RCHD) Fact Sheet: [Hospital Name]

Indicators	3-Year Prior Average	FY 2018
Financial Performance		
Total Margins		
Hospital		
Average across RCHD Hospitals		
Average all Eligible Non-Participating Hospitals		
Medicare Inpatient Margins		
Hospital		
Average across RCHD Hospitals		
Average all Eligible Non-Participating Hospitals		
RCH Payments		
Total RCH Payments		
Hospital		
Average across RCHD Hospitals		
Share of Total RCH Payments for Swing Beds		
Hospital		
Average across RCHD Hospitals with Swing Beds		
Percentage of Per Discharge Payment over IPPS for Swing Beds		
Hospital		
Average across RCHD Hospitals with Swing Beds		
Percentage of Per Discharge Payment over IPPS for Acute Care		
Hospital		
Average across RCHD Hospitals		
Hospital Operations		
For-Profit Status		
Hospital (Yes/No)		
Share of RCHD Hospitals That Are For-Profit		
Share of All Eligible Non-Participating Hospitals		
Average Age of Plant		
Hospital		

Indicators	3-Year Prior Average	FY 2018
Average across RCHD Hospitals		
Average all Eligible Non-Participating Hospitals		
Acute Care Discharges		
Hospital		
Average across RCHD Hospitals		
Average All Eligible Non-Participating Hospitals		
Swing Bed Average Daily Census		
Hospital		
Average across RCHD Hospitals with Swing Beds		
Average all Eligible Non-Participating Hospitals		

B.1.6 Round 2 MMA and ACA Hospital Fact Sheet Template

Exhibit B2: Rural Community Hospital Demonstration (RCHD) Fact Sheet: [Hospital Name]

Indicators	FY 2015	FY 2016	FY 2017	FY 2018
Financial Performance				
Total Margins				
Hospital				
Average across RCHD Hospitals				
Average all Eligible Non-Participating Hospitals				
Medicare Inpatient Margins				
Hospital				
Average across RCHD Hospitals				
Average all Eligible Non-Participating Hospitals				
RCH Payments				
Total RCH Payments				
Hospital				
Average across RCHD Hospitals				
Share of Total RCH Payments for Swing Beds				
Hospital				
Average across RCHD Hospitals with Swing Beds				
Percentage of Per Discharge Payment over IPPS for Swing Beds				
Hospital				
Average across RCHD Hospitals with Swing Beds				
Percentage of Per Discharge Payment over IPPS for Acute Care				
Hospital				
Average across RCHD Hospitals				
Hospital Operations				
For-Profit Status				
Hospital (Yes/No)				
Share of RCHD Hospitals That Are For-Profit				
Share of All Eligible Non-Participating Hospitals				
Average Age of Plant				
Hospital				

Indicators	FY 2015	FY 2016	FY 2017	FY 2018
Average across RCHD Hospitals				
Average All Eligible Non-Participating Hospitals				
Acute Care Discharges				
Hospital				
Average across RCHD Hospitals				
Average All Eligible Non-Participating Hospitals				
Swing-bed Average Daily Census				
Hospital				
Average across RCHD Hospitals with Swing Beds				
Average All Eligible Non-Participating Hospitals				

The evaluation team identified interview topics for analysis (i.e., codes) based on interview protocols, research questions, and themes that emerged from initial interviews. The coding table presents the high-level codes (i.e., parent codes), their subtopics (i.e., sub codes), and definitions. The evaluation team programmed these parent and sub codes and uploaded transcripts of interviews with hospitals into the NVivo software. Two members of the evaluation team then coded segments of transcripts in NVivo, following definitions provided. The NVivo software allowed the evaluation team to group segments of the same code (parent or sub code) for analysis.

Exhibit B3: Qualitative Coding Table

Parent Code	Sub Code	Description
1. Financial Motivation and Performance	a. Reason for joining/continuing demonstration and decision-making process	Why hospital joined/remains in the demonstration; who was involved in decision-making; whether motivation has changed over time (*potential cross-code with 1d, 3a, or 3b)*
	b. Other payment options	Pros and cons of other payment options (e.g., CAH, SCH) compared to the demonstration; hospital's payment mechanism prior to joining the demonstration; what the hospital would move to if it withdraws
	c. Reasons for not participating under previous solicitations	Why (if applicable) the hospital did not participate under a previous RCHD solicitation
	d. Overall financial stressors	Discussion of financial margins and overall performance and changes over time
	e. Major financial facilitators	Major factors stressing the hospital financially (*cross-code with at least one other code*)
2. Demonstration Payments	a. Receiving payments based on target versus cost	Whether the hospital receives payments based on target versus cost and why
	b. Role of swing beds	Whether the hospital has swing beds and how they have affected payments; whether the hospital is considering swing beds in the future
	c. Role of base year and rebasing	Discussion about how the base year and/or rebasing has affected payment
	d. Changes in payments over time	Whether the hospital's payments have changed over time or are expected to change; factors influencing these changes (potential cross-code)
	e. Comments/ feedback on demonstration	Perceptions of demonstration overall, criticism, and/or suggestions for improvement; comments on the calculation method not previously coded (e.g., consumer price index, allocation of costs); reconciliation process
3. Impact of the Demonstration	a. Role of demonstration in hospital financial viability	Whether and/or how the demonstration affects long-term financial viability
	b. Role of demonstration in supporting specific projects/ initiatives	Whether and/or how the demonstration supports specific projects or initiatives, e.g., new service lines (*potential cross-code with at least one other code*)
4. Hospital Profile, Services, Staffing	a. Ownership/ governance	Details about current hospital ownership and governance and/or recent structural changes; pros and cons of being part of a healthcare systems versus independent

Parent Code	Sub Code	Description
4. Hospital Profile, Services, Staffing (continued)	b. Service lines	Details about hospital inpatient and/or outpatient service lines; utilization over time; discharges; inpatient days; services that are profitable or not; services that might be cut (including without the demonstration) (*potential cross-code with 3b*)
	c. Staffing practices and recruitment/ retention	Details about hospital staffing practices, recruitment, and retention (*potential cross-code with 4d*)
	d. Strategic challenges	Top non-financial strategic challenges identified by hospital leadership (cross-code with at least one other code). Note that most strategic challenges are financial in nature, so this code should be used sparingly. Instead, use code 1e.
	e. Participation in ACO	Discussion of ACO structure, incentives, shared savings; reasons for participating or not
	f. Payer mix	Hospital's typical payer mix (private pay, private insurance, Medicaid, etc.)
5. Health Care Market	a. Competitive landscape	Discussion of competition with other hospitals or providers; recent or potential changes to the landscape
	b. Insurance market and policy landscape	Discussion of insurance market, reimbursement rates, largest insurers in region, or relevant federal/state policies and programs (e.g., ACA)
	c. Competitive advantages	What makes the hospital competitive in the market (e.g., specific service lines, location) (*Potential cross-code)*
	d. Competitive disadvantages	What makes the hospital less competitive in the market (*Potential cross-code)*
6. Economic, Social, and Geographic Environment	a. Economy of region	Details about regional economy and/or recent economic changes; major employers; hospital's role in the local economy as an employer
	b. Social and demographic environment	Details about hospital's social and demographic environment and/or social/demographic characteristics of patient population; immigration; out-migration; age of population
	c. Major community health needs	Most significant health needs in community (e.g., chronic illness, cancer)
	d. Unique geography	Geographical features and/or barriers that are unique to hospital's region (e.g., mountainous)
7. Good Quotes	a. Good quotes	Quotes that can be used in final report/publications

Appendix C: Topic Area 1 Exhibits

Exhibit C1 describes the characteristics of participant hospitals prior to joining the RCHD (in the **pre-demonstration** period).[46] RCHD hospitals are stratified into *continuing* and *new* hospitals.[47] Unlike the original MMA authorization and the ACA extension when the demonstration was limited to rural hospitals in the 10 and 20 least populous states, respectively, the CCA extension expanded the demonstration to all states. However, *new* hospitals that joined RCHD as part of the CCA extension are still from the same 20 least populous states as observed during the ACA extension.

Exhibit C1: Hospitals' Attributes During Pre-Demonstration Baseline Period, by Continuing and New RCHD Hospitals

Attribute	Continuing RCHD Hospitals *Average (Standard Deviation [SD])*	New RCHD Hospitals *Average (SD)*	Difference
Margins & Financial Indicators			
Medicare Inpatient Margin	-22.96% (13.48%)	-19.64% (20.84%)	-3.32
Medicare Combined (Inpatient & Outpatient) Margin	-21.51% (10.68%)	-25.93% (18.46%)	4.42
Total Profit Margin	3.19% (10.77%)	-3.20% (22.48%)	6.39
Operating Margin	-2.35% (8.66%)	-7.80% (26.76%)	5.45
Days Cash on Hand	146.00 (114)	128.45 (132)	17.93
Long-Term Debt to Capitalization Ratio	22.29% (17.07%)	-4.33% (111.50%)	26.62
Ratio of Salaries to Net Patient Revenue	46.40% (7.72%)	43.08% (11.25%)	3.32
FTEs per Adjusted Occupied Beds	7.49 (2.44)	8.24 (2.76)	-0.75

[46] The pre-demonstration period is described in Section 1.7

[47] As described in Section 1 (Introduction) *continuing* hospitals are those that first joined the RCHD during the MMA authorization or ACA extension and continued their participation during the CCA extension. *New* hospitals are those that first joined the demonstration during the CCA authorization extension.

Attribute	Continuing RCHD Hospitals *Average (Standard Deviation [SD])*	New RCHD Hospitals *Average (SD)*	Difference
Average Age of Physical Plant (years)	16 (18)	19 (17)	-3
Medicare Share of Inpatient Discharges	44.16% (11.91%)	43.43% (19.92%)	0.73
Medicare Share of Inpatient Days	58.44% (13.02%)	54.73% (19.74%)	3.71
Medicare Swing-Bed Revenue Share	4.24% (4.33%)	9.50% (26.72%)	-5.25
Hospital Characteristics			
Member of a Health System	78.57% (41.53%)	66.67% (47.81%)	11.90
Non-Profit	35.71% (48.50%)	75.00% (43.92%)	-39.29***
For-Profit	0.00% (0.00%)	0.00% (0.00%)	-
Public	64.29% (48.50%)	25.00% (43.92%)	39.29***
Average Daily Census (ADC), Acute Care Beds	16.05 (5.88)	17.89 (11.46)	-1.85
ADC, Swing Beds	1.70 (1.51)	2.40 (4.73)	-0.70
Total Acute Care Beds	42.12 (8.18)	37.03 (11.38)	5.09**
Total Medicare Discharges	804 (357)	847 (578)	-43
Total Medicaid Discharges	304 (184)	280 (216)	24
Total Discharges	1,863 (720)	1,989 (1,150)	-126
Case-Mix Index	1.13 (0.12)	1.44 (0.24)	-0.32***
Disproportionate Share Hospital Year Observations	69.05% (46.79%)	63.89% (48.71%)	5.16
Market Area Characteristics			
Number of Hospitals within Market Area	5 (3)	4 (4)	1

Attribute	Continuing RCHD Hospitals *Average (Standard Deviation [SD])*	New RCHD Hospitals *Average (SD)*	Difference
Miles to Nearest Acute Care Hospital	27 (22)	17 (9)	10***
CAHs within Market Area	3 (2)	2 (2)	1***
Isolated Market Area	0.00% (0.00%)	25.00% (43.92%)	-25.00***
Frontier Market Area	28.57% (45.72%)	41.67% (50.00%)	-13.10
Competitive Market Area	71.43% (45.72%)	33.33% (47.81%)	38.10**
County/State Characteristics			
Population	29,358 (12,182)	39,740 (21,127)	-10,382**
Population per Square Mile	34 (21)	36 (30)	-2
Percentage over 65	14% (5%)	17% (3%)	-3***
Percentage with High School Education or Less	44% (10%)	40% (9%)	3
Percentage White Non-Hispanic	85% (14%)	80% (11%)	5
Percentage of Residents below 150% of Poverty Line	21% (7%)	23% (6%)	-3*
Percentage Unemployed	6.2% (2.5%)	4.6% (2.3%)	1.6***
Median Household Income (in tens of $)	6,839 (1,527)	6,341 (1,655)	498
Median Home Value (in thousands of $)	147 (87)	239 (221)	-92**
Medicaid Expansion States	71% (46%)	42% (50%)	30***

Notes: *** p-value < 0.01; ** 0.01 ≤ p-value < 0.05; * 0.05 ≤ p-value < 0.10. N = 26 RCHD hospitals (14 continuing and 12 new hospitals) and N = 78 RCHD hospital-year observations (42 continuing and 36 new hospital-year observations) for all variables. The pre-demonstration baseline years for continuing RCHD hospitals are pooled from FY 2002 to FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 to FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals are from FY 2015 to FY 2017 (for hospitals joining the RCHD after FY 2017).

Exhibit C2 and **Exhibit C3** presents descriptive statistics showing the financial condition and hospital operational and contextual characteristics of RCHD hospitals (participants) relative to eligible non-participant hospitals during the pre-demonstration baseline years. For participant hospitals, results are presented separately for *continuing*, *new*, and *all* RCHD hospitals.

Exhibit C2: Mean Hospital Margins and Other Financial Outcomes During Pre-Demonstration Baseline Period, RCHD Hospitals Compared to Eligible Non-Participant Hospitals

Hospital Type	Continuing Hospitals			New Hospitals			Full Sample		
Outcomes	Continuing RCHD	Eligible Non-Participants	Difference	New RCHD	Eligible Non-Participants	Difference	RCHD (Continuing and New)	Eligible Non-Participants	Difference
Hospital Margins									
Medicare Inpatient Margin	-22.96% (13.48%)	-0.70% (24.48%)	-22.26***	-19.64% (20.84%)	-3.93% (27.49%)	-15.72***	-21.43% (17.23%)	-1.49% (25.29%)	-19.94***
Medicare Combined (Inpatient and Outpatient) Margin	-21.51% (10.68%)	-3.05% (20.36%)	-18.46***	-25.93% (18.46%)	-12.04% (24.74%)	-13.89***	-23.55% (14.85%)	-5.25% (21.85%)	-18.30***
Total Profit Margin	3.19% (10.77%)	0.14% (12.57%)	3.05*	-3.20% (22.48%)	-1.27% (18.54%)	-1.93	0.24% (17.37%)	-0.20% (14.27%)	0.44
Operating Margin	-2.35% (8.66%)	-5.50% (18.31%)	3.15**	-7.80% (26.76%)	-9.55% (24.96%)	1.75	-4.86% (19.31%)	-6.49% (20.21%)	1.63
Other Financial Indicators									
Days Cash on Hand	146 (114)	86 (360)	60***	128 (132)	73 (114)	56**	138 (122)	83 (318)	55***
Long-Term Debt to Capitalization Ratio	22.29% (17.07%)	39.81% (186.85%)	-17.53***	-4.33% (111.50%)	32.55% (265.56%)	-36.87*	10.01% (77.36%)	38.04% (208.51%)	-28.03***
Ratio of Salaries to Net Patient Revenue	46.40% (7.72%)	47.17% (38.99%)	-0.77	43.08% (11.25%)	45.31% (18.95%)	-2.23	44.87% (9.60%)	46.72% (35.17%)	-1.85
FTEs per Adjusted Occupied Beds	7.49 (2.44)	6.95 (6.07)	0.55	8.24 (2.76)	7.13% (5.97%)	1.12**	7.84 (2.60)	6.99 (6.05)	0.85***

Hospital Type	Continuing Hospitals			New Hospitals			Full Sample		
Outcomes	Continuing RCHD	Eligible Non-Participants	Difference	New RCHD	Eligible Non-Participants	Difference	RCHD (Continuing and New)	Eligible Non-Participants	Difference
Average Age of Physical Plant	16 (18)	13 (13)	4	19 (17)	13 (11)	6*	17 (17)	13 (13)	5**
Medicare Share of Inpatient Discharges	44.16% (11.91%)	50.88% (14.15%)	-6.72***	43.43% (19.92%)	45.31% (18.95%)	-1.67	43.82% (16.00%)	49.47% (14.11%)	-5.65***
Medicare Share of Inpatient Days	58.44% (13.02%)	61.77% (14.62%)	-3.32	54.73% (19.74%)	52.86% (13.92%)	1.87	56.73% (16.46%)	59.59% (14.95%)	-2.86
Medicare Swing-Bed Revenue Share	4.24% (4.33%)	3.79% (5.65%)	0.46	9.50% (26.72%)	2.36% (4.97%)	7.14	6.67% (18.48%)	3.44% (5.53%)	3.23

Notes: Standard deviations are in parentheses. *** p-value < 0.01; ** 0.01 ≤ p-value < 0.05; * 0.05 ≤ p-value < 0.10. N = 26 RCHD hospitals (14 continuing and 12 new) or 78 hospital-years and N = non-participant hospitals (during pooled pre-demonstration baseline years FYs 2002–2004 and FYs 2008–2010 and during pre-demonstration baseline years FYs 2015–2017) or 4,241 hospital-years. The pre-demonstration years for continuing RCHD and eligible non-participant hospitals are pooled from FYs 2002–2004 and FYs 2008–2010. The pre-demonstration years for new RCHD and eligible non-participant hospitals are from FY 2015–FY 2017. In the full sample, pre-demonstration years are pooled from FYs 2002–2004, FYs 2008–2010, and FYs 2015–2017.

Exhibit C3: Mean Hospital Attributes During Pre-Demonstration Baseline, RCHD Hospitals Compared to Eligible Non-Participant Hospitals

Hospital Type	Continuing Hospitals			New Hospitals			Full Sample		
Attribute	Continuing RCHD	Eligible Non-Participants	Difference	New RCHD	Eligible Non-Participants	Difference	RCHD (Continuing and New)	Eligible Non-Participants	Difference
Hospital Characteristics									
Member of a Health System	78.57% (41.53%)	68.24% (46.56%)	10.33	66.67% (47.81%)	53.96% (49.87%)	12.71	73.08% (44.64%)	64.75% (47.78%)	8.33
Non-Profit	35.71% (48.50%)	42.50% (49.44%)	-6.78	75.00% (43.92%)	47.39% (49.96%)	27.61***	53.85% (50.17%)	43.69% (49.61%)	10.15*
For-Profit	0.00% (0.00%)	15.73% (36.41%)	-15.73***	0.00% (0.00%)	18.53% (38.88%)	-18.53***	0.00% (0.00%)	16.41% (37.04%)	-16.41***
Public	64.29% (48.50%)	41.78% (49.33%)	22.51***	25.00% (43.92%)	34.07% (47.42%)	-9.07	46.15% (50.17%)	39.90% (48.97%)	6.26
ADC, Acute Care Beds	16 (6)	13 (8)	3***	18 (11)	11 (9)	7***	17 (9)	13 (8)	4***
ADC, Swing Beds	2 (2)	1 (2)	0*	2 (5)	1 (1)	2**	2 (3)	1 (2)	1**
Total Acute Care Beds	42 (8)	35 (10)	7***	37 (11)	36 (10)	1	40 (10)	35 (10)	4***
Total Medicare Discharges	804 (357)	687 (372)	117**	847 (578)	527 (328)	320***	824 (469)	647 (369)	176***
Total Medicaid Discharges	304 (184)	240 (236)	64**	280 (216)	148 (192)	132***	293 (199)	218 (230)	75***
Total Discharges	1,863 (720)	1,426 (805)	437**	1,989 (1,150)	1,256 (814)	733***	1,921 (939)	1,385 (810)	537***

Hospital Type	Continuing Hospitals			New Hospitals			Full Sample		
Attribute	Continuing RCHD	Eligible Non-Participants	Difference	New RCHD	Eligible Non-Participants	Difference	RCHD (Continuing and New)	Eligible Non-Participants	Difference
Case-Mix Index	1.13 (0.12)	1.05 (0.15)	0.07***	1.44 (0.24)	1.17 (0.21)	0.27***	1.27 (0.24)	1.08 (0.17)	0.19***
DSH-Years	69.05% (46.79%)	77.91% (41.49%)	-8.86	63.89% (48.71%)	86.39% (34.31%)	-22.50***	66.67% (47.45%)	79.98% (40.02%)	-13.31**
Market Area Characteristics									
Number of Hospitals within Market Area	5 (3)	6 (5)	-1**	4 (4)	6 (4)	-2***	4 (3)	6 (5)	-2***
Miles to Nearest Acute Care Hospital	27 (22)	19 (16)	8**	17 (9)	18 (9)	-1	23 (18)	19 (15)	4*
CAHs within Market Area	3 (2)	1 (1)	2***	2 (2)	2 (2)	0	3 (2)	1 (1)	1***
Isolated Market Area	0.00% (0.00%)	6.77% (25.13%)	-6.77***	25.00% (43.92%)	11.00% (31.31%)	14.00*	11.54% (32.16%)	7.80% (26.83%)	3.73
Frontier Market Area	28.57% (45.72%)	11.33% (31.70%)	17.25**	41.67% (50.00%)	8.20% (27.46%)	33.46***	34.62% (47.88%)	10.56% (30.74%)	24.05***
Competitive Market Area	71.43% (45.72%)	81.90% (38.51%)	-10.47	33.33% (47.81%)	80.79% (39.41%)	-47.46***	53.85% (50.17%)	81.63% (38.73%)	-27.79***
County/State Characteristics									
Population	29,358 (12,182)	53,319 (256,919)	-23.961***	39,740 (21,127)	32,831 (22,955)	6,909*	34,150 (17,580)	48,314 (223,797)	-14,164***
Population per Square Mile	34.2 (20.6)	60.8 (198.8)	-26.6***	36.1 (29.9)	48.0 (40.7)	-11.9**	35.1 (25.2)	57.7 (174.1)	-22.6***
Percentage over 65	14% (5%)	16% (3%)	-2**	17% (3%)	18% (3%)	-1**	15% (5%)	16% (4%)	-1**

Hospital Type	Continuing Hospitals			New Hospitals			Full Sample		
Attribute	Continuing RCHD	Eligible Non-Participants	Difference	New RCHD	Eligible Non-Participants	Difference	RCHD (Continuing and New)	Eligible Non-Participants	Difference
Percentage with High School Education or Less	44% (10%)	59% (10%)	-15***	40% (9%)	53% (9%)	-13***	42% (10%)	57% (10%)	-15***
Percentage White Non-Hispanic	85% (14%)	79% (20%)	6***	80% (11%)	75% (21%)	5***	83% (13%)	78% (21%)	5***
Percentage of Residents below 150% of Poverty Line	21% (7%)	29% (9%)	-8***	23% (6%)	30% (8%)	-7***	22% (7%)	29% (9%)	-7***
Percentage Unemployed	6% (3%)	7% (3%)	-1**	5% (2%)	7% (3%)	-2***	5% (3%)	7% (3%)	-2***
Median Household Income (in tens)	6,839 (1,527)	5,509 (1,118)	1,330***	6,341 (1,655)	5,309 (1,259)	1,032***	6,609 (1,596)	5,460 (1,157)	1,149***
Median Home Value (in thousands)	147 (87)	83 (49)	64***	239 (221)	2,046 (43,911)	-1,807	190 (168)	563 (21,712)	-373
Medicaid Expansion States	71% (46%)	51% (50%)	20***	42% (50%)	48% (50%)	-6	58% (50%)	50% (50%)	7

Notes: Standard deviations are in parentheses. *** p-value < 0.01; ** 0.01 ≤ p-value < 0.05; * 0.05 ≤ p-value < 0.10. N = 26 RCHD hospitals (14 continuing and 12 new) or 78 hospital-years and N = non-participant hospitals (during pooled pre-demonstration baseline years FYs 2002–2004 and FYs 2008–2010 and during pre-demonstration baseline years FYs 2015–2017) or hospital-years. The pre-demonstration years for continuing RCHD and eligible non-participant hospitals are pooled from FYs 2002–2004 and FYs 2008–2010. The pre-demonstration years for new RCHD and eligible non-participant hospitals are from FYs 2015–2017. In the full sample, pre-demonstration years are pooled from FYs 2002–2004, FYs 2008–2010, and FYs 2015–2017.

C.1 Characteristics of Participant Hospitals

Exhibit C4 displays the distribution (at the 10th percentile, median, and 90th percentile) of select characteristics prior to the demonstration separately for *continuing* and *new* RCHD hospitals.

Exhibit C4: Pre-Demonstration Baseline Attributes of Continuing and New RCHD Participants. Distributions of Select Characteristics

Hospital Type	Continuing Hospitals			New Hospitals		
Attribute	**10th Percentile**	**Median**	**90th Percentile**	**10th Percentile**	**Median**	**90th Percentile**
Hospital Margins						
Medicare Inpatient Margin	-39.03%	-21.34%	-6.38%	-43.20%	-11.85%	-3.32%
Medicare Combined Margin	-33.36%	-22.68%	-6.32%	-51.01%	-23.03%	-5.07%
Total Profit Margin	-7.90%	2.48%	10.07%	-23.75%	1.62%	9.41%
Operating Margin	-12.97%	-0.94%	7.32%	-49.09%	-0.78%	8.16%
Financial Indicators						
Days Cash on Hand	23	97	294	0	92	317
Long-Term Debt to Capitalization Ratio	0.00%	24.77%	45.01%	0.00%	20.19%	50.35%
Ratio of Salaries to Net Patient Revenue	38.70%	44.85%	58.42%	32.40%	41.21%	53.23%
FTEs per Adjusted Occupied Beds	5.12	7.39	9.67	5.17	8.26	12.86
Average Age of Physical Plant	3	11	66	2	12	47
Medicare Share of Inpatient Discharges	24.41%	46.46%	56.72%	17.02%	44.92%	73.01%
Medicare Share of Inpatient Days	39.53%	58.72%	71.20%	26.49%	57.21%	86.23%
Medicare Swing-bed Revenue Share	0.00%	2.38%	9.92%	0.00%	0.49%	8.11%
Patient Volume						
ADC Acute Care Beds	10	16	24	2	15	34
ADC Swing-beds	0	1	4	0	0	5
Total Acute Care Beds	33	43	53	26	39	44

Hospital Type	Continuing Hospitals			New Hospitals		
Attribute	10th Percentile	Median	90th Percentile	10th Percentile	Median	90th Percentile
Total Medicare Discharges	386	718	1,326	119	800	1813
Total Medicaid Discharges	101	315	536	0	280	596
Total Discharges	961	1,815	2,987	188	1,909	3,634
Case-mix Index	0.98	1.15	1.28	1.03	1.42	1.74

Notes: *N*=14 Continuing RCHD hospitals and 12 New RCHD hospitals and *N*=42 Continuing RCHD hospital-year observations and 36 New RCHD hospital-year observations for all variables. The pre-Demo years for continuing RCHD hospitals is pooled from FY 2002 – 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 – 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals is from FY 2015 – 2017 (for hospitals joining the RCHD after FY 2017).

C.2 Characteristics of Participant vs. Non-Participant Hospitals

Exhibit C5 displays the distribution (at the 10th percentile, median, and 90th percentile) of Medicare-revenue financial indicators prior to the demonstration. We present the distribution for Groups A (*continuing* RCHD hospitals vs. eligible non-participant hospitals), B (*new* RCHD hospitals vs. eligible non-participant hospitals), and C (all RCHD hospitals vs. eligible non-participant hospitals).

Exhibit C5: Pre-Demonstration Baseline Distribution of Medicare-Revenue Financial Indicators, RCHD Hospitals Compared to Eligible Non-Participant Hospitals

RCHD vs Eligible Non-Participants		10th Percentile	Median	90th Percentile
Medicare Inpatient Margin				
Continuing Hospitals	RCHD	-39.03%	-21.34%	-6.38%
	Eligible Non-Participants	-28.98%	1.90%	25.72%
New Hospitals	RCHD	-43.20%	-11.85%	-3.32%
	Eligible Non-Participants	-34.61%	-0.10%	23.69%
Full Sample (Continuing & New)	RCHD	-40.02%	-16.56%	-3.87%
	Eligible Non-Participants	-30.25%	1.32%	25.29%
Medicare Combined (Inpatient & Outpatient) Margin				
Continuing Hospitals	RCHD	-33.36%	-22.68%	-6.32%
	Eligible Non-Participants	-24.95%	-1.86%	19.70%
New Hospitals	RCHD	-51.01%	-23.03%	-5.07%
	Eligible Non-Participants	-39.69%	-8.33%	14.08%
Full Sample (Continuing & New)	RCHD	-41.38%	-22.93%	-5.62%
	Eligible Non-Participants	-28.50%	-3.61%	18.12%
Total Profit Margin				
Continuing Hospitals	RCHD	-7.90%	2.48%	10.07%
	Eligible Non-Participants	-10.80%	1.28%	10.76%
New Hospitals	RCHD	-23.75%	1.62%	9.41%
	Eligible Non-Participants	-16.92%	0.03%	15.06%
Full Sample (Continuing & New)	RCHD	-10.60%	2.32%	10.07%
	Eligible Non-Participants	-12.52%	1.02%	11.81%

RCHD vs Eligible Non-Participants		10th Percentile	Median	90th Percentile
Operating Margin				
Continuing Hospitals	RCHD	-12.97%	-0.94%	7.32%
	Eligible Non-Participants	-23.03%	-1.73%	9.11%
New Hospitals	RCHD	-49.09%	-0.78%	8.16%
	Eligible Non-Participants	-38.45%	-4.33%	12.27%
Full Sample (Continuing & New)	RCHD	-19.19%	-0.78%	7.87%
	Eligible Non-Participants	-26.23%	-2.23%	9.86%
Days Cash on Hand				
Continuing Hospitals	RCHD	23	97	294
	Eligible Non-Participants	0	45	192
New Hospitals	RCHD	0	92	317
	Eligible Non-Participants	0	32	203
Full Sample (Continuing & New)	RCHD	4	97	317
	Eligible Non-Participants	0	42	195
Long-Term Debt to Capitalization Ratio				
Continuing Hospitals	RCHD	0.00%	24.77%	45.01%
	Eligible Non-Participants	0.00%	26.12%	91.36%
New Hospitals	RCHD	0.00%	20.19%	50.35%
	Eligible Non-Participants	0.00%	18.40%	87.45%
Full Sample (Continuing & New)	RCHD	0.00%	24.21%	47.78%
	Eligible Non-Participants	0.00%	24.98%	89.17%
Ratio of Salaries to Net Patient Revenue				
Continuing Hospitals	RCHD	38.70%	44.85%	58.42%
	Eligible Non-Participants	32.62%	44.19%	57.39%
New Hospitals	RCHD	32.40%	41.21%	53.23%
	Eligible Non-Participants	28.81%	44.42%	62.36%
Full Sample (Continuing & New)	RCHD	35.02%	43.78%	55.57%
	Eligible Non-Participants	31.68%	44.21%	58.44%

RCHD vs Eligible Non-Participants		10th Percentile	Median	90th Percentile
FTEs per Adjusted Occupied Beds				
Continuing Hospitals	RCHD	5.12	7.39	9.67
	Eligible Non-Participants	3.64	5.57	10.34
New Hospitals	RCHD	5.17	8.26	12.86
	Eligible Non-Participants	3.25	5.78	10.97
Full Sample (Continuing & New)	RCHD	5.12	7.68	10.62
	Eligible Non-Participants	3.51	5.60	10.54
Average Age of Physical Plant				
Continuing Hospitals	RCHD	3	11	60
	Eligible Non-Participants	1	10	24
New Hospitals	RCHD	2	12	47
	Eligible Non-Participants	2	11	23
Full Sample (Continuing & New)	RCHD	2	12	50
	Eligible Non-Participants	1	10	24
Medicare Share of Inpatient Discharges				
Continuing Hospitals	RCHD	24.41%	46.46%	56.72%
	Eligible Non-Participants	32.63%	51.05%	68.67%
New Hospitals	RCHD	17.02%	44.92%	73.01%
	Eligible Non-Participants	29.20%	43.98%	62.66%
Full Sample (Continuing & New)	RCHD	21.70%	46.14%	57.86%
	Eligible Non-Participants	31.25%	49.58%	67.26%
Medicare Share of Inpatient Days				
Continuing Hospitals	RCHD	39.53%	58.72%	71.20%
	Eligible Non-Participants	42.14%	62.91%	79.78%
New Hospitals	RCHD	26.49%	57.21%	86.23%
	Eligible Non-Participants	35.73%	52.40%	70.56%
Full Sample (Continuing & New)	RCHD	31.58%	58.25%	78.01%
	Eligible Non-Participants	40.05%	60.29%	78.32%

RCHD vs Eligible Non-Participants		10th Percentile	Median	90th Percentile
Medicare Swing-bed Revenue Share				
Continuing Hospitals	RCHD	0.00%	2.38%	9.92%
	Eligible Non-Participants	0.00%	1.31%	10.92%
New Hospitals	RCHD	0.00%	0.49%	8.11%
	Eligible Non-Participants	0.00%	0.00%	7.40%
Full Sample (Continuing & New)	RCHD	0.00%	2.07%	9.92%
	Eligible Non-Participants	0.00%	0.70%	10.24%

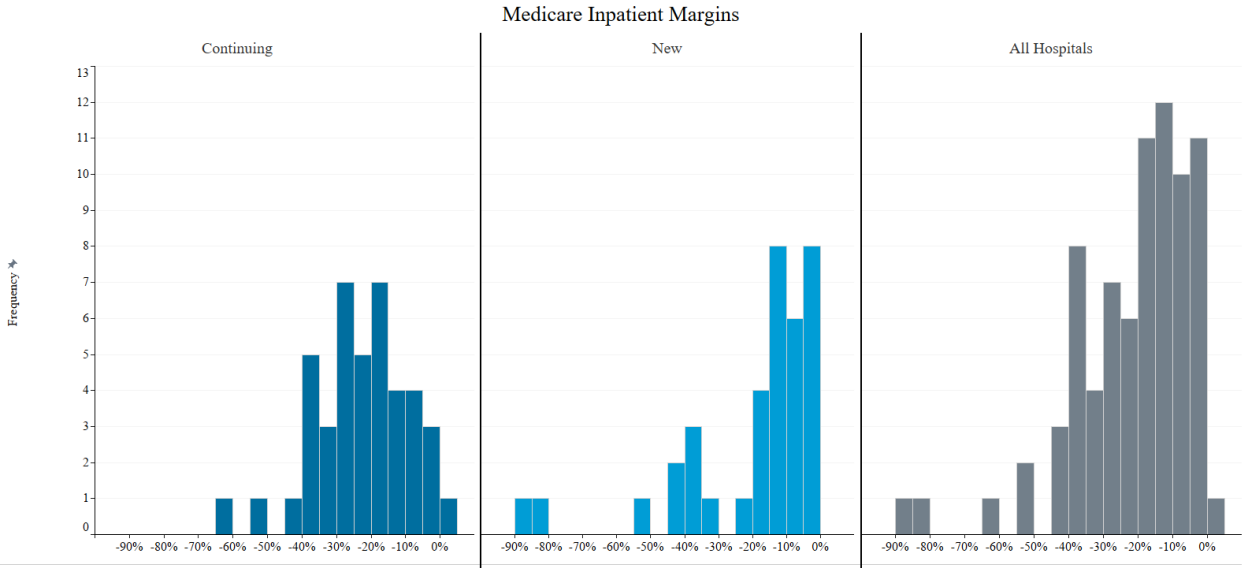
Notes: *N*=26 RCHD hospitals (14 Continuing and 12 New) and *N*=1,036 Eligible Non-Participant hospitals (943 during pooled pre-demonstration baseline years FY 2002-2004 and FY 2008-2010 and 381 during pre-demonstration baseline years 2015-2017). *N*=78 hospital-year observations (42 Continuing and 36 New) and *N*=4,241 Eligible Non-Participant hospital-year observations (3,205 during pooled pre-demonstration baseline years FY 2002-2004 and FY 2008-2010 and 1,036 during pre-demonstration baseline years FY 2015-2017) for all variables. The pre-Demo years for continuing RCHD hospitals is pooled from FY 2002 – FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 – FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals is from FY 2015 – FY 2017 (for hospitals joining the RCHD after FY 2017).

C.3 Distribution of Medicare Inpatient Margin

On average, prior to joining the Demonstration, **Exhibit C6** shows that while *continuing* and *new* RCHD participants both had similar average Medicare Inpatient margin prior to joining the Demonstration, *new* hospitals:

- Tended to have more variation as evidenced by the more dispersed distribution (standard deviation of vs. standard deviation of).
- Had a distribution more skewed to the left as evidenced by the lowest (minimum) total margin (percent vs. percent) and the highest (maximum) total margin (percent vs. percent) values observed among hospital-by-year observations.

Exhibit C6: Distribution of Medicare Inpatient Margins by Continuing, New, and All RCHD Hospitals



	Continuing	New	All Hospitals
Hospital Years	42	36	78
Min	-61.40%	-89.14%	-89.14%
Median	-21.34%	-11.85%	-16.56%
Max	0.03%	-0.62%	0.03%
Avg	-22.96%	-19.64%	-21.43%

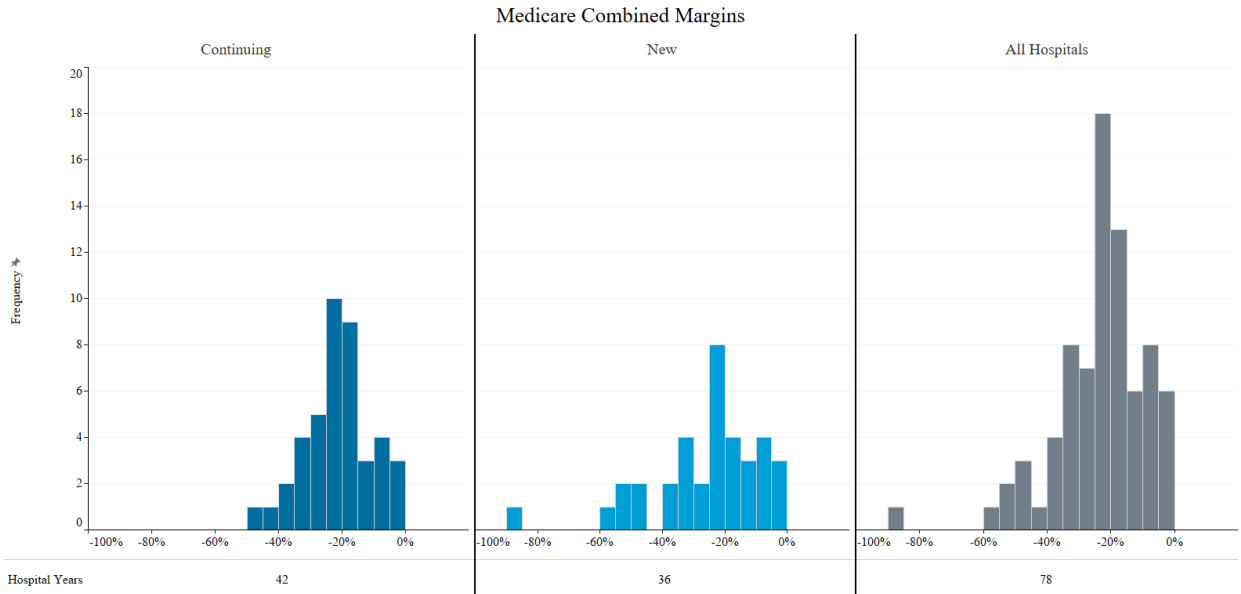
Notes: *N* = 26 RCHD hospitals (14 continuing and 12 new hospitals) and *N* = 78 RCHD hospital-year observations (42 continuing and 36 new hospital-year observations). The pre-demonstration baseline years for continuing RCHD hospitals are pooled from FY 2002 to FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 to FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals are from FY 2015 to FY 2017 (for hospitals joining the RCHD after FY 2017).

C.4 Distribution of Medicare Combined Margins

On average, prior to joining the Demonstration, *continuing* and *new* RCHD participant hospitals have similar Medicare combined margins. However, **Exhibit C7** shows that the distribution of Medicare combined margins for *new* hospitals differs from *continuing* hospitals in that *new* hospitals:

- Tended to have more variation in Medicare combined margins (standard deviation of vs. standard deviation of).
- Had a distribution more skewed to the left as evidenced by the minimum (percent vs. percent) and maximum (percent vs. percent) values observed among hospital-by-year observations.

Exhibit C7: Distribution of Medicare Combined Margins by Continuing, New, and All RCHD Hospitals



	Continuing	New	All Hospitals
Hospital Years	42	36	78
Min	-48.20%	-86.61%	-86.61%
Median	-22.68%	-23.03%	-22.93%
Max	-2.16%	-1.20%	-1.20%
Avg	-21.51%	-25.93%	-23.55%

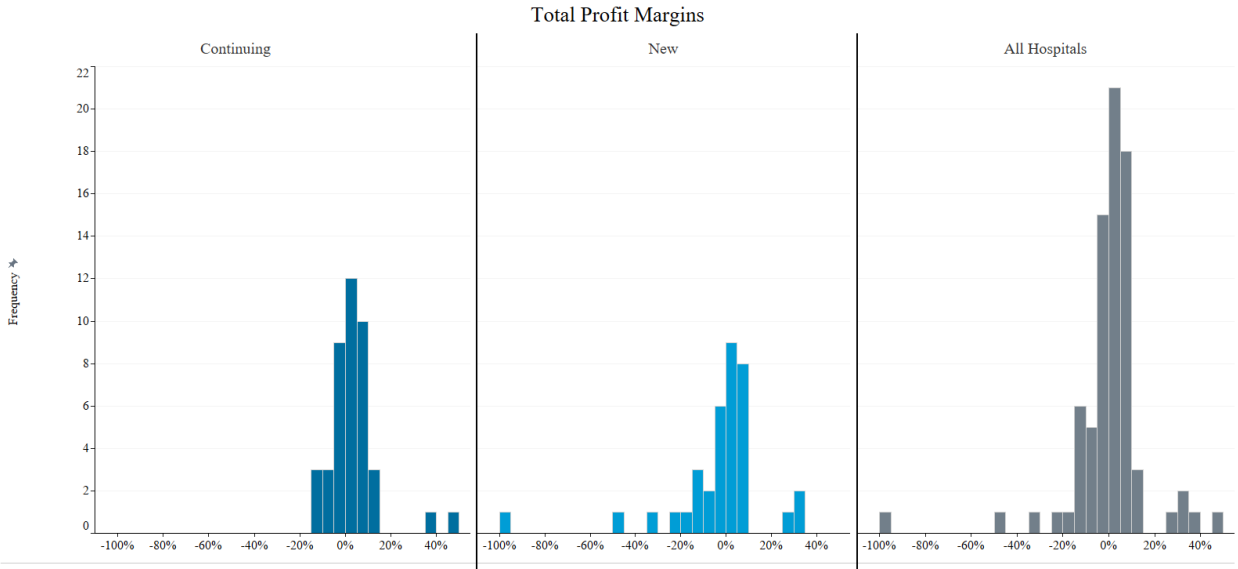
Notes: *N* = 26 RCHD hospitals (14 continuing and 12 new hospitals) and *N* = 78 RCHD hospital-year observations (42 continuing and 36 new hospital-year observations). The pre-demonstration baseline years for continuing RCHD hospitals are pooled from FY 2002 to FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 to FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals are from FY 2015 to FY 2017 (for hospitals joining the RCHD after FY 2017).

C.5 Distribution of Total Profit Margin

On average, prior to joining the Demonstration, *continuing* and *new* RCHD participant hospitals have generally similar total profit margins. However, **Exhibit C8** shows that *new* hospitals:

- Tended to have a much lower average total profit margin as compared to *continuing* hospitals () mainly due one or two outlier hospitals with negative total profit margins below -40 percent. One of the *new* participant hospitals had total profit margin of -100.00 percent in one of the years prior to joining the Demonstration (FY 2015). Another *new* participant hospital had an average total profit margin of -34.00 percent in three years prior to joining the Demonstration (FY 2013 – FY 2015).
- Apart from a few outliers, for a majority of *new* hospitals, total profit margin is very similar to total profit margin among *continuing* hospitals. If we exclude the outlier *new* hospital year observations (hospital year observation in FY 2015 with -100.00 percent total profit margin, and hospital year observations from FY 2013 to FY 2015 with an average total profit margin of -34.00 percent), the average total profit margin for *new* hospitals is percent.

Exhibit C8: Distribution of Total Profit Margins by Continuing, New, and All RCHD Hospitals



	Continuing	New	All Hospitals
Hospital Years	42	36	78
Min	-11.39%	-100.00%	-100.00%
Median	2.48%	1.62%	2.32%
Max	46.06%	31.29%	46.06%
Avg	3.19%	-3.20%	0.24%

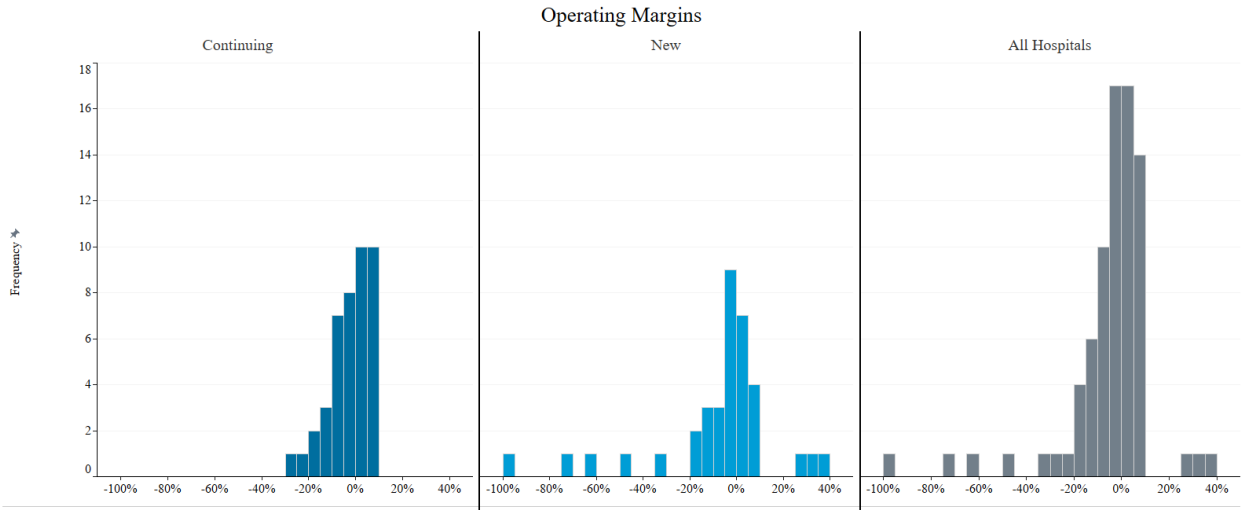
Notes: *N* = 26 RCHD hospitals (14 continuing and 12 new hospitals) and *N* = 78 RCHD hospital-year observations (42 continuing and 36 new hospital-year observations). The pre-demonstration baseline years for continuing RCHD hospitals are pooled from FY 2002 to FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 to FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals are from FY 2015 to FY 2017 (for hospitals joining the RCHD after FY 2017).

C.6 Distribution of Operating Margin

On average, prior to joining the Demonstration, n*ew* hospitals had a lower operating margin than *continuing* hospitals (percent). The operating margin distribution for *new* hospitals is more dispersed than *continuing* hospitals. **Exhibit C9** shows that:

- While the median operating margin for *new* hospitals is slightly lower when comparing *continuing* hospitals (percent), there is a lot more variation in operating margins across *new* hospitals.
- Comparing the minimum operating margin hospital-by-year observations between *new* and *continuing* hospitals, it is much lower for *new* hospitals (percent).
- Comparing the maximum operating margin for hospital-by-year observations between *new* and cont*inuing* hospitals, it is higher for *new* hospitals (percent).

Exhibit C9: Distribution of Operating Margins by Continuing, New, and All RCHD Hospitals



	Continuing	New	All Hospitals
Hospital Years	42	36	78
Min	-27.07%	-100.00%	-100.00%
Median	-0.94%	-0.78%	-0.78%
Max	8.26%	36.25%	36.25%
Avg	-2.35%	-7.80%	-4.86%

Notes: *N* = 26 RCHD hospitals (14 continuing and 12 new hospitals) and *N* = 78 RCHD hospital-year observations (42 continuing and 36 new hospital-year observations). The pre-demonstration baseline years for continuing RCHD hospitals are pooled from FY 2002 to FY 2004 (for hospitals joining the RCHD between FY 2005 and FY 2010) and FY 2008 to FY 2010 (for hospitals joining the RCHD between FY 2011 and FY 2015). The pre-demonstration baseline years for new RCHD hospitals are from FY 2015 to FY 2017 (for hospitals joining the RCHD after FY 2017).

Appendix D: Topic Area 2 Exhibits

Across *all (continuing* and *new) RCHD hospitals*, there was substantial across-year variation in additional RCHD payments per hospital over IPPS that ranged from increases of 31.1 to 57.5 percent.

Exhibit D1.A and **Exhibit D1.B** summarize distributional information about the additional RCHD payments over IPPS between FY 2005 and FY 2021 for all RCHD hospitals. Generally, all hospitals that were participating in RCHD as part of the CCA extension during the Covid-19 pandemic (FYs 2020 and 2021) experienced a decline in additional RCHD payments over IPPS as compared to FYs 2017 and FY 2018. The average additional RCHD payments for hospitals in the bottom quartile (25th percentile) in FYs 2020 and 2021 were $0.7 million per year, and the average additional RCHD payments for hospitals in the top quartile (75th percentile) in FYs 2020 and 2021 were $2.0 and $1.9 million, respectively. In contrast, the average additional RCHD payments for hospitals in the bottom quartile (25th percentile) in FYs 2017 and 2018 were $1.4 million and $1.3 million, respectively, and the average additional RCHD payments for hospitals in the top quartile (75th percentile) in 2020 and 2021 were $3.0 and $2.7 million, respectively.

The standard deviations reported in **Exhibits D1.A** and **Exhibit D1.B** continue to reflect broad within-year variation across hospitals within a given FY. For example, in FY 2020, the percent increase in RCHD payments relative to IPPS among the RCHD hospitals ranged from -8.4 percent to 89.8 percent.

Exhibit D1.A: Additional RCHD Payments over IPPS and S NF PPS by Fiscal Year, FY 2005–2013, in Million $

Measure	Year 1 FY 2005	Year 2 FY 2006	Year 3 FY 2007	Year 4 FY 2008	Year 5 FY 2009	Year 6 FY 2010	Year 7 FY 2011	Year 8 FY 2012	Year 9 FY 2013
Average (Millions)	$2.97	$3.44	$3.06	$3.38	$2.93	$3.39	$2.63	$2.29	$2.44
(Standard Deviation)	($2.37)	($2.10)	($2.13)	($2.47)	($2.29)	($1.50)	($1.29)	($1.48)	($1.68)
RCHD Payments Relative to IPPS per Hospital	45.80%	54.07%	43.23%	47.87%	45.12%	48.35%	39.87%	47.68%	49.39%
(Standard Deviation)	(35.59%)	(27.41%)	(29.12%)	(36.17%)	(27.07%)	(9.97%)	(12.13%)	(30.93%)	(31.38%)
25th Percentile	$0.51	$1.16	$0.70	$0.64	$1.06	$2.44	$1.70	$1.31	$1.52
50th Percentile	$3.15	$3.87	$3.67	$4.07	$2.68	$3.46	$2.32	$1.93	$1.92
75th Percentile	$5.24	$5.29	$4.82	$5.43	$4.80	$4.34	$3.13	$2.89	$2.89
# of Hospitals	3	3	3	3	4	4	9	14	14

Notes: (1) Data from 204 settled cost reports were used for this analysis. (2) The analysis included at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Exhibit D1.B: Additional RCHD Payments over IPPS and SNF PPS by Fiscal Year, FY 2014–2021, in Million $

Measure	Year 10 FY 2014	Year 11 FY 2015	Year 12 FY 2016	Year 13 FY 2017	Year 14 FY 2018	Year 15 FY 2019	Year 16 FY 2020	Year 17 FY 2021
Average (Millions)	$2.61	$2.55	$2.57	$2.86	$2.52	$2.36	$1.50	$1.18
(Standard Deviation)	($1.65)	($1.75)	($2.47)	($2.39)	($2.07)	($1.92)	($1.48)	($1.24)
RCHD Payments Relative to IPPS per Hospital	50.32%	48.31%	44.11%	57.48%	49.04%	48.38%	34.34%	31.06%
(Standard Deviation)	(27.32%)	(30.97%)	(30.06%)	(54.66%)	(42.53%)	(38.66%)	(29.56%)	(31.49%)
25th Percentile	$1.89	$1.80	$1.09	$1.38	$1.35	$1.07	$0.69	$0.70
50th Percentile	$2.10	$1.98	$1.51	$2.24	$2.21	$2.09	$1.07	$0.98
75th Percentile	$3.42	$2.46	$3.08	$3.02	$2.74	$2.80	$1.99	$1.88
# of Hospitals	14	14	13	14	26	26	23	17

Notes: (1) Data from 204 settled cost reports were used for this analysis. (2) The analysis included at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Exhibit D2 shows the additional RCHD swing-bed payments over SNF PPS (depicted as the portion of the bars colored in light blue) and the swing-bed share of additional RCHD payments over IPPS (depicted as a line) separately for *continuing* and *new* hospitals, calculated using only the information from RCHD hospitals with at least one swing-bed discharge.[48] In addition, the bottom part of the exhibit shows the swing-bed share of additional RCHD payments over IPPS (depicted as a line).

[48] A total of 166 hospital-year observations out of 204 were considered to have swing beds. Most observations report positive swing-bed discharges (greater than 0). Three cost reports (Central Peninsula Hospital in FY 2005, Great Plains Regional Medical Center in FY 2018, and St. John's Medical Center in FY 2018) reported no swing-bed discharges but positive swing-bed RCHD payments.

A. Continuing RCHD Hospitals

Between FY 2005 and FY 2021, RCHD swing-bed payments to *continuing* participant hospitals per hospital per year were, on average, higher than what hospitals would have received for swing-bed services under SNF PPS by $0.93 million (representing a 36 percent increase relative to SNF PPS). The average additional RCHD swing-bed payment over SNF PPS ranged across fiscal years from $0.55 million (in FY 2020) to $1.1 million (in FY 2007) for *continuing* hospitals.

Some of the across-year variation in swing-bed shares of additional RCHD payments over IPPS could be due to the increasing number of hospitals receiving RCHD swing-bed payments over time. Two to three hospitals were in the sample from FY 2005–FY 2010, followed by a jump to 10–12 *continuing* hospitals from FY 2011 to FY 2019 before dropping to 11 and 4 *continuing* hospitals in 2020 and 2021.

Qualitative findings for these hospitals mention difficulties faced by *continuing* hospitals such as increased competition with neighboring facilities for swing-bed care. One *continuing* hospital experienced a decrease and then an increase in RCHD swing-bed payments with the opening and subsequent closure of a neighboring SNF, and a second mentioned competition with local facilities as a factor in swing-bed utilization and thus RCHD payments. A third hospital has tried to increase swing-bed referrals but finds that patients tend to seek acute care there and then get follow-up swing-bed care at the nearby tertiary center. A fourth *continuing* hospital reported that a decrease in swing-bed utilization due to a new long-term care facility nearby has impacted the benefits of the demonstration. Two additional *continuing* hospitals reported relatively low swing-bed utilization or declining utilization due to numerous contextual factors, including widespread availability of local nursing homes, physician practices and preferences, and shorter lengths of hospitalization.

B. New RCHD Hospitals

For *new* hospitals, the average additional RCHD swing-bed payment over SNF PPS per hospital was $0.84 million between FY 2018 and FY 2021, which is slightly higher than the average additional RCHD swing-bed payment over SNF PPS per hospital by $0.06 million ($0.84 million vs. $0.78 million) for *continuing* hospitals during the same time period.

Between FYs 2018 and 2021, 50.0 percent of the additional RCHD payments over IPPS are attributed to additional RCHD swing-bed payments, which are higher than the 41.6 percent of the *continuing* hospital trend. Therefore, swing-bed revenue seems to take up a

somewhat larger share of additional payments from the RCHD for *new* hospitals than it does for *continuing* hospitals during the same time period.

Qualitative interview responses from *new* hospitals about swing beds reinforce our quantitative findings. *New* RCHD hospitals with swing beds typically reported that swing beds help enhance their RCHD payments, sometimes to a significant degree. The bulk of one *new* hospital's care is related to swing beds since acute care is provided by the neighboring, affiliated hospital. Another indicated that "the swing-bed portion of this [program] makes it work for us." Hospitals also mentioned the benefits of swing beds outside of enhanced RCHD payments. For example, one *new* hospital reported that swing beds improve patient health outcomes by reducing hospital readmissions and maintaining continuity of care.

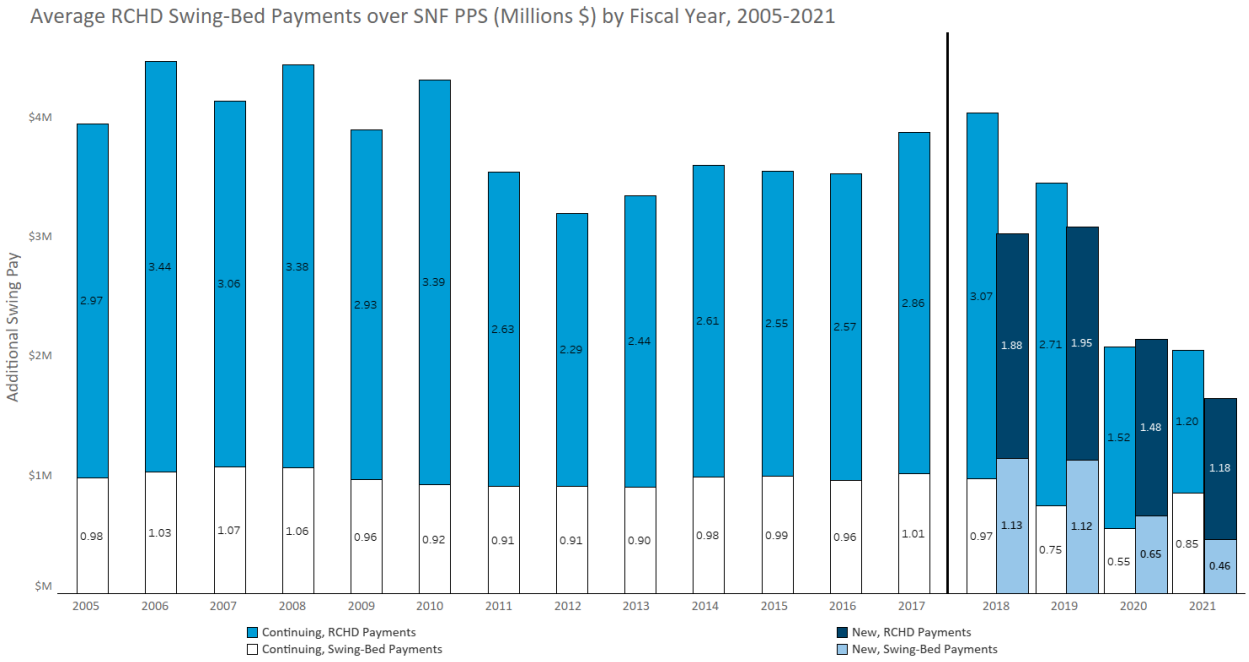
There was wide across-year variation in the distribution of additional RCHD swing-bed payments for the group of all RCHD hospitals with swing beds over SNF PPS. This variation could be due to compositional differences in the sample over time, variation in reimbursement in base and rebase years, and factors external to the demonstration.

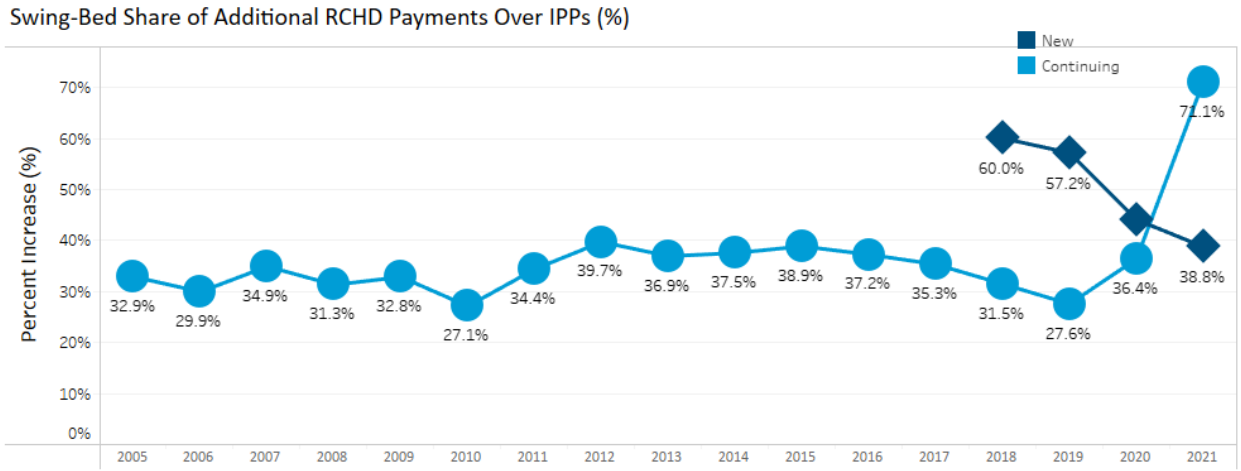
C. All RCHD Hospitals

There was also within-year variation in the additional RCHD swing-bed payments over SNF PPS across participant hospitals. **Exhibit D3.A** and **Exhibit D3.B** summarizes distributional information about additional RCHD swing-bed payments over SNF PPS per hospital between FY 2005 and FY 2021. The standard deviation in additional RCHD swing-bed payment over SNF PPS ranged from $0.33 million (in FY 2011) to $0.71 million (in FY 2018). In FY 2011, additional RCHD swing-bed payment over SNF PPS among the eight participating hospitals with swing-bed discharges ranged from $0.39 million to $1.4 million. In FY 2021, additional RCHD swing-bed payments over SNF PPS among the 13 participating hospitals with swing-bed discharges ranged from -$0.01 million to $1.87 million.

In addition, average per-discharge additional RCHD swing-bed payment over SNF PPS increased between FY 2005 and FY 2008, decreased from FY 2008 to FY 2011, then increased between FY 2011 and FY 2017, and then decreased between FY 2017 and FY 2021. The upward trend observed between FY 2011 and FY 2017 is likely due to the increasing number of *continuing* hospitals with swing-bed discharges as well as external macroeconomic conditions disproportionately impacting the volume of swing-bed discharges in some hospital market areas. The downward trend observed between FY 2017 and FY 2021 is likely due to the changes in hospital composition (more cost reports from *new* hospitals while fewer cost reports from *continuing* hospitals), different base and rebase years among RCHD hospitals, and the Covid-19 pandemic.

Exhibit D2: Average Additional Swing-Bed Payments over SNF PPS per Hospital





Number of Hospitals

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Continuing Hospitals with Swing Beds	2	2	2	2	3	3	8	12	12	11	12	10	12	12	12	11	4
Continuing RCHD hospitals	3	3	3	3	4	4	9	14	14	14	14	13	14	14	14	11	5
New Hospitals with Swing Beds	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9
New RCHD Hospitals	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	12	12

Notes: (1) In each FY there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis; 166 settled cost reports had additional RCHD swing-bed payments over SNF PPS. (3) The analysis includes at least one cost report from unique RCHD hospitals. (4) 0 indicates that no hospitals were in that group in that year.
Source: Hospital cost reports.

Exhibit D3.A: Additional RCHD Swing-Bed Payments over SNF PPS, FYs 2005–2013, in Million $

Measure	Year 1 FY 2005	Year 2 FY 2006	Year 3 FY 2007	Year 4 FY 2008	Year 5 FY 2009	Year 6 FY 2010	Year 7 FY 2011	Year 8 FY 2012	Year 9 FY 2013
Average (Millions)	$0.98	$1.03	$1.07	$1.06	$0.96	$0.92	$0.91	$0.91	$0.90
(Standard Deviation)	($0.37)	($0.48)	($0.38)	($0.38)	($0.40)	($0.42)	($0.33)	($0.35)	($0.42)
25th Percentile	$0.72	$0.69	$0.80	$0.79	$0.73	$0.53	$0.64	$0.74	$0.59
50th Percentile	$0.98	$1.03	$1.07	$1.06	$0.73	$0.86	$0.98	$0.89	$0.87
75th Percentile	$1.24	$1.37	$1.34	$1.33	$1.43	$1.36	$1.10	$1.12	$1.05
Per-Discharge Average (Thousand $)	$10,048	$12,292	$11,936	$13,133	$11,362	$9,320	$9,006	$10,965	$10,312
# of Demonstration Hospitals with Swing-Bed Discharges	2	2	2	2	3	3	8	12	12
# of Hospitals	3	3	3	3	4	4	9	14	14

Notes: (1) In each FY there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis; 166 settled cost reports had additional RCHD swing-bed payments over SNF PPS. (3) The analysis includes at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Exhibit D3.B: Additional RCHD Swing-Bed Payments over SNF PPS, FYs 2014–2021, in Million $

Measure	Year 10 FY 2014	Year 11 FY 2015	Year 12 FY 2016	Year 13 FY 2017	Year 14 FY 2018	Year 15 FY 2019	Year 16 FY 2020	Year 17 FY 2021
Average (Millions)	$0.98	$0.99	$0.96	$1.01	$1.04	$0.90	$0.60	$0.58
(Standard Deviation)	($0.59)	($0.71)	($0.67)	($0.71)	($0.71)	($0.67)	($0.52)	($0.61)
25th Percentile	$0.40	$0.35	$0.38	$0.38	$0.49	$0.38	$0.23	$0.17
50th Percentile	$0.92	$0.93	$0.82	$0.90	$0.90	$0.76	$0.42	$0.32
75th Percentile	$1.45	$1.35	$1.33	$1.75	$1.64	$1.22	$0.88	$1.00
Per-Discharge Average (Thousand $)	$10,001	$10,528	$12,667	$14,369	$12,723	$12,164	$10,661	$9,355
# of Demonstration Hospitals with Swing-Bed Discharges	11	12	10	12	21	21	20	13
# of Hospitals	14	14	13	14	26	26	23	17

Notes: (1) In each FY there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis; 166 settled cost reports had additional RCHD swing-bed payments over SNF PPS. (3) The analysis includes at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Exhibit D4 shows the additional RCHD acute care payments over IPPS (depicted as the portion of the bars colored in light blue) for *new* and *continuing* hospitals. To contextualize this information, **Exhibit D4** also shows the additional RCHD payments (including payments for both inpatient care acute and swing-bed services) over IPPS (depicted as dark blue bars in the exhibit), which was also shown in **Exhibit 3.1**, and was calculated using the information from *new* and *continuing* RCHD hospitals. In addition, the exhibit shows the acute care share of additional RCHD payments over IPPS (depicted as a line). RCHD acute care payments were higher than what hospitals would have received under IPPS. The share of acute care RCHD payments over IPPS were higher for *continuing* RCHD hospitals than *new* hospitals, although that finding should be interpreted with caution due to compositional differences and potential external influences.

A. Continuing RCHD Hospitals

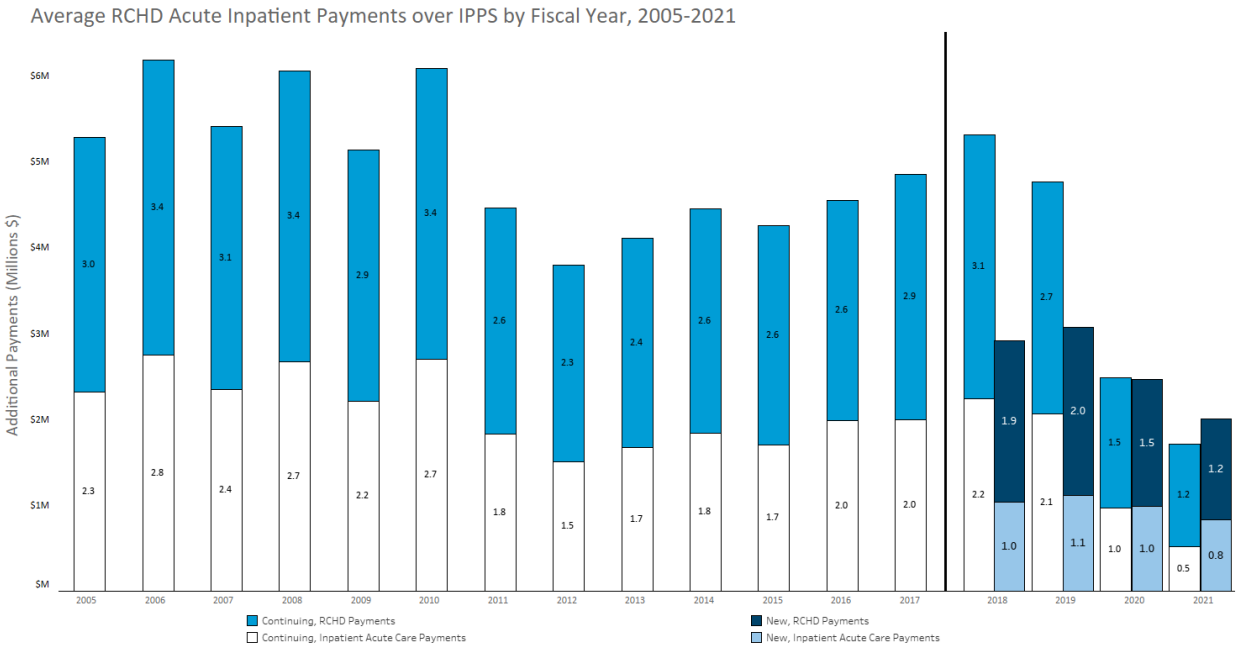
Between FY 2005 and FY 2021, RCHD acute care payments to participant hospitals per hospital per year were on average higher than what hospitals would have received for acute care services under IPPS by $1.96 million (or 71 percent). The average additional RCHD acute care payment over IPPS per hospital varied across FYs from $0.52 million (in FY 2021) to $2.75 million (in FY 2006) for *continuing* hospitals.

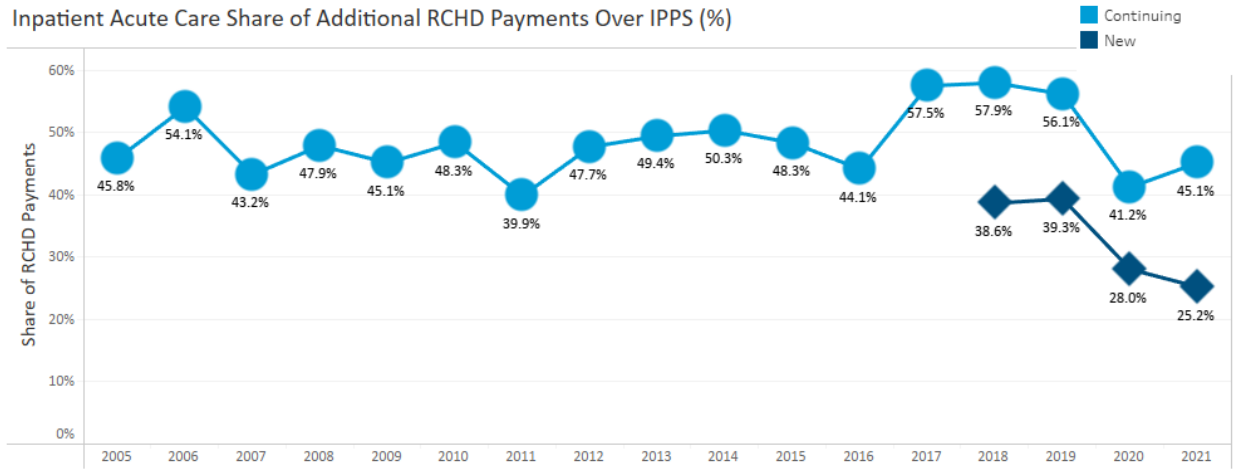
RCHD acute care payments to participant hospitals per year for *continuing* hospitals from FY 2005 to FY 2010 ranged from $ 3.0 million (in FY 2005) to $ 3.4 million (in FYs 2006, 2008, and 2010). The average acute care payments for *continuing* hospitals were lower between FY 2011 and FY 2017, ranging from $1.51 million (in FY 2012) to $1.99 million (in FY 2017). Part of this may be attributable to the changing and increasing sample; FY 2005–FY 2010 had three to four participating hospitals, while FY 2011–FY 2021 had 14 participating hospitals. Average acute care payments for *continuing* hospitals increased in FY 2018 ($2.2 million) and FY 2019 ($2.1 million) but then decreased to $0.97 million in FY 2020 and $0.52 million in FY 2021, coinciding with the Covid-19 pandemic. However, the across-year variation in average payments may also be affected by base and rebase years.

B. New RCHD Hospitals

For *new* hospitals, average additional payments for acute care were $0.99 million from FY 2018 to FY 2021, which falls slightly below the minimum observed for *continuing* hospitals. The average acute care share of additional RCHD payments over IPPS for *new* hospitals was 62 percent, which is less than the average observed for *continuing* hospitals of 71 percent over the same time period.

Exhibit D4: Average Additional Inpatient Acute Care Payments over IPPS per Hospital





Number of Hospitals

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Continuing Hospitals	3	3	3	3	4	4	9	14	14	14	14	13	14	14	14	11	5
New Hospitals	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	12	12

Notes: (1) In each FY there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis. (3) The analysis includes at least one cost report from 26 unique RCHD hospitals. (4) 0 indicates that no hospitals were in that group that year.
Source: Hospital cost reports.

Exhibit D5.A: Additional RCHD Inpatient Acute Care Payments over IPPS, FYs 2005–2013

Measure	Year 1 FY 2005	Year 2 FY 2006	Year 3 FY 2007	Year 4 FY 2008	Year 5 FY 2009	Year 6 FY 2010	Year 7 FY 2011	Year 8 FY 2012	Year 9 FY 2013
Average (Millions)	$2.32	$2.75	$2.35	$2.68	$2.21	$2.70	$1.83	$1.51	$1.67
(Standard Deviation)	($1.75)	($1.43)	($1.46)	($1.81)	($1.80)	($1.70)	($1.31)	($1.42)	($1.61)
25th Percentile	$0.51	$1.16	$0.70	$0.64	$0.70	$1.40	$1.04	$0.30	$0.79
50th Percentile	$2.44	$3.18	$2.87	$3.28	$1.97	$2.78	$1.29	$1.46	$1.32
75th Percentile	$4.00	$3.92	$3.48	$4.11	$3.72	$4.00	$1.96	$1.96	$1.91
Per-Discharge Average (Thousand $)	$2,700	$3,404	$2,734	$3,074	$2,657	$3,856	$2,724	$2,508	$2,880
# of Demonstration Hospitals with Inpatient Acute Care Discharges	3	3	3	3	4	4	9	14	14
# of Hospitals	3	3	3	3	4	4	9	14	14

Notes: (1) In each fiscal year there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis. (3) The analysis includes at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Exhibit D5.B: Additional RCHD Inpatient Acute Care Payments over IPPS, FYs 2014–2021

Measure	Year 10 FY 2014	Year 11 FY 2015	Year 12 FY 2016	Year 13 FY 2017	Year 14 FY 2018	Year 15 FY 2019	Year 16 FY 2020	Year 17 FY 2021
Average (Millions)	$1.84	$1.70	$1.98	$1.99	$1.68	$1.63	$0.98	$0.74
(Standard Deviation)	($1.84)	($1.84)	($2.48)	($2.52)	($2.01)	($2.00)	($1.47)	($1.26)
25th Percentile	$0.76	$0.58	$0.38	-$0.16	$0.46	$0.41	$0.22	$0.36
50th Percentile	$1.44	$1.40	$1.02	$1.56	$0.94	$1.02	$0.49	$0.49
75th Percentile	$1.95	$2.14	$2.90	$2.82	$2.28	$2.04	$1.33	$0.90
Per-Discharge Average (Thousand $)	$3,063	$2,439	$3,592	$3,414	$2,804	$3,069	$2,271	$1,891
# of Demonstration Hospitals with Inpatient Acute Care Discharges	14	14	12	14	26	26	23	17
# of Hospitals	14	14	13	14	26	26	23	17

Notes: (1) In each fiscal year there was one cost report associated with each hospital. (2) Data from 204 settled cost reports were used for this analysis. (3) The analysis includes at least one cost report from 26 unique RCHD hospitals.
Source: HCRIS.

Additional RCHD Payments in CCA Non-Base or Non-Rebase Years

Exhibit D6 presents additional RCHD payments in CCA non-base years by CCA base year cost per discharge terciles for *new* hospitals.

- *New* hospitals with **higher costs per discharge** during CCA base years had **higher** additional RCHD payments in future participation years.
- Average additional RCHD payments during future non-base years were higher for *new* hospitals in cost per discharge tercile 3 (between $13.0 million and $22.4 million) as compared to hospitals in cost per discharge tercile 1 (between $9.8 million and $11.6 million) by about $1.9 million.
- *New* hospitals in tercile 2 did not have higher average CCA non-base year additional RCHD payments as compared to hospitals in tercile 1.

Exhibit D6: Additional RCHD Payments by CCA Base Year Cost per Discharge Terciles for New Hospitals

Total Cost Per Discharge in CCA Base Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Base, Future Years (Standard Deviation)
Tercile 1 [$9,847.79; $11,648.40]	4	$919,305 ($975,436)
Tercile 2 [$11,680.86; $12,845.21]	4	$875,093 ($457,665)
Tercile 3 [$12,939.98; $22,396.37]	4	$2,814,294 ($1,996,838)

Exhibit D7 presents additional RCHD payments in CCA non-base years by CCA base year cost per discharge terciles for *continuing* hospitals.

- *Continuing* hospitals with **higher costs per discharge** during CCA base years had **higher** additional RCHD payments in future participation years.
- Average additional RCHD payments during future non-rebase years were higher for *continuing* hospitals in the cost per discharge tercile 3 (between $20.7 million and $24.1 million) as compared to hospitals in cost per discharge tercile 1 (between $7.4 million to $11.4 million) by about $3.5 million.

Exhibit D7: Additional RCHD Payments by CCA Base Year Cost per Discharge Terciles for Continuing Hospitals

Total Cost Per Discharge in CCA Rebase Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Rebase, Future Years (Standard Deviation)
Tercile 1 [$7,415.85; $11,373.97]	5	$1,219,931 ($1,003,847)
Tercile 2 [$11,646.51; $14,585.93]	5	$2,692,195 ($891,512)
Tercile 3 [$20,679.76; $24,113.01]	4	$4,691,255 ($3,435,106)

Additional RCHD Payments in CCA Non-Base or Non-Rebase Years

New and *continuing* hospitals with higher numbers of inpatient acute care discharges during the base or rebase years had higher additional RCHD payments in future participation years. This finding is similar to findings from *Interim Report One*, where base or rebase year inpatient acute care discharges were positively associated with additional RCHD payments.

Exhibit D8 presents additional RCHD payments in CCA non-base years by CCA base year inpatient acute care discharge terciles for *new* hospitals.

- *New* hospitals with **more inpatient acute care discharges** during CCA base years had **higher** additional RCHD payments in future participation years.
- Average additional RCHD payments during future non-base years were higher for *new* hospitals in inpatient acute care discharge tercile 3 (between 1,034 and 1,771 discharges) as compared to hospitals in the lowest CCA base year acute care discharge tercile (between 1 and 640 discharges) by about $0.5 million.

Exhibit D8: Additional RCHD Payments by CCA Base Year Inpatient Acute Care Discharge Terciles for New Hospitals

Acute Care Discharge in CCA Base Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Base, Future Years (Standard Deviation)
Tercile 1 [1; 640]	4	$1,315,447 ($709,127)
Tercile 2 [680; 1,010]	4	$1,456,785 ($894,959)
Tercile 3 [1,034; 1,771]	4	$1,836,460 ($2,521,917)

Exhibit D9 presents additional RCHD payments in CCA non-base years by CCA base year inpatient acute care discharge terciles for *continuing* hospitals.

- *Continuing* hospitals with **more inpatient acute care discharges** during CCA base years had **higher** additional RCHD payments in future participation years.
- Average additional RCHD payments during future non-base years were higher for *continuing* hospitals in tercile 3 for inpatient acute care discharges (between 833 and 1,176 discharges) as compared to hospitals in tercile 1 (between 102 and 480) by about $1.4 million.

Exhibit D9: Additional RCHD Payments by CCA Base Year Inpatient Acute Care Discharge Terciles for Continuing Hospitals

Acute Care Discharge in CCA Rebase Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Rebase, Future Years (Standard Deviation)
Tercile 1 [102; 480]	5	$1,930,338 ($724,003)
Tercile 2 [518; 768]	5	$2,965,591 ($2,445,609)
Tercile 3 [833; 1,176]	4	$3,288,944 ($3,280,718)

Additional RCHD Payments in CCA on-Base or Non-Rebase Years

Exhibit D10 presents additional RCHD payments in CCA non-base years by CCA base year swing-bed discharge terciles for *new* hospitals.

- For *new* hospitals, there was no clear relationship between **swing-bed discharges** during CCA base years and additional RCHD payments in future participation years.
- Average additional RCHD payments during CCA non-base years were higher for *new* hospitals in tercile 1 for CCA base year swing-bed discharges (0 discharges) as compared to hospitals in tercile 2 (between 12 and 68 discharges) and tercile 3 (between 128 and 351 discharges) by about $0.7 million ($1.9 million vs. $1.2 million) and $0.6 million ($1.9 million vs. $1.3 million).

Exhibit D10: Additional RCHD Payments by CCA Base Year Swing-Bed Discharge Terciles for New Hospitals

Swing-Bed Discharge in CCA Base Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Base, Future Years (Standard Deviation)
Tercile 1 [0; 0]	5	$1,928,743 ($2,297,765)
Tercile 2 [12; 68]	3	$1,221,465 ($705,327)
Tercile 3 [128; 351]	4	$1,281,664 ($615,603)

Exhibit D11 presents additional RCHD payments in CCA non-base years by CCA base year swing-bed discharge terciles for *continuing* hospitals.

- For *continuing* hospitals, there was no clear relationship between swing-bed discharges during CCA rebase years and additional RCHD payments in future participation years.
- Average additional RCHD payments during CCA non-rebase years were higher for *continuing* hospitals in tercile 2 for CCA rebase year swing-bed discharges (49 to 102 discharges) as compared to hospitals in tercile 3 (116 to 178) and tercile 1 (0 to 44) by about $1.0 million and $ 0.1 million, respectively.

Exhibit D11: Additional RCHD Payments by CCA Rebase Year Swing-Bed Discharge Terciles for Continuing Hospitals

Swing-Bed Discharge in CCA Rebase Year Terciles [Range]	# of Hospitals	Average Additional RCHD Payments in Non-Rebase, Future Years (Standard Deviation)
Tercile 1 [0; 44]	6	$2,924,717 ($2,049,312)
Tercile 2 [49; 102]	4	$3,026,033 ($3,289,980)
Tercile 3 [116; 178]	4	$2,057,894 ($1,602,604)

Additional RCHD Payments in CCA Non-Base or Non-Rebase Years

Exhibit D12 presents additional RCHD payments in CCA non-base and non-rebase years by baseline *new* and *continuing* hospital market typology.

- Both *new* and *continuing* hospitals from baseline Frontier markets had higher additional RCHD payments in future participation years.
- Average additional RCHD payments during CCA non-base years were higher for *new* hospitals from Frontier markets at baseline as compared to hospitals in Isolated and Competitive markets by about $1.7 million and $1.5 million, respectively.
- Average additional RCHD payments during CCA non-rebase years were higher for *continuing* hospitals from Frontier markets at baseline as compared to hospitals in Competitive markets by about $3.1 million. There were no *continuing* hospitals from Isolated markets at baseline.

Exhibit D12: Additional RCHD Payments by Baseline Market Typology for New and Continuing Hospitals

Baseline* Market Typology	New Hospitals		Continuing Hospitals	
	# of Hospitals	Average Additional RCHD Payments in Non-Base, Future Years (Standard Deviation)	# of Hospitals	Average Additional RCHD Payments in Non-Rebase, Future Years (Standard Deviation)
Isolated	3	$773,630 ($340,029)	0	-
Frontier	5	$2,449,748 ($1,926,857)	4	$4,921,883 ($3,236,790)
Competitive	4	$966,285 ($1,022,088)	10	$1,869,577 ($1,181,327)

Notes: *Baseline period for *continuing* hospitals is the pre-demonstration baseline used in TPA1 (FY 2002–2004 for hospitals joining during the MMA authorization and FY 2008–2010 for hospitals joining during the ACA extension). The baseline period for *new* hospitals is the pre-demonstration baseline used in TPA1 (FY 2015–2017).

Appendix E: Topic Area 3 Exhibits

E.1 Quality of Comparison Groups

Section A.7.1.2.3 outlines the steps we followed to construct comparison groups for this evaluation report. As previously discussed, RCHD hospitals were divided into matching groups according to their year of entry into the CCA authorization extension, with a separate baseline period being defined for each group. An entropy balancing algorithm was used to find a comparison group for each matching group, and then the matched comparison groups were appended to create the *continuing* and *new* hospital comparison groups. The matching variables used for the construction of each comparison group are given in **Exhibit E1.1**.

In general, the following matching variables were used: *baseline levels of total profit margins and Medicare inpatient margins* and *county-level percentage of population over 65 years of age*. The following additional variables were also used for one or more matching groups: *indicators for hospitals in Competitive and Frontier market areas, county racial composition, indicator for hospital non-profit status, indicator for hospital government-run status, indicator for a hospital being in a health system, county-level poverty incidence, county unemployment rate,* and *a state Medicaid expansion indicator*.

Exhibit E1.2 reports balancing statistics on the matching variables used in the entropy balancing algorithm. In all cases, the magnitudes of the post-balancing standardized differences are well below the 10 percent threshold, indicating that the entropy balancing algorithm was successful in balancing the means of these variables between the RCHD and comparison groups.

A test of parallel baseline trends to assess the identifying assumption of the DID model was also conducted. The specification for this test is described in **Section A.7.1.2.3**, equation (1). These results are presented in **Exhibit E1.3** (*continuing*) and **Exhibit E1.4** (*new*). **Exhibit E1.5** plots the baseline and demonstration period coefficient estimates (note that the tables in **Exhibit E1.3** and **Exhibit E1.4** only show baseline coefficient estimates) to help visualize the lack (or existence) of pre-trends and the direction of changes during the demonstration period. The criterion used to assess the existence of the parallel baseline trends test (or the lack of pre-trends) was that the joint *F*-test, of the two baseline period coefficients, is not statistically significant.

Results show that for *continuing* hospitals, parallel baseline trends passed for all evaluation outcomes. Results show that for *new* hospitals, the parallel baseline trends did not pass for average age of plant. As a result, we do not consider the impact estimate for this outcome

variable to be valid for *new* hospitals. Additionally, it is important to note that parallel baseline trends pass for the margin outcomes for both groups of hospitals. These outcomes are the most important outcomes from the evaluation standpoint as they are hypothesized to be most directly influenced by the demonstration.

In sum, the constructed comparison groups provide a high degree of confidence with regard to the validity of the impact results.

E.1.1 Entropy Balancing Variables and Comparison Group Diagnostics

The exhibits in this section present information on matching/balancing variables used to construct comparison groups, and results of diagnostic tests performed to assess the quality of the comparison groups.

Exhibit E1.1 presents the variables used in the entropy balancing algorithm to construct the comparison groups for the 4 groups of RCHD hospitals, where a RCHD hospital's group is defined depending on when they first start participation in the CCA authorization extension. Group 1 hospitals are those that began participation in the CCA extension in FY 2015, Group 2 hospitals are those that began participation in FY 2016. Group 3 hospitals began participation in FY 2017, and Group 4 in FY 2018. Hospitals in Groups 1-3 are *continuing* hospitals that continued participation in the CCA extension having participated in the RCHD previously under the ACA authorization phase. Group 4 hospitals are *new* hospitals participating in the RCHD for the first time as part of the CCA extension.

Exhibit E1.2 presents balancing statistics which compare the means of the variables used in the entropy balancing algorithm pre and post balancing.

Exhibit E1.3 and **Exhibit E1.4** report results for the parallel baseline trends test for *continuing* and *new* hospitals, respectively. This test is described in **Section A.7.1.2.3**.

E.1.2 Event Study

Exhibit E1.5 through **Exhibit E1.7** report event-study graphs that accompany the parallel baseline trends test. Event-study graphs plot DID coefficient estimates before and after the start of the demonstration to assess whether the trajectory of estimated impacts is in line with expectation, i.e., whether impacts are zero prior to the start of demonstration participation and positive after the start of demonstration participation.

Exhibit E1.1: Entropy Balancing Variables

Matching Group	Entropy Balancing Variables
1 – Continuing	Total profit margin in 2012, total profit margin in 2013, total profit margin in 2014, Medicare inpatient margin in 2012, Medicare inpatient margin in 2013, Medicare inpatient margin in 2014, indicator for competitive hospital, indicator for frontier hospital, percentage white in county, percentage of county over 65, indicator for hospital is a non-profit, indicator for hospital is government-run, indicator for hospital is in a system
2 – Continuing	Total profit margin in 2013, total profit margin in 2014, total profit margin in 2015, Medicare inpatient margin in 2013, Medicare inpatient margin in 2014, Medicare inpatient margin in 2015, indicator for competitive hospital, indicator for frontier hospital, poverty rate, percentage white in county, indicator for ever expanded Medicaid, percentage of county over 65, unemployment rate
3 – Continuing	Total profit margin in 2014, total profit margin in 2015, total profit margin in 2016, Medicare inpatient margin in 2014, Medicare inpatient margin in 2015, Medicare inpatient margin in 2016, indicator for competitive hospital, indicator for frontier hospital, poverty rate, percentage white in county, indicator for ever expanded Medicaid, percentage of county over 65, indicator for hospital is a non-profit, indicator for hospital is government-run, indicator for hospital is in a system, unemployment rate
4 – New	Total profit margin in 2015, total profit margin in 2016, total profit margin in 2017, Medicare inpatient margin in 2015, Medicare inpatient margin in 2016, Medicare inpatient margin in 2017, indicator for competitive hospital, indicator for frontier hospital, poverty rate, percentage white in county, indicator for ever expanded Medicaid, percentage of county over 65, indicator for hospital is a non-profit, indicator for hospital is government-run, indicator for hospital is in a system, unemployment rate

Notes: Groups 1, 2, and 3 were appended to create the matched comparison group for continuing hospitals and Group 4 formed the matched comparison group for new hospitals.

Exhibit E1.2: Balance Statistics

Variable	Matching Group	RCHD Group Mean	Pre-Balancing Comparison Group Mean	Pre-Balancing Standardized Difference (%)	Post-Balancing Comparison Group Mean	Post-Balancing Standardized Difference (%)
Total Profit Margin, 2012	1 – Continuing	10%	1%	222	10%	-0.5
Total Profit Margin, 2013	1 – Continuing	9%	-1%	102	9%	-0.3
Total Profit Margin, 2014	1 – Continuing	11%	-1%	142	11%	-0.3
Medicare Inpatient Margin, 2012	1 – Continuing	-7%	-2%	-33	-7%	-0.2
Medicare Inpatient Margin, 2013	1 – Continuing	-4%	-5%	18	-4%	-0.4
Medicare Inpatient Margin, 2014	1 – Continuing	-5%	-3%	-39	-5%	-0.2
Percentage Competitive Hospital	1 – Continuing	33%	81%	-82	33%	0.1
Percentage Frontier Hospital	1 – Continuing	67%	8%	101	67%	0.0
Percentage White in County	1 – Continuing	79%	75%	50	79%	-0.1
Percentage of County over 65	1 – Continuing	13%	17%	-148	13%	0.1
Percentage Non-Profit	1 – Continuing	67%	41%	45	66%	0.3
Percentage Government-Run	1 – Continuing	33%	38%	-8	33%	0.0
Percentage in a Hospital System	1 – Continuing	67%	51%	27	67%	0.0
Total Profit Margin, 2013	2 – Continuing	2%	-1%	36	2%	-0.1
Total Profit Margin, 2014	2 – Continuing	1%	0%	20	1%	-0.2
Total Profit Margin, 2015	2 – Continuing	1%	0%	16	1%	-0.1
Medicare Inpatient Margin, 2013	2 – Continuing	-2%	-5%	60	-2%	-0.1
Medicare Inpatient Margin, 2014	2 – Continuing	-4%	-2%	-30	-4%	0.0
Medicare Inpatient Margin, 2015	2 – Continuing	-8%	-4%	-21	-8%	0.0
Percentage in Medicaid Expansion State	2 – Continuing	60%	47%	24	60%	0.0

Variable	Matching Group	RCHD Group Mean	Pre-Balancing Comparison Group Mean	Pre-Balancing Standardized Difference (%)	Post-Balancing Comparison Group Mean	Post-Balancing Standardized Difference (%)
Percentage of County over 65 years	2 – Continuing	16%	17%	-23	16%	0.0
County Poverty Rate	2 – Continuing	20	31	-216	20	0.0
Percentage White in County	2 – Continuing	88%	75%	84	88%	0.0
County Unemployment Rate	2 – Continuing	5%	8%	-140	5%	0.0
Total Profit Margin, 2014	3 – Continuing	-3%	-1%	-30	-3%	0.2
Total Profit Margin, 2015	3 – Continuing	-3%	0%	-57	-3%	0.2
Total Profit Margin, 2016	3 – Continuing	-6%	-1%	-42	-6%	0.2
Medicare Inpatient Margin, 2014	3 – Continuing	1%	-2%	233	1%	-0.1
Medicare Inpatient Margin, 2015	3 – Continuing	2%	-4%	119	2%	-0.1
Medicare Inpatient Margin, 2016	3 – Continuing	-1%	-5%	26	-1%	0.1
Percentage Competitive Hospital	3 – Continuing	67%	80%	-26	67%	-0.1
Percentage Frontier Hospital	3 – Continuing	17%	8%	21	17%	0.0
County Poverty Rate	3 – Continuing	25	31	-59	25	0.0
Percentage White in County	3 – Continuing	80%	75%	28	80%	0.0
Percentage in Medicaid Expansion State	3 – Continuing	67%	47%	37	67%	0.0
Percentage of County over 65 years	3 – Continuing	18%	18%	2	18%	0.0
County Unemployment Rate	3 – Continuing	6	7	-67	6	-0.1
Percentage Non-Profit	3 – Continuing	50%	43%	13	50%	0.1
Percentage Government-Run	3 – Continuing	50%	36%	25	50%	0.1
Percentage in a Hospital System	3 – Continuing	33%	51%	-34	33%	-0.1
Total Profit Margin, 2015	4 – New	-8%	0%	-27	-8%	0.0

Variable	Matching Group	RCHD Group Mean	Pre-Balancing Comparison Group Mean	Pre-Balancing Standardized Difference (%)	Post-Balancing Comparison Group Mean	Post-Balancing Standardized Difference (%)
Total Profit Margin, 2016	4 – New	0%	0%	2	0%	-0.1
Total Profit Margin, 2017	4 – New	-2%	-1%	-4	-2%	-0.1
Medicare Inpatient Margin, 2015	4 – New	-21%	-3%	-76	-21%	0.1
Medicare Inpatient Margin, 2016	4 – New	-22%	-3%	-80	-22%	0.1
Medicare Inpatient Margin, 2017	4 – New	-16%	-2%	-93	-16%	0.1
Percentage Competitive Hospital	4 – New	33%	82%	-99	33%	0.0
Percentage Frontier Hospital	4 – New	42%	7%	67	42%	0.0
County Poverty Rate	4 – New	23%	30%	-112	23%	0.0
Percentage White in County	4 – New	80%	75%	44	80%	0.0
Percentage in Medicaid Expansion State	4 – New	42%	48%	-13	42%	0.0
Percentage of County over 65 years	4 – New	17%	18%	-38	17%	0.0
Percentage Non-Profit	4 – New	75%	47%	62	75%	0.1
Percentage Government-Run	4 – New	25%	35%	-22	25%	0.0
Percentage in a Hospital System	4 – New	67%	53%	28	67%	0.0
County Unemployment Rate	4 – New	5%	7%	-93	5%	0.0

Notes: Groups 1, 2, and 3 were appended to create the matched comparison group for Continuing hospitals and Group 4 formed the matched comparison group for new hospitals.

Exhibit E1.3: Test of Parallel Baseline Trends for Continuing Hospitals

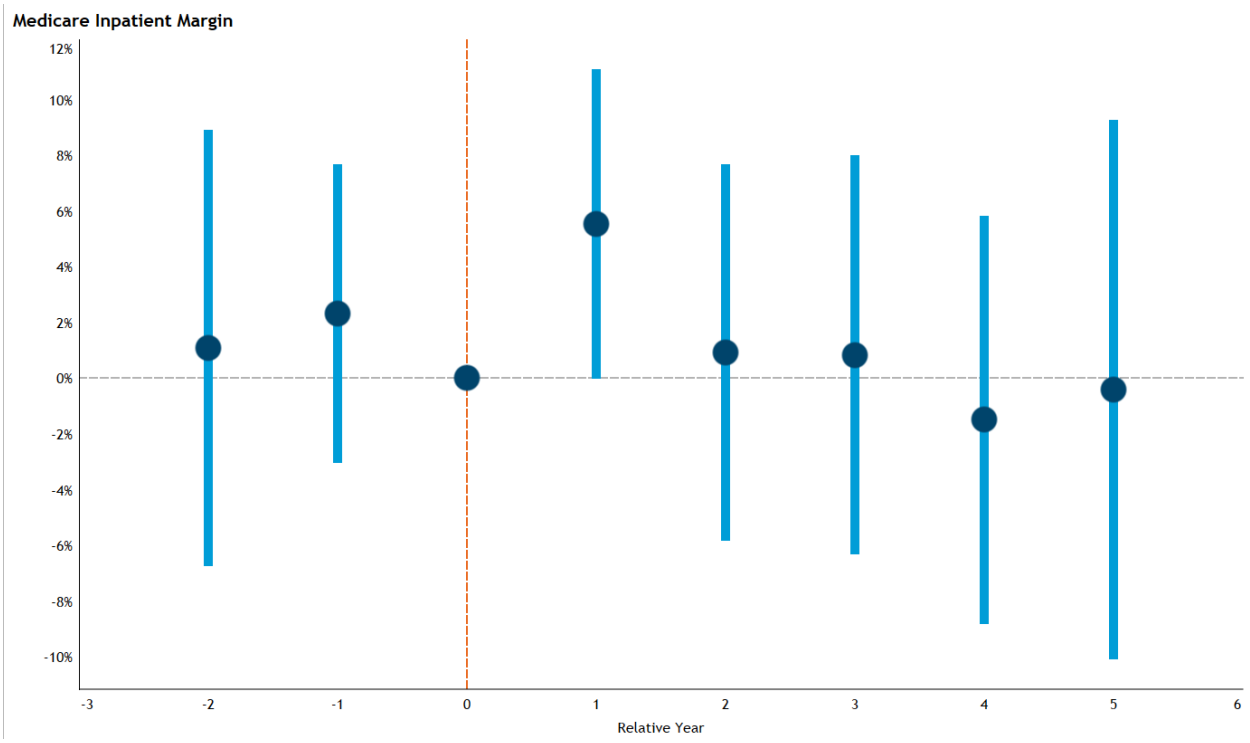
Outcome	Baseline Year 1 Estimate	Baseline Year 1 *p*-value	Baseline Year 2 Estimate	Baseline Year 2 *p*-value	Joint F-Test *p*-value	Sample Size in Hospital-Years
Medicare Inpatient Margin	1%	0.79	2%	0.40	0.50	7,011
Medicare Combined Margin	2%	0.58	2%	0.46	0.76	7,013
Total Profit Margin	2%	0.54	0%	0.83	0.64	7,005
Operating Margin	-1%	0.68	-1%	0.76	0.90	7,005
Days Cash on Hand	20	0.16	16	0.27	0.34	7,022
Long-Term Debt-to-Capitalization	-2%	0.78	0%	0.96	0.96	6,997
Ratio of Salaries to Net Patient Revenue	1%	0.57	1%	0.19	0.41	7,005
Full Time Equivalents per Occupied Bed	0.6	0.33	1.0	0.05	0.13	6,963
Average Age of Plant	0.4	0.89	-1.1	0.57	0.60	6,403
Medicare Inpatient Share	1%	0.64	0%	0.97	0.77	7,020
Medicare Inpatient Payer Mix	1%	0.66	0%	0.78	0.76	7,020
Medicare Swing-bed Revenue Share	0%	0.82	-1%	0.64	0.44	7,011

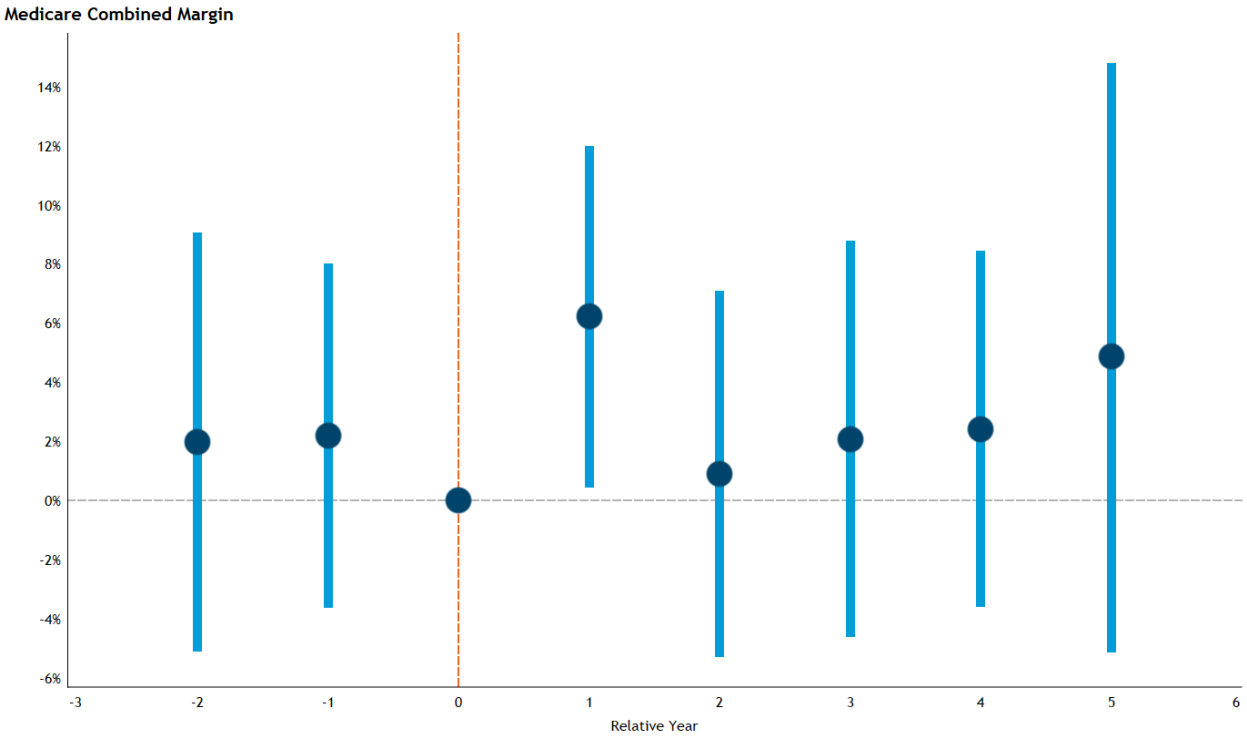
Exhibit E1.4: Test of Parallel Baseline Trends for New Hospitals

Outcome	Baseline Year 1 Estimate	Baseline Year 1 *p*-value	Baseline Year 2 Estimate	Baseline Year 2 *p*-value	Joint F-Test *p*-value	Sample Size in Hospital-Years
Medicare Inpatient Margin	3%	0.63	5%	0.63	0.87	2,135
Medicare Combined Margin	1%	0.84	8%	0.30	0.56	2,136
Total Profit Margin	-7%	0.26	-5%	0.51	0.40	2,135
Operating Margin	-3%	0.57	-12%	0.12	0.28	2,135
Days Cash on Hand	20	0.25	21	0.11	0.27	2,141
Long-Term Debt-to-Capitalization	22%	0.74	2%	0.97	0.94	2,133
Ratio of Salaries to Net Patient Revenue	-2%	0.46	5%	0.24	0.27	2,135
Full Time Equivalents per Occupied Bed	0.6	0.44	0.6	0.18	0.41	2,127
Average Age of Plant	-1.6	0.56	5.6	0.35	0.08	1,904
Medicare Inpatient Share	-9%	0.13	-15%	0.18	0.31	2,140
Medicare Inpatient Payer Mix	1%	0.65	0%	0.85	0.90	2,140
Medicare Swing-bed Revenue Share	-0%	0.79	0%	0.84	0.80	2,135

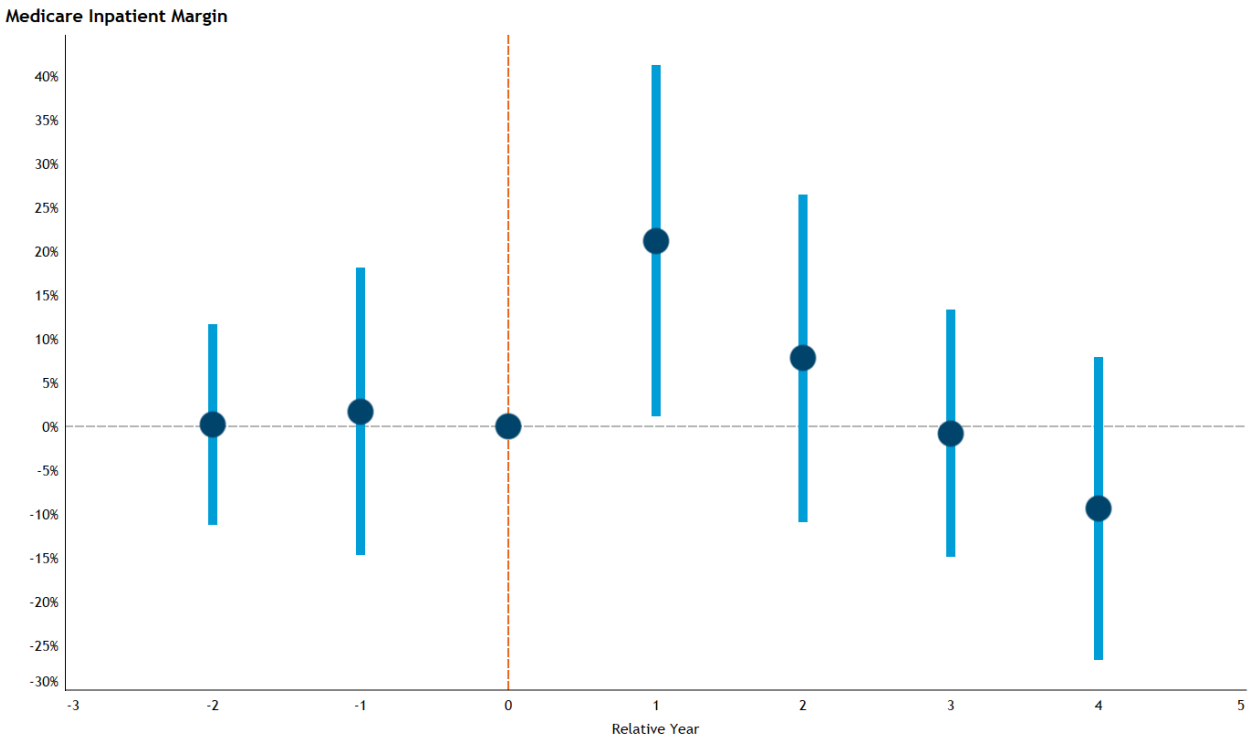
Exhibit E1.5: Event-Study of Medicare Margins, Continuing and New Hospitals

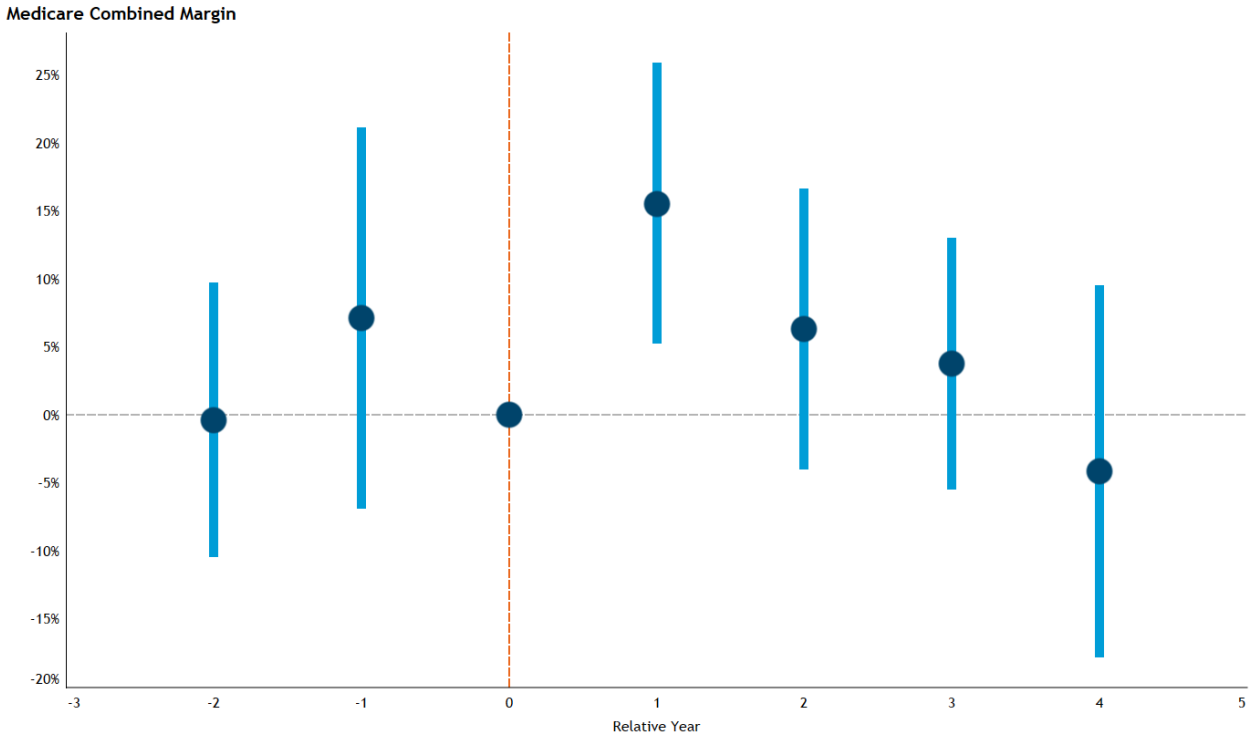
Continuing Hospitals





New Hospitals

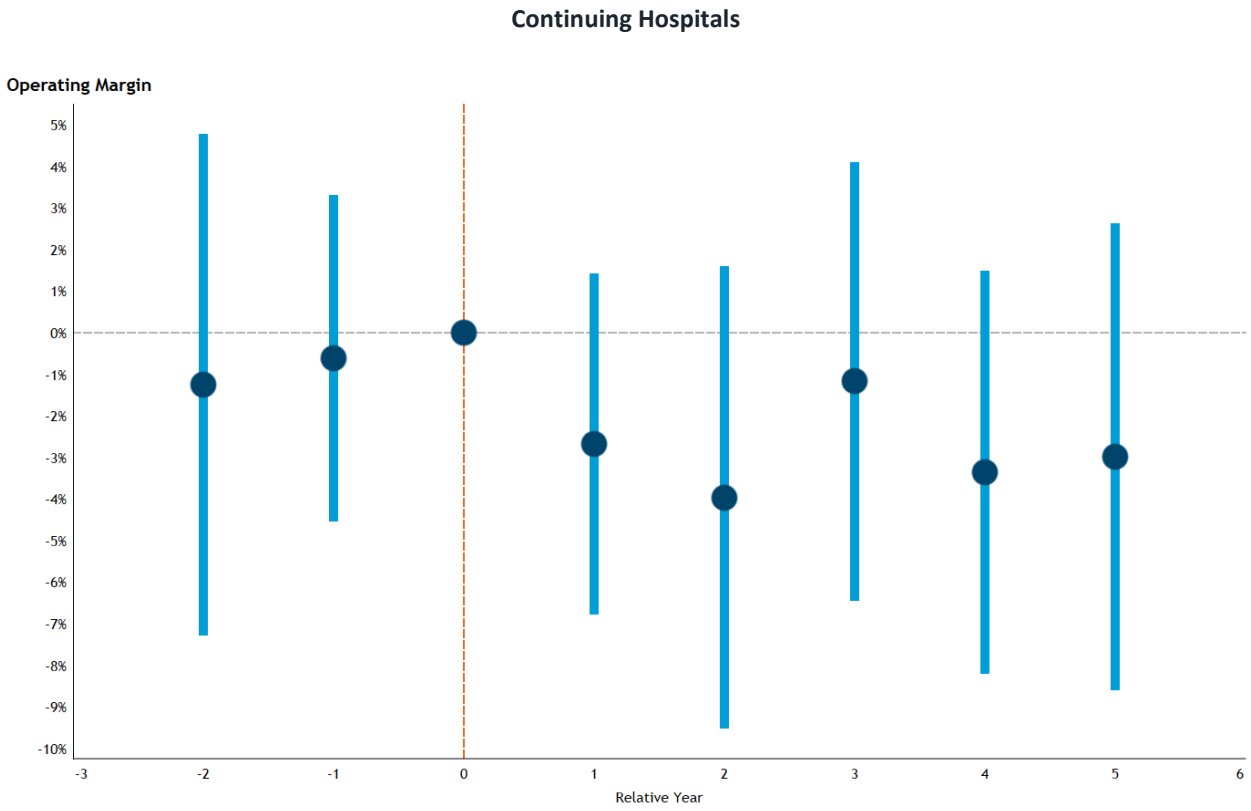


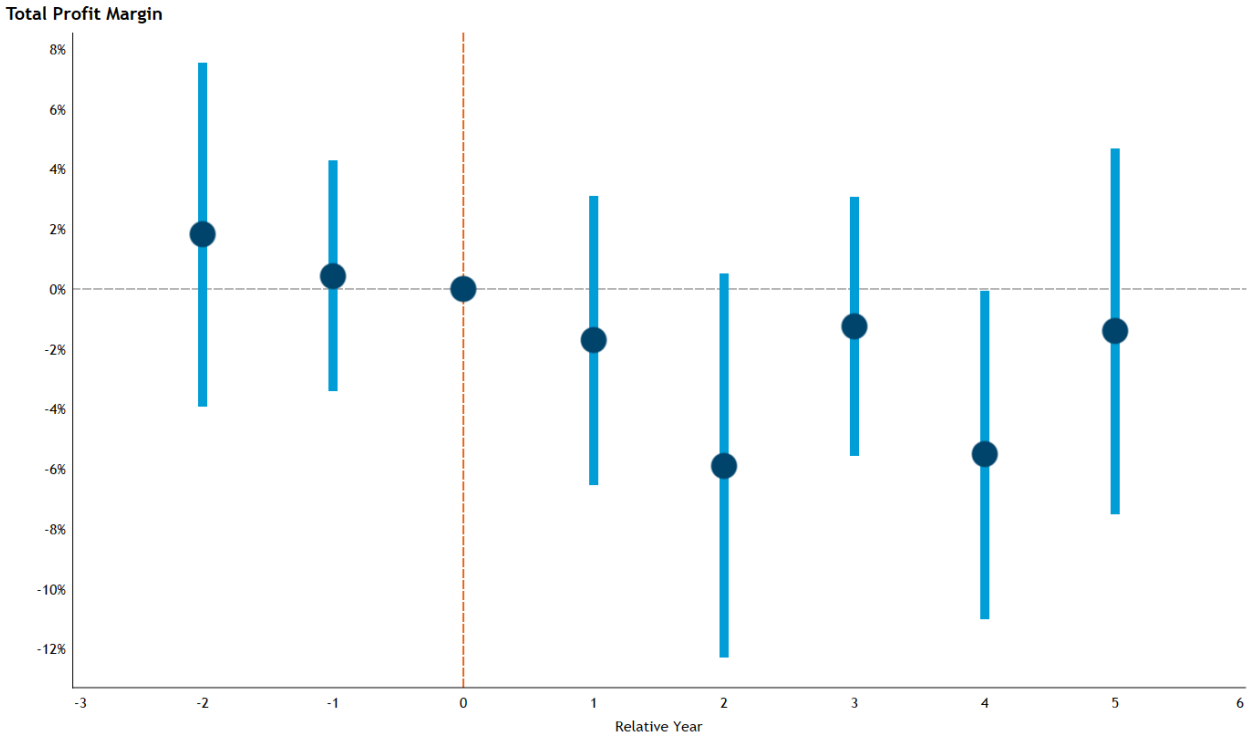


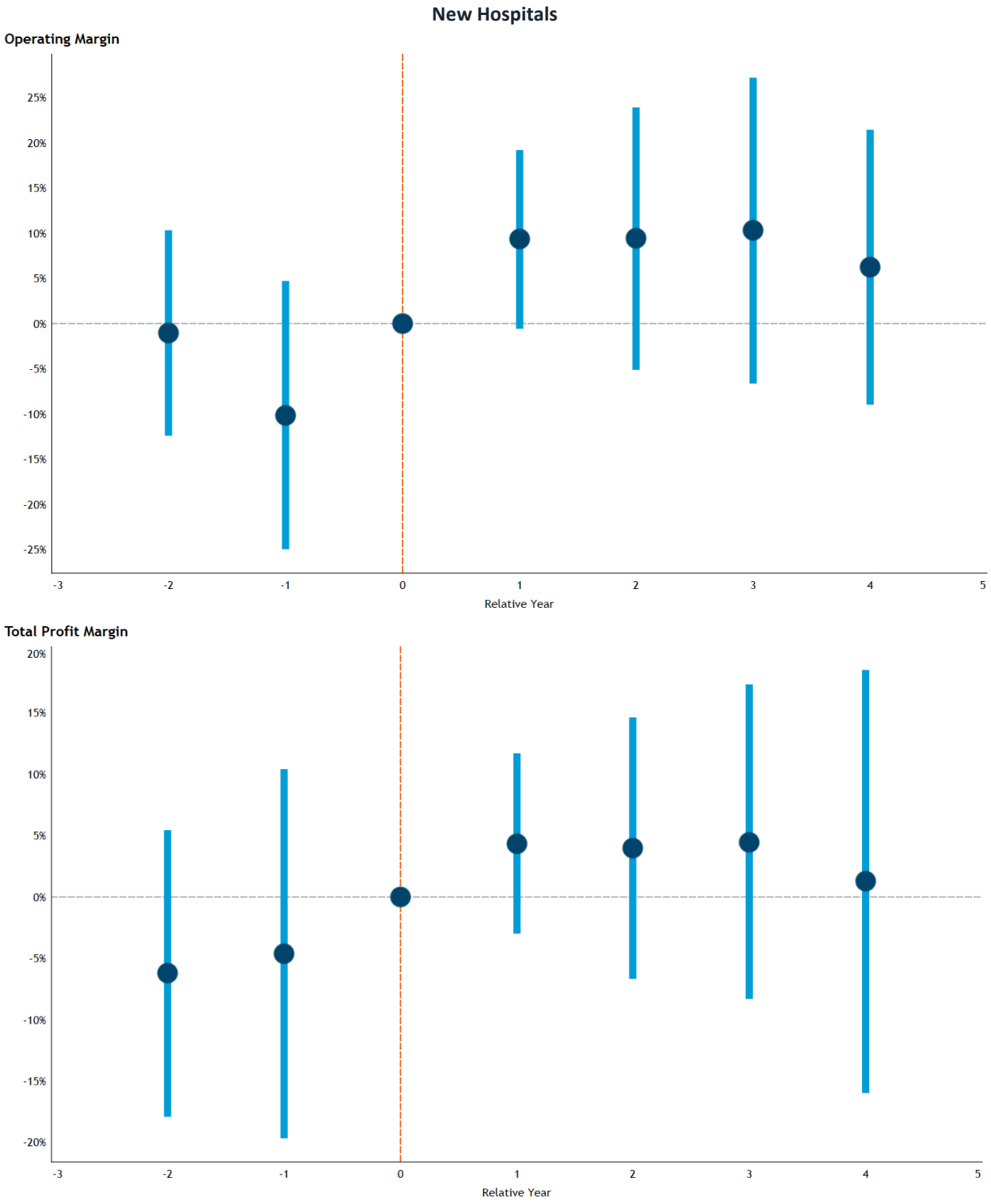
Notes: An event-study graph plots DID coefficient estimates before and after the start of the demonstration to assess whether the trajectory of estimated impacts are in line with expectation; i.e., whether impacts are zero prior to the start of participation in the CCA extension and positive after the start of participation in the CCA extension. Relative years -2 to 0 are the baseline

period for the evaluation, where 0 is the final baseline year or the year prior to the year in which a hospital started participation in the CCA extension.

Exhibit E1.6: Event-Study of Other Profitability Margins, Continuing and New Hospitals

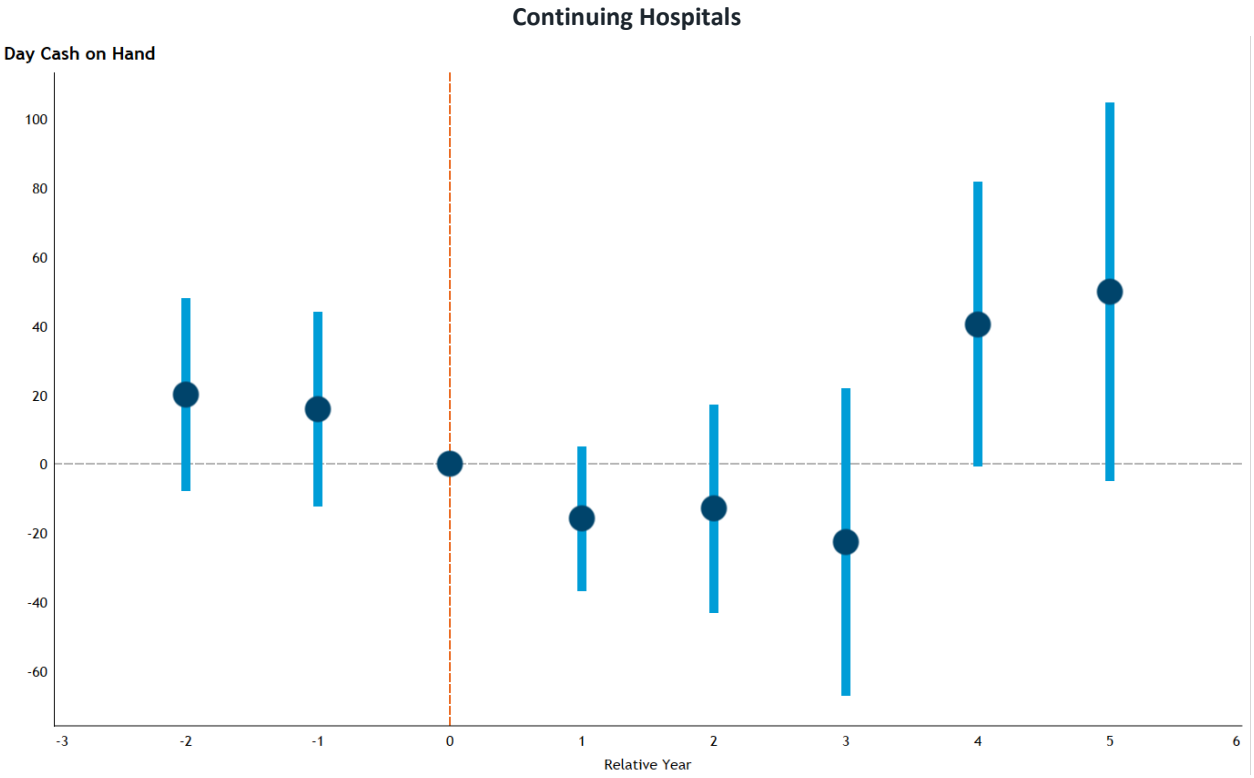


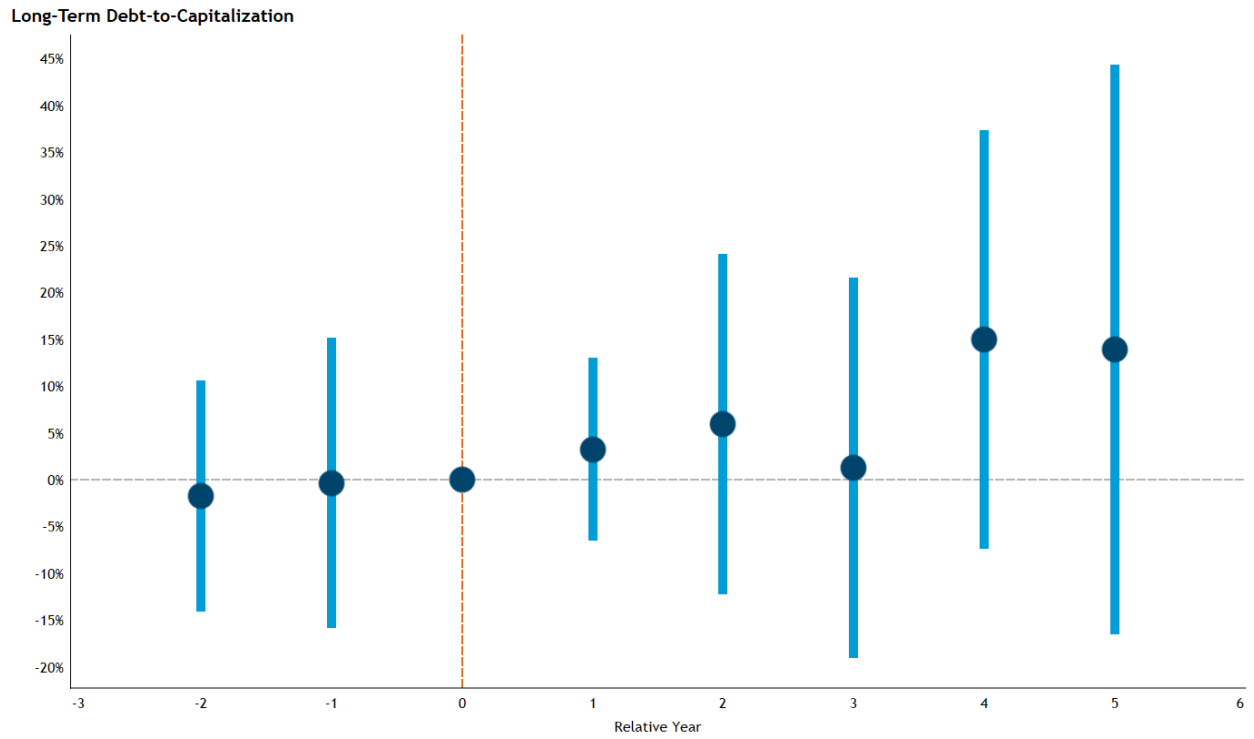

Total Profit Margin
8%
6%
4%
2%
0%
-2%
-4%
-6%
-8%
-10%
-12%
-3
-2
-1
0
1
2
3
4
5
6
Relative Year



Notes: An event-study graph plots DID coefficient estimates before and after the start of the demonstration to assess whether the trajectory of estimated impacts are in line with expectation; i.e., whether impacts are zero prior to the start of participation in the CCA extension and positive after the start of participation in the CCA extension. Relative years -2 to 0 are the baseline period for the evaluation, where 0 is the final baseline year or the year prior to the year in which a hospital started participation in the CCA extension.

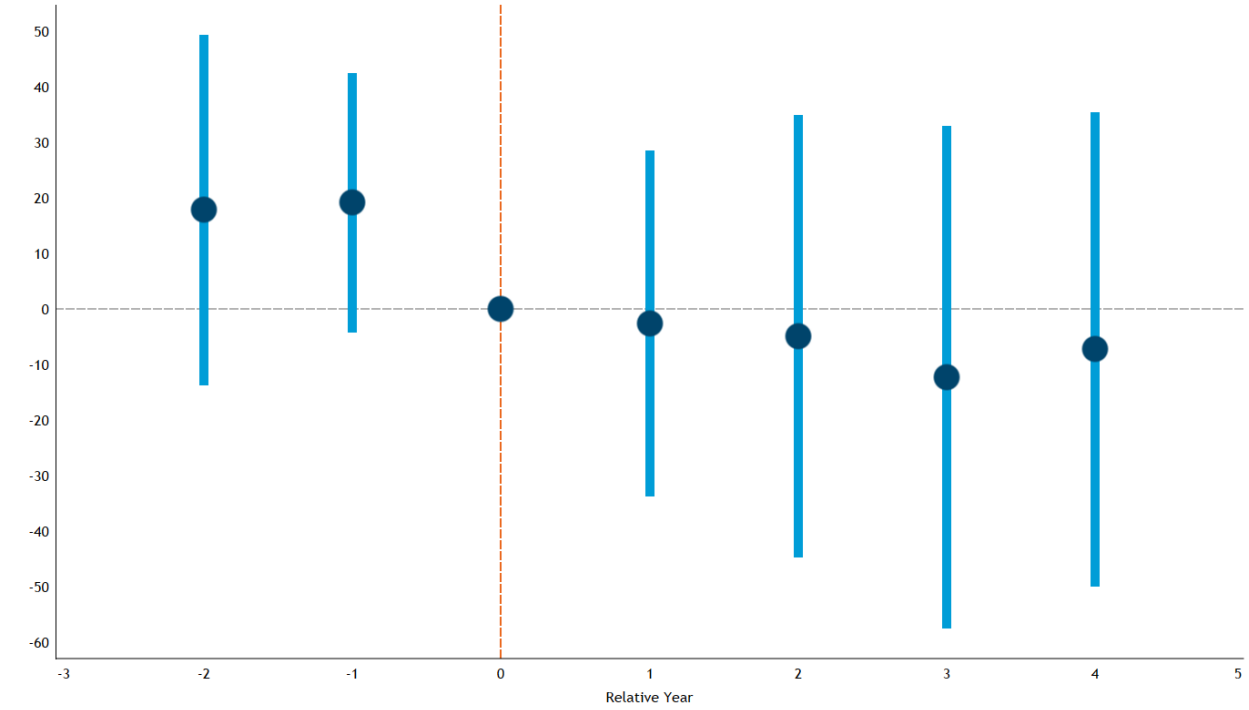
Exhibit E1.7: Event-Study of Other Financial Outcomes and Medicare Revenue Indicators, Continuing and New Hospitals



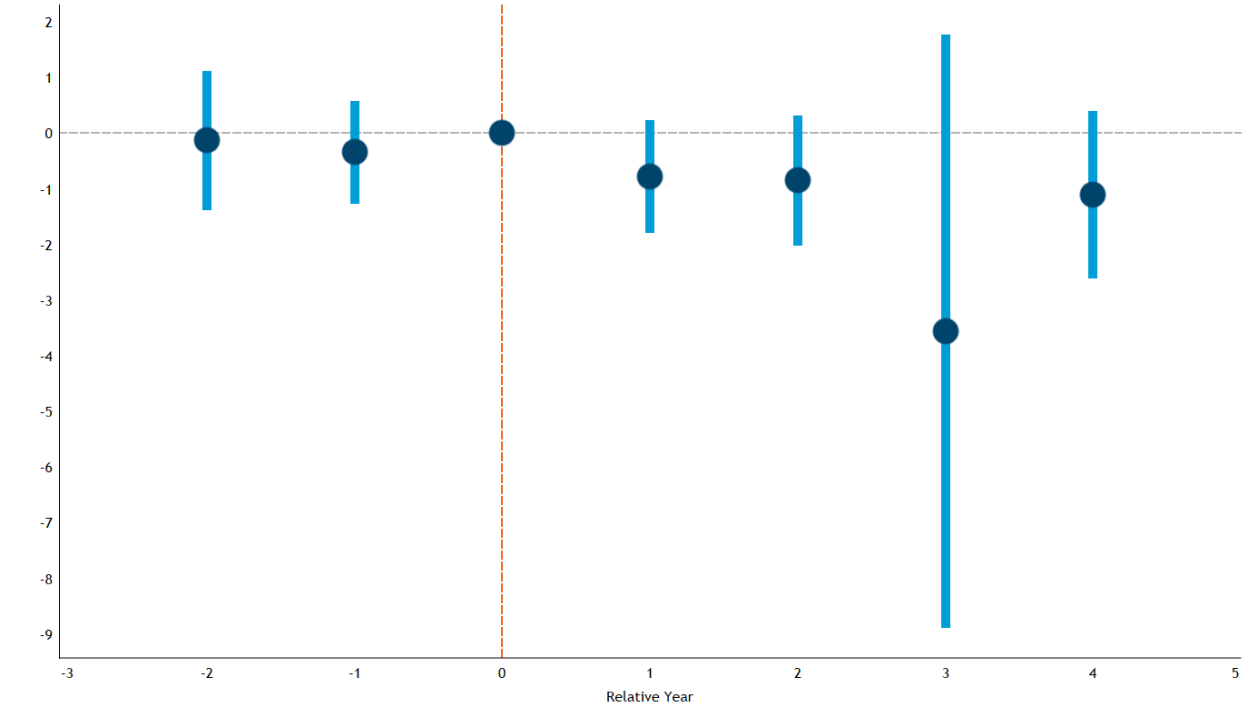


New Hospitals

Day Cash on Hand

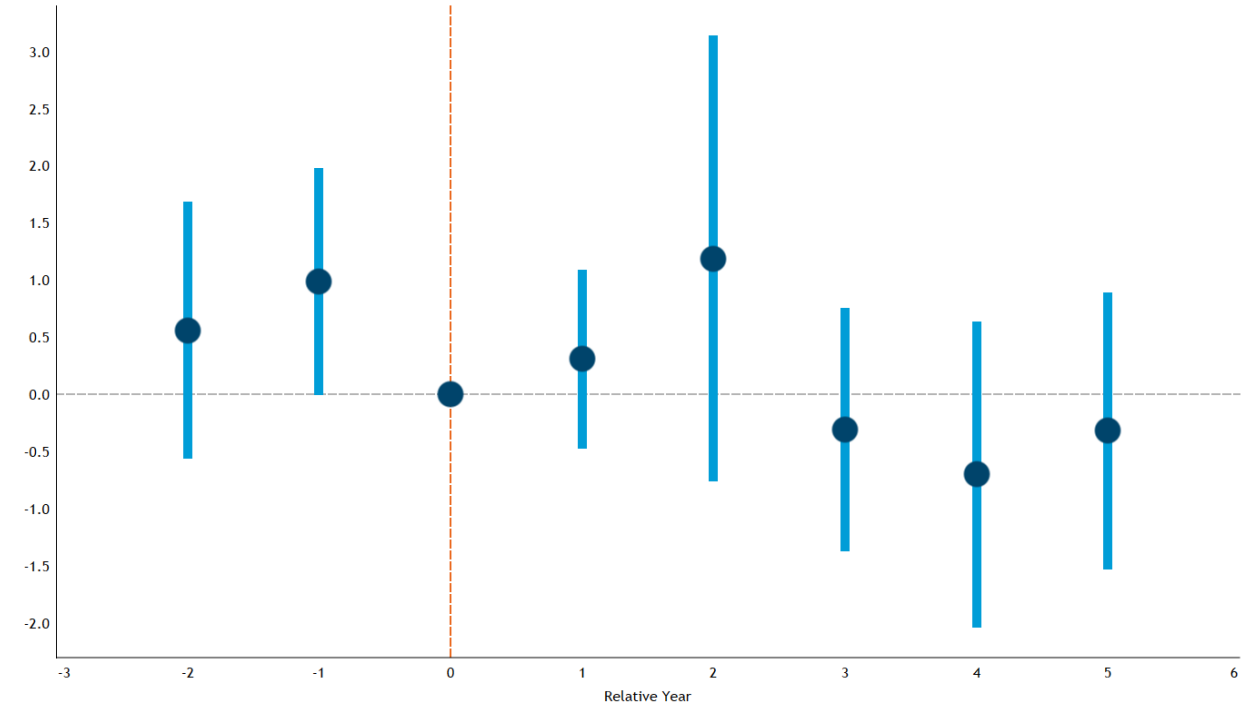


Long-Term Debt-to-Capitalization

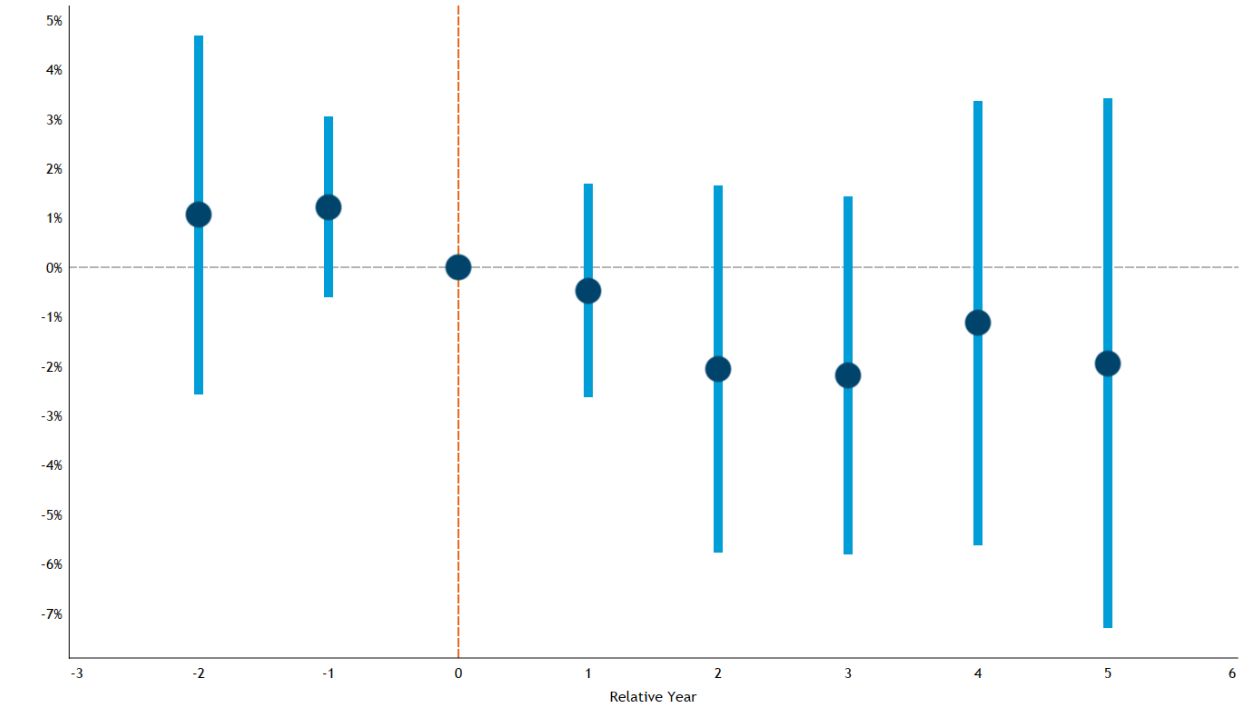


Continuing Hospitals

Full Time Equivalence per Occupied Bed

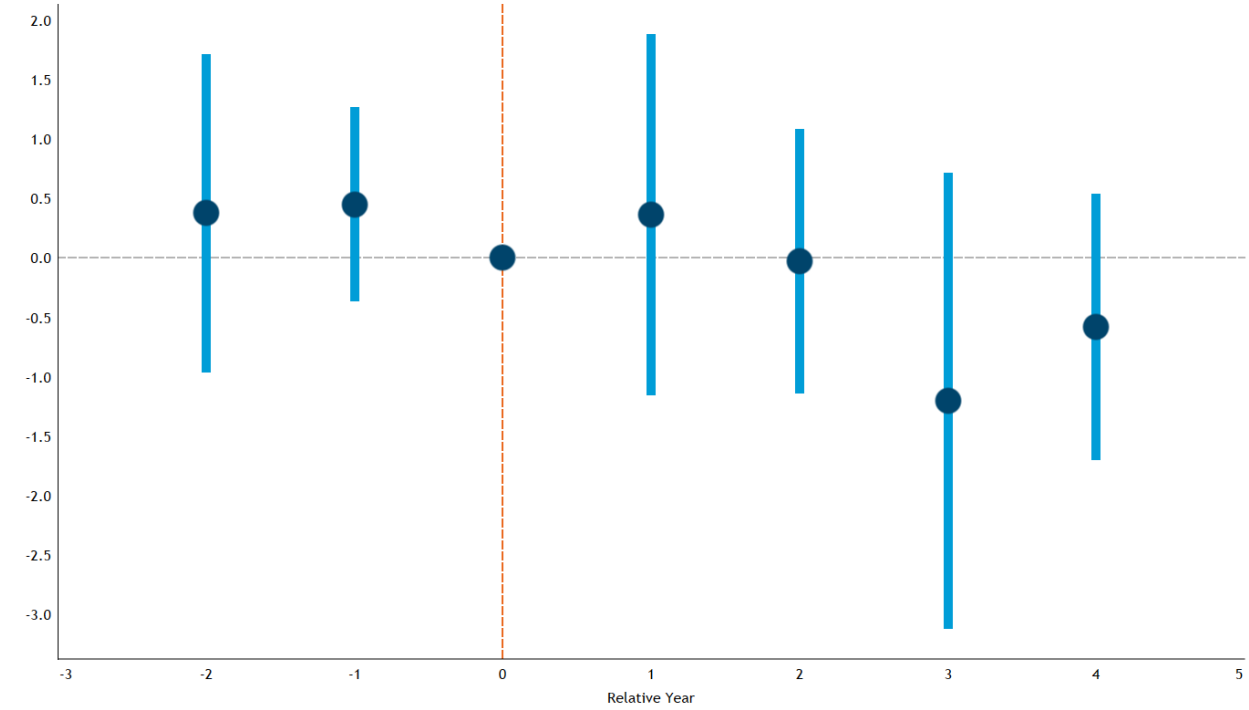


Ratio of Salaries to Net Patient Revenue

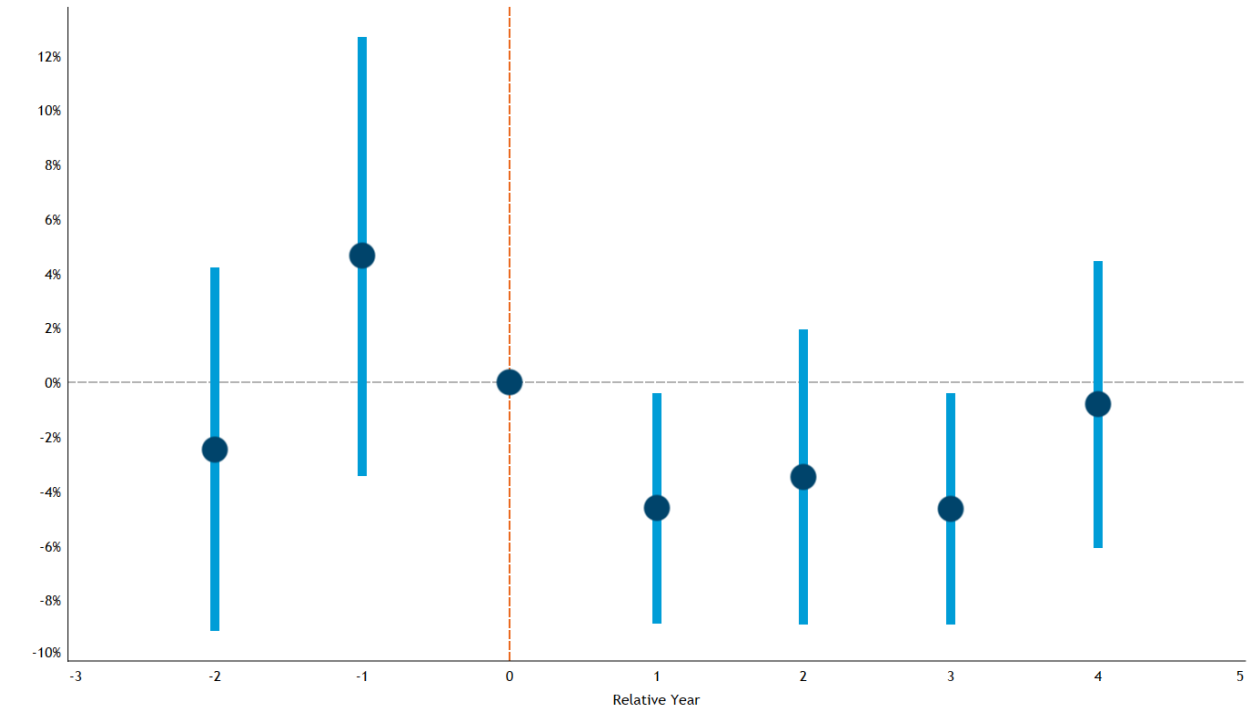


New Hospitals

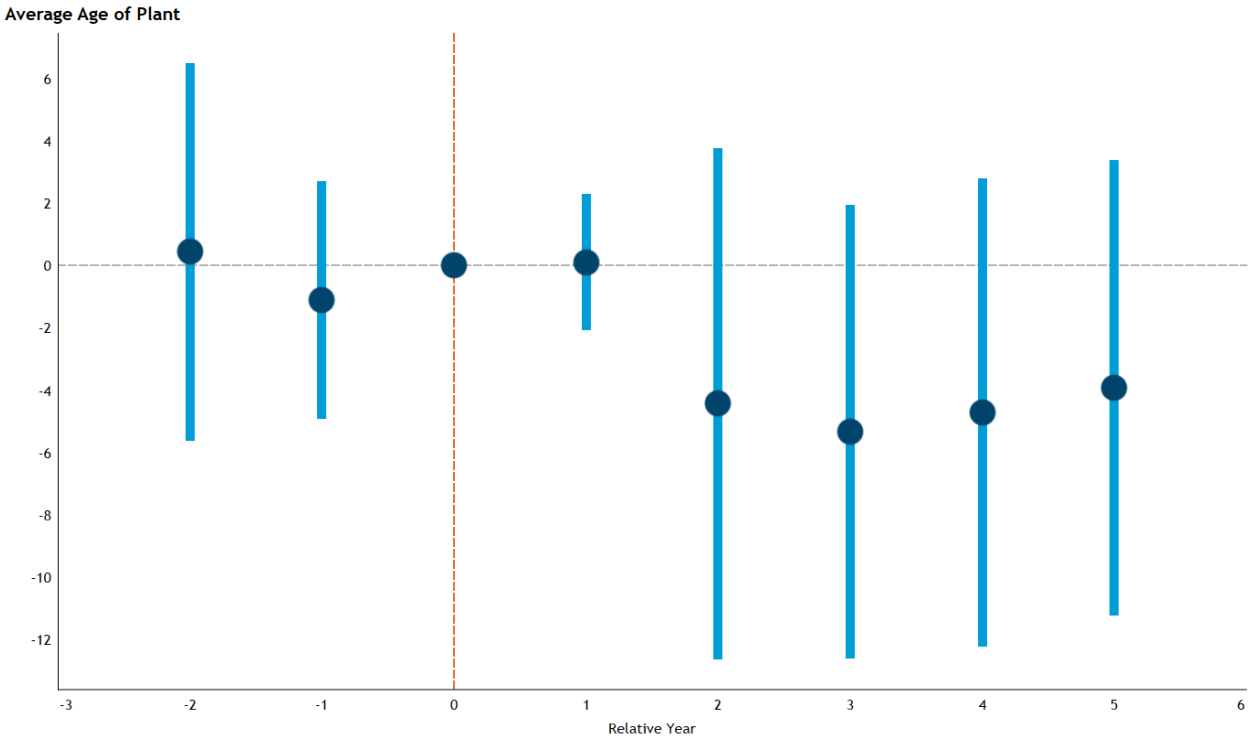
Full Time Equivalence per Occupied Bed

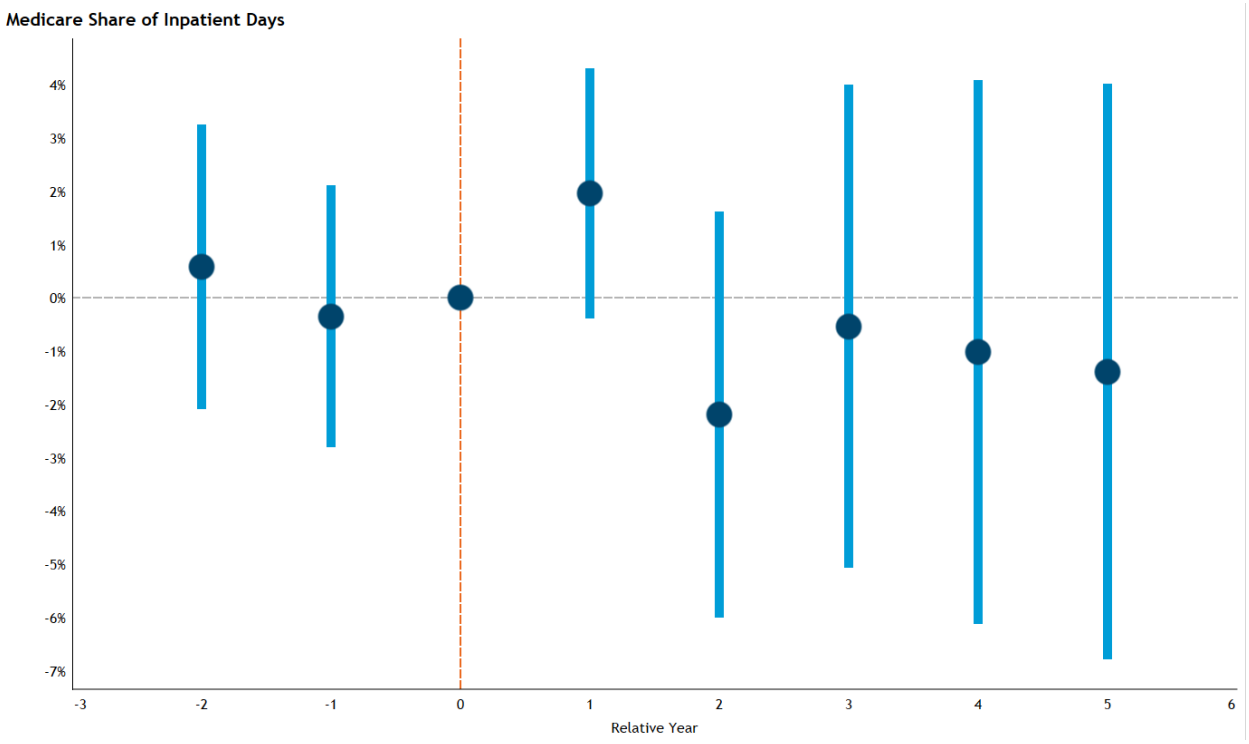


Ratio of Salaries to Net Patient Revenue

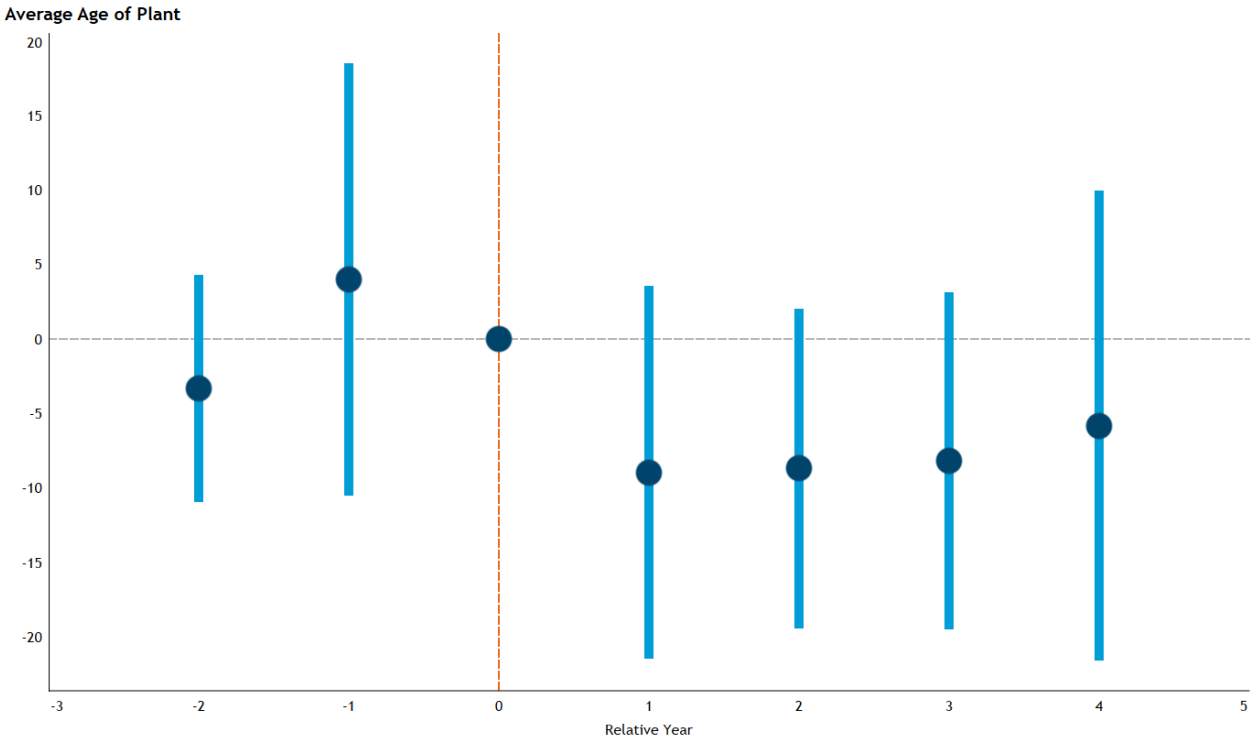


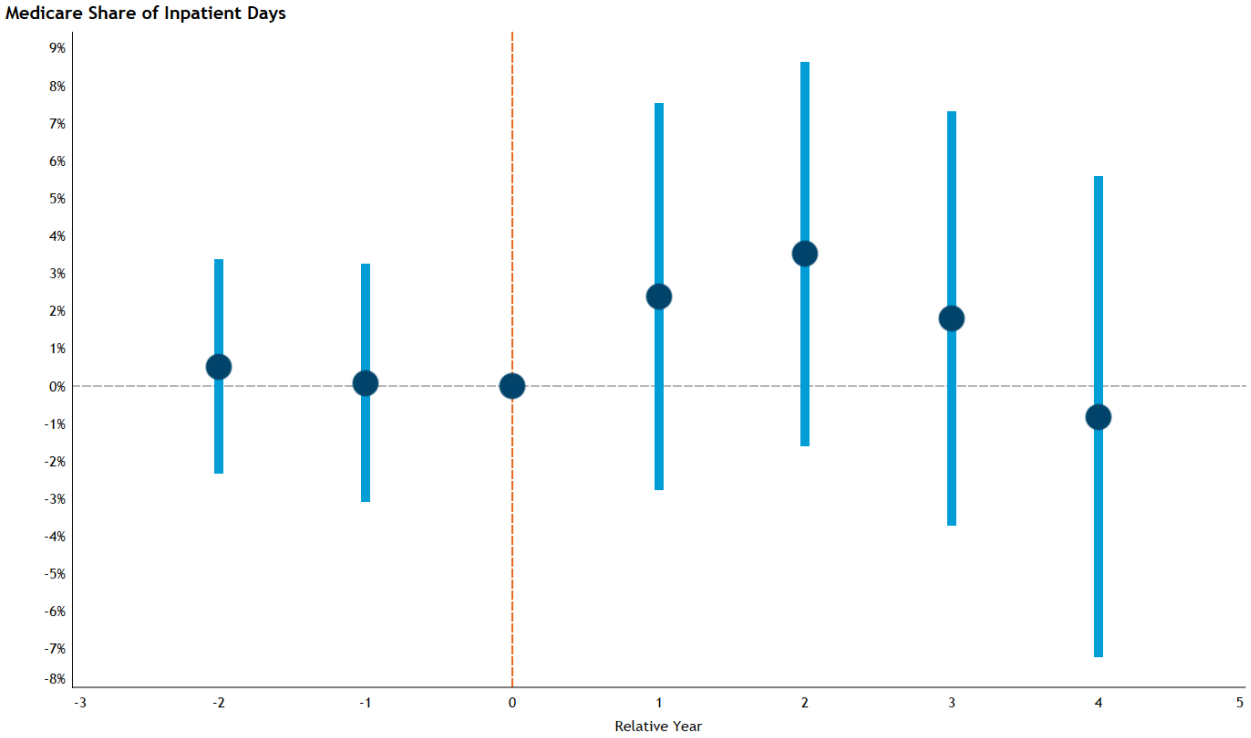
Continuing Hospitals



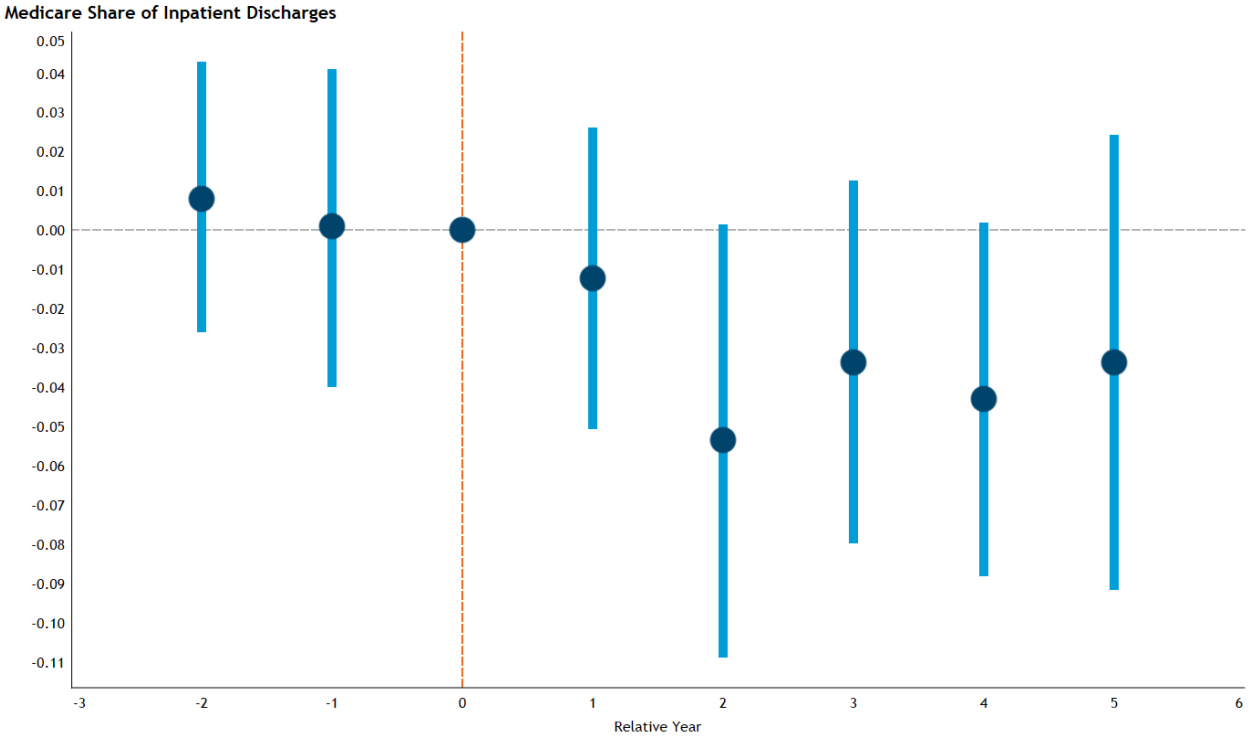


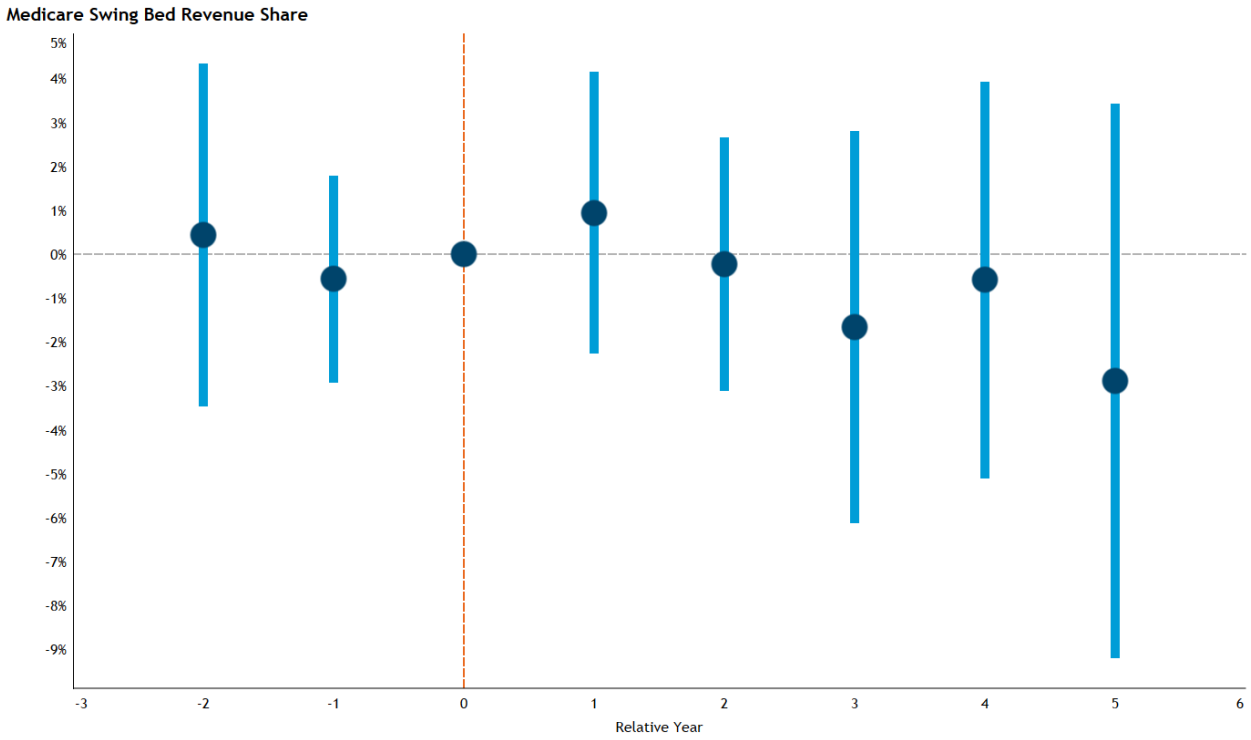
New Hospitals



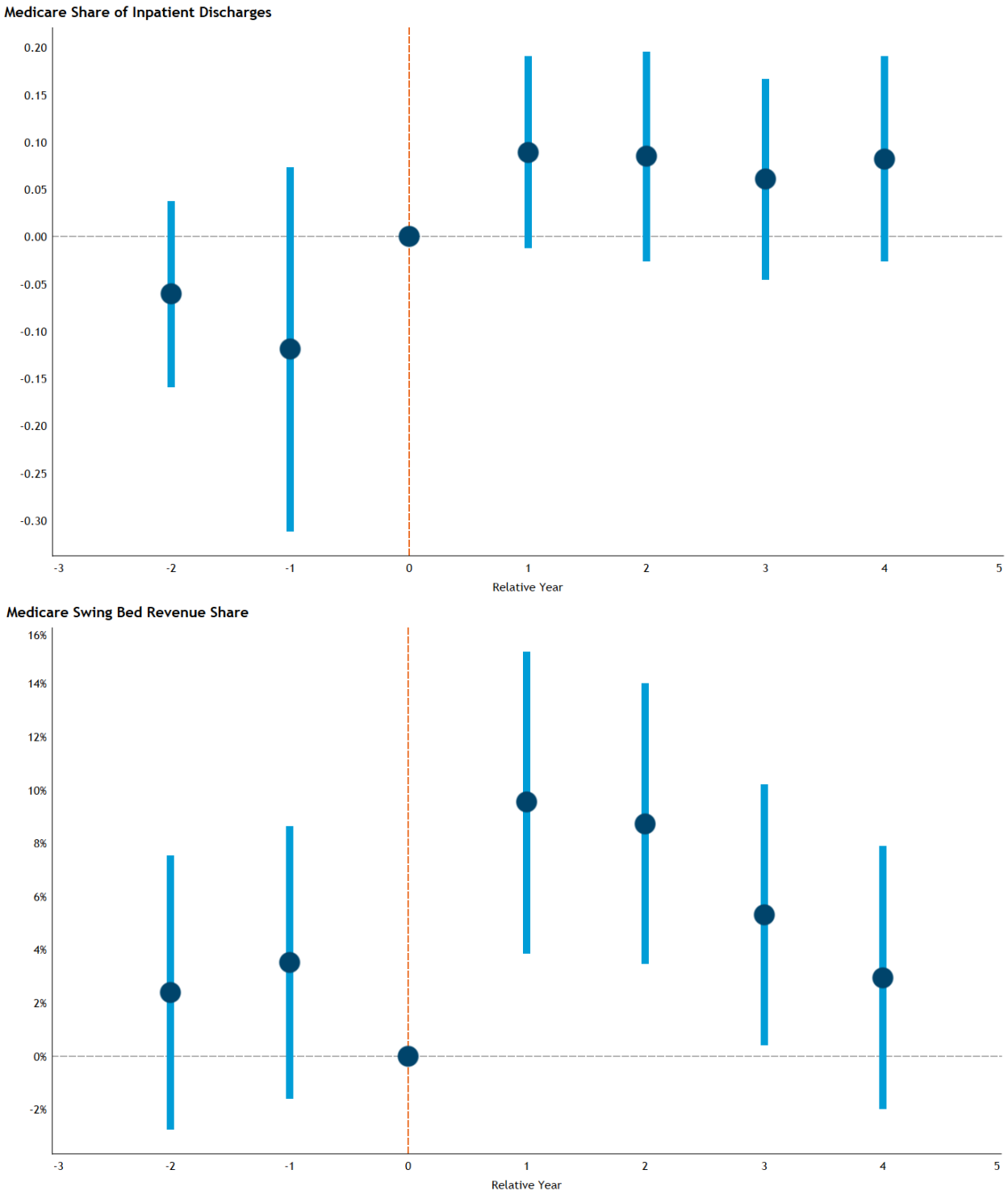


Continuing Hospitals





New Hospitals



Notes: An event-study graph plots DID coefficient estimates before and after the start of the demonstration to assess whether the trajectory of estimated impacts are in line with expectation; i.e., whether impacts are zero prior to the start of participation in the CCA extension and positive after the start of participation in the CCA extension. Relative years -2 to 0 are the baseline period for the evaluation, where 0 is the final baseline year or the year prior to the year in which a hospital started participation in the CCA extension.

E.2 Additional Results

The exhibits in this section include descriptive and regression results for other (non-margin) outcomes and well as results of the robustness checks conducted. **Exhibit E2.3** and **Exhibit E2.4** present descriptive analysis results accompanying **Section 4.2** for margin outcomes for *continuing* and *new* hospitals respectively. **Exhibit E2.6** and **Exhibit E2.7** presents similar descriptive analysis results for other (non-margin) outcomes, for *continuing* and *new* hospitals respectively. **Exhibit E2.8** presents trend-graphs for the margin outcomes, and **Exhibit E2.9** presents trend-graphs for the non-margin outcomes. Separate trend analysis by hospital, for *continuing* hospitals, is reported in **Exhibit E2.10**. This trend analysis was performed to further explore the total profit margin declines that were experienced by *continuing* RCHD hospitals in the CCA extension. The time-dimension is useful to explore whether shocks were experienced by hospitals in the same or in different years. This helps understand whether there were multiple external/non-Medicare factors responsible for this trend or if the observed decline was attributable to a common external shock. The results for this exhibit are discussed in **Section 4.0** through present DID regression results accompanying **Section 4.3** for other (non-margin) outcomes for *continuing* and *new* hospitals and present DID regression results by Pre-Covid and Covid periods for *continuing* and *new* hospitals.

E.2.1 Descriptive Analysis Results Accompanying Section 4.2

Exhibit E2.1: RCHD and Comparison Hospital Margin Outcomes for Continuing Hospitals

Measure	RCHD Hospitals	Comparison Hospitals
Medicare Inpatient Margin		
Baseline Period Mean	-3%	-3%
Demonstration Period Mean	1%	5%
Difference *(in percentage points)*	4*	8***
Medicare Combined Margin		
Baseline Period Mean	-16%	-12%
Demonstration Period Mean	-16%	-9%
Difference *(in percentage points)*	0	3
Number of Hospitals	14	351
Sample Size in Hospital-Years	111	6,913
Total Profit Margin		
Baseline Period Mean	1%	1%

Measure	RCHD Hospitals	Comparison Hospitals
Demonstration Period Mean	-2%	4%
Difference *(in percentage points)*	-3	3*
Operating Margin		
Baseline Period Mean	-2%	-7%
Demonstration Period Mean	-7%	-6%
Difference *(in percentage points)*	-5**	1
Number of Hospitals	14	351
Sample Size in Hospital-Years	111	6,907

Notes: *** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 1% level, ** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 5% level, and * indicates that the difference between baseline period means and demonstration period means is statistically significant at the 10% level, using traditional inference. Differences may not add up due to rounding. The maximum sample sizes for the set of outcomes in the table are reported; sample sizes may be slightly smaller for some outcomes due to missing data in some years.

Exhibit E2.2: RCHD and Comparison Hospital Margin Outcomes for New Hospitals

Measure	RCHD Hospitals	Comparison Hospitals
Medicare Inpatient Margin		
Baseline Period Mean	-20%	-20%
Demonstration Period Mean	-4%	-3%
Difference *(in percentage points)*	16***	17***
Medicare Combined Margin		
Baseline Period Mean	-26%	-29%
Demonstration Period Mean	-15%	-18%
Difference *(in percentage points)*	11***	11***
Number of Hospitals	12	309
Sample Size in Hospital-Years	84	2,053
Total Profit Margin		
Baseline Period Mean	-3%	-3%
Demonstration Period Mean	5%	0%
Difference *(in percentage points)*	8*	3
Operating Margin		
Baseline Period Mean	-8%	-11%
Demonstration Period Mean	-3%	-14%
Difference *(in percentage points)*	5	-3
Number of Hospitals	12	309
Sample Size in Hospital-Years	83	2,053

Notes: *** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 1% level, ** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 5% level, and * indicates that the difference between baseline period means and demonstration period means is statistically significant at the 10% level, using traditional inference. Differences may not add up due to rounding. The maximum sample sizes for the set of outcomes in the table are reported; sample sizes may be slightly smaller for some outcomes due to missing data in some years.

Exhibit E2.3: RCHD and Comparison Hospital Other (Non-Margin) Outcomes for Continuing Hospitals

Measure	All RCHD Participant Hospitals	Comparison Hospitals
Days Cash on Hand		
Baseline Period Mean	168	98
Demonstration Period Mean	171	98
Difference *(in days)*	3	0
Long-Term Debt-to-Capitalization		
Baseline Period Mean	20%	20%
Demonstration Period Mean	25%	-4%
Difference *(in percentage points)*	5	-24
Ratio of Salaries to Net Patient Revenue		
Baseline Period Mean	43%	48%
Demonstration Period Mean	43%	42%
Difference *(in percentage points)*	0	-6**
Hospital Full Time Equivalents per Occupied Bed		
Baseline Period Mean	8	8
Demonstration Period Mean	8	8
Difference *(in FTEs)*	0	0
Average Age of Plant		
Baseline Period Mean	10	14
Demonstration Period Mean	11	16
Difference *(in years)*	1	2**
Medicare Share of Inpatient Discharges		
Baseline Period Mean	47%	40%
Demonstration Period Mean	44%	38%
Difference *(in percentage points)*	-3	-2
Medicare Share of Inpatient Days		
Baseline Period Mean	59%	49%
Demonstration Period Mean	58%	45%
Difference *(in percentage points)*	-1	-4***
Medicare Swing-bed Revenue Share		
Baseline Period Mean	15%	2%

Measure	All RCHD Participant Hospitals	Comparison Hospitals
Demonstration Period Mean	16%	2%
Difference *(in percentage points)*	1	0
Sample Size in Hospital-Years	112	6,913
Number of Hospitals	14	351

Notes: *** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 1% level, ** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 5% level, and * indicates that the difference between baseline period means and demonstration period means is statistically significant at the 10% level, using traditional inference. Differences may not add up due to rounding. The maximum sample-sizes for the set of outcomes in the table are reported; sample sizes may be slightly smaller for some outcomes due to missing data in some years.

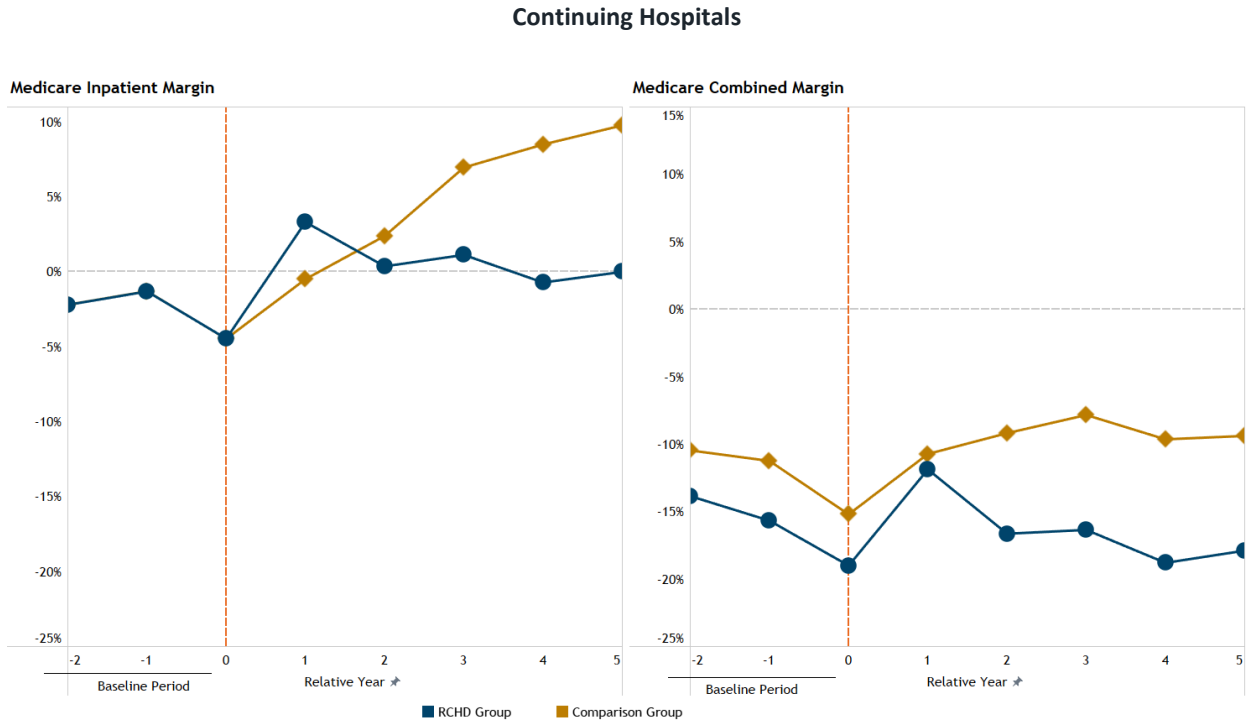
Exhibit E2.4: RCHD and Comparison Hospital Other (Non-Margin) Outcomes for New Hospitals

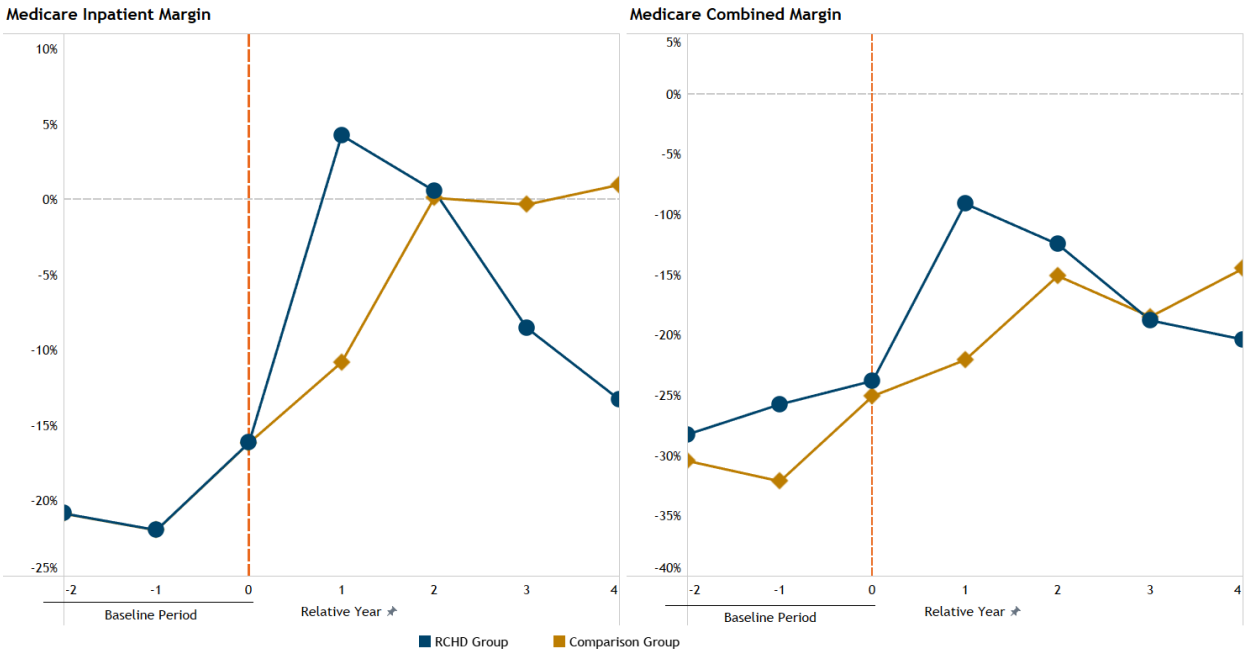
Measure	All RCHD Participant Hospitals	Comparison Hospitals
Days Cash on Hand		
Baseline Period Mean	128	77
Demonstration Period Mean	147	102
Difference *(in days)*	18	24
Long-Term Debt-to-Capitalization		
Baseline Period Mean	-4%	59%
Demonstration Period Mean	-56%	28%
Difference *(in percentage points)*	-52	-31
Ratio of Salaries to Net Patient Revenue		
Baseline Period Mean	43%	47%
Demonstration Period Mean	41%	48%
Difference *(in percentage points)*	-2	1
Hospital Full Time Equivalents per Occupied Bed		
Baseline Period Mean	8	7
Demonstration Period Mean	7	7
Difference *(in FTEs)*	-1	0
Average Age of Plant		
Baseline Period Mean	19	11
Demonstration Period Mean	23	14
Difference *(in years)*	4	3**
Medicare Share of Inpatient Discharges		
Baseline Period Mean	43%	41%
Demonstration Period Mean	45%	37%
Difference	1	-5***
Medicare Share of Inpatient Days		
Baseline Period Mean	55%	51%
Demonstration Period Mean	52%	47%
Difference	-3	-4**
Medicare Swing-bed Revenue Share		
Baseline Period Mean	9%	2%

Measure	All RCHD Participant Hospitals	Comparison Hospitals
Demonstration Period Mean	17%	2%
Difference	7	0
Sample Size in Hospital-Years	84	2,052
Number of Hospitals	12	309

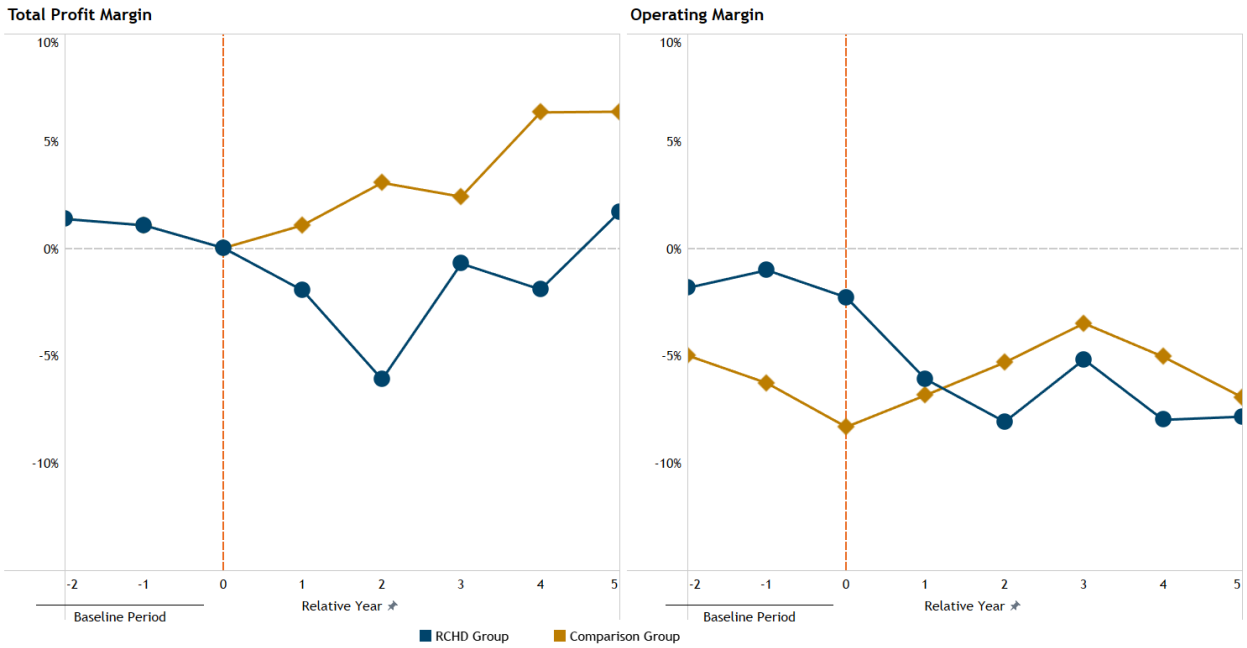
Notes: *** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 1% level, ** indicates that the difference between baseline period means and demonstration period means is statistically significant at the 5% level, and * indicates that the difference between baseline period means and demonstration period means is statistically significant at the 10% level, using traditional inference. Differences may not add up due to rounding. The maximum sample-sizes for the set of outcomes in the table are reported; sample sizes may be slightly smaller for some outcomes due to missing data in some years.

Exhibit E2.5: RCHD and Comparison Hospital Margin Outcome Trends for Continuing and New Hospitals





Continuing Hospitals



New Hospitals

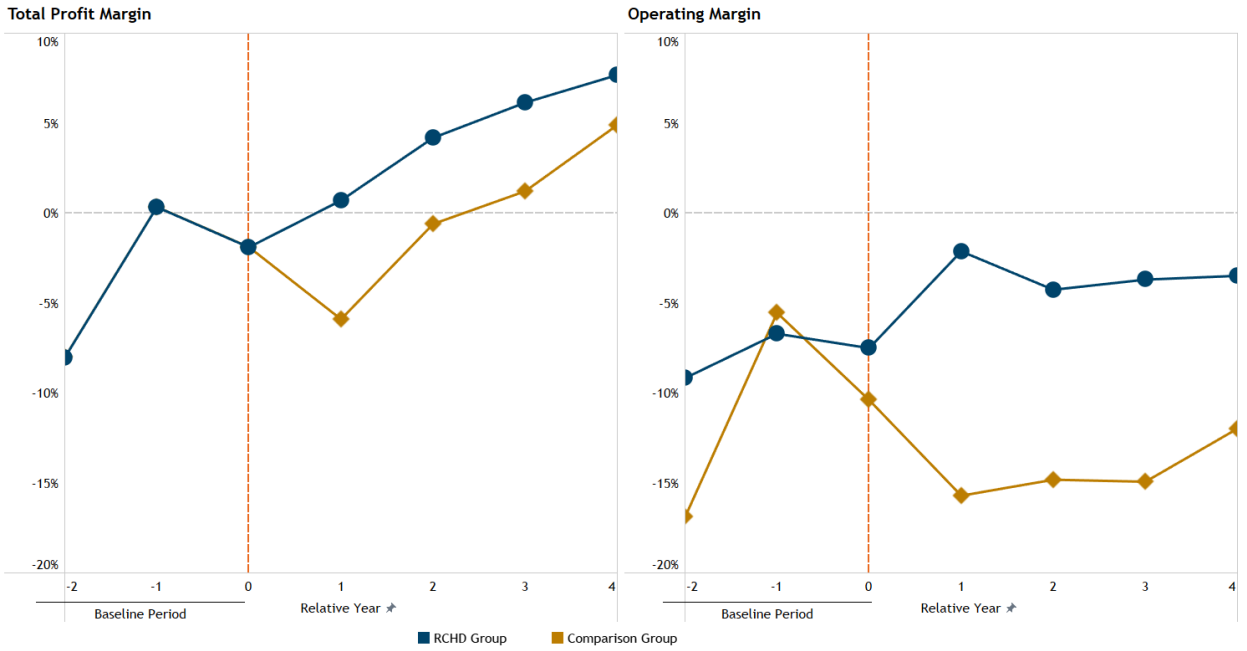
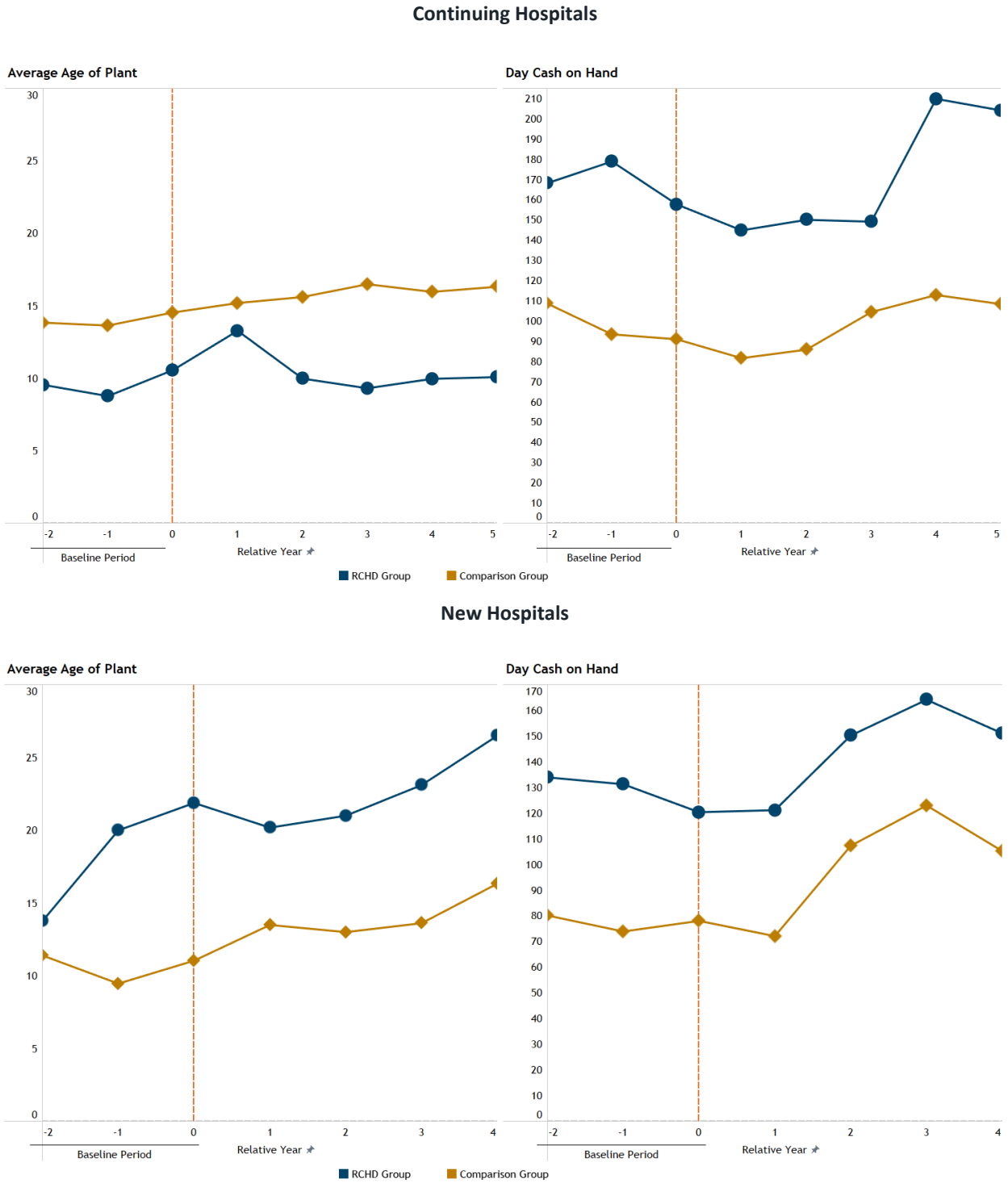
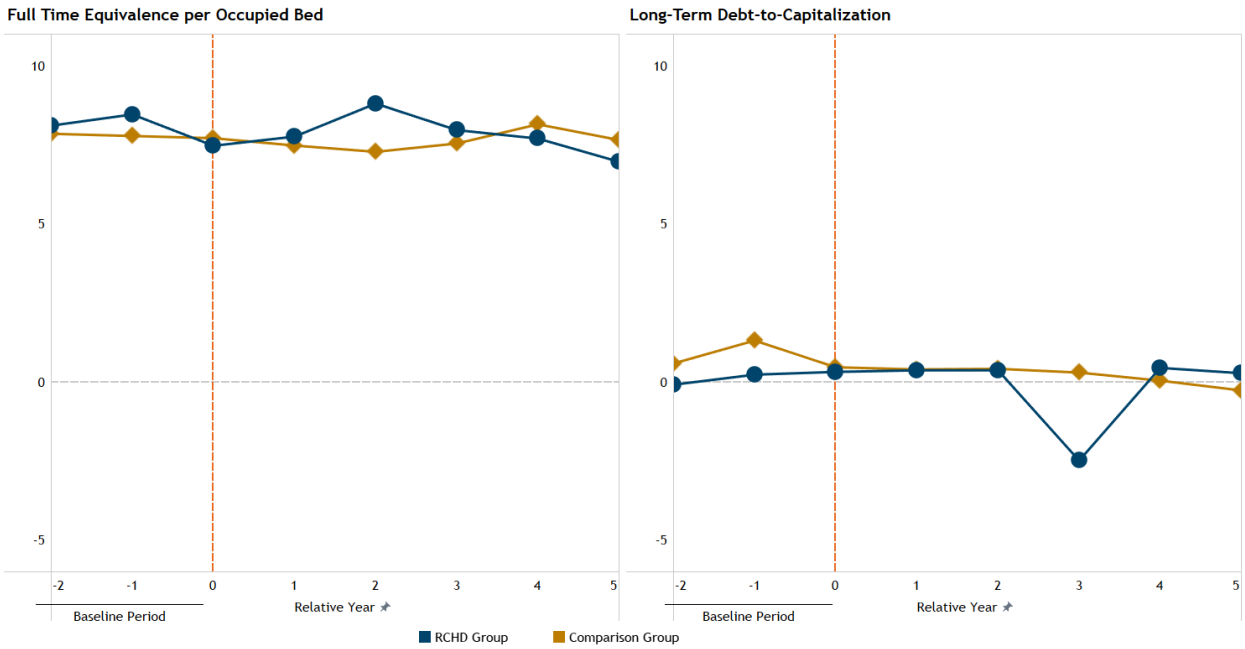


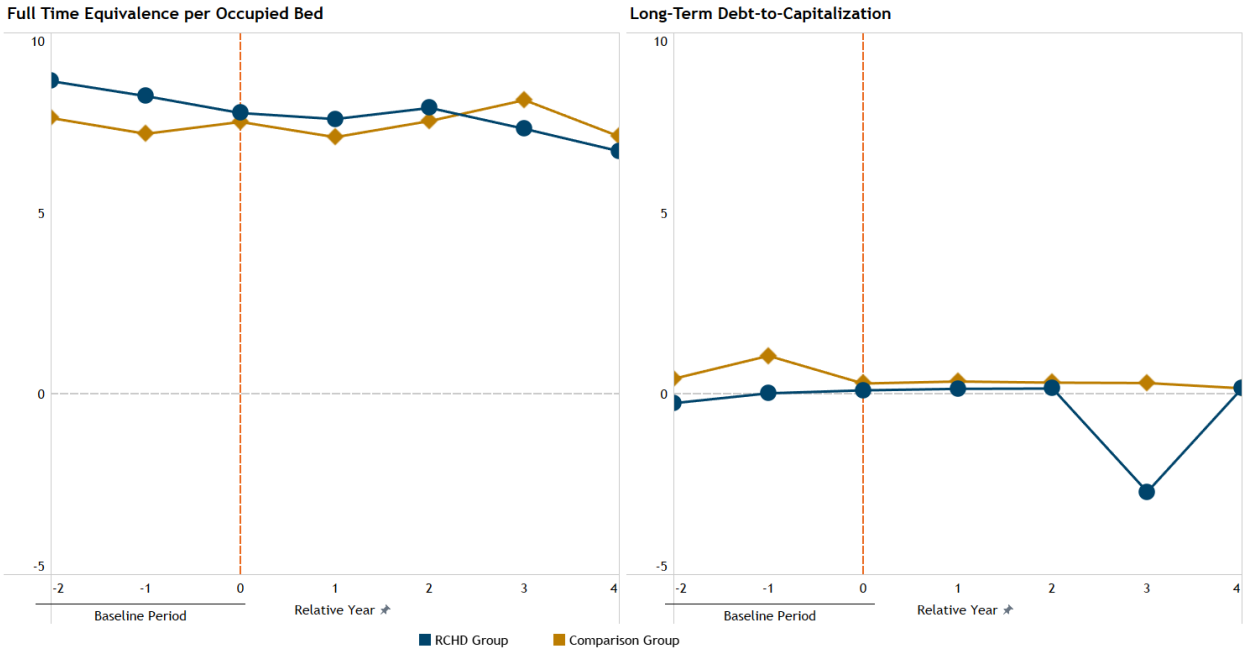
Exhibit E2.6: RCHD and Comparison Hospital Other (Non-Margin) Outcome Trends for Continuing and New Hospitals



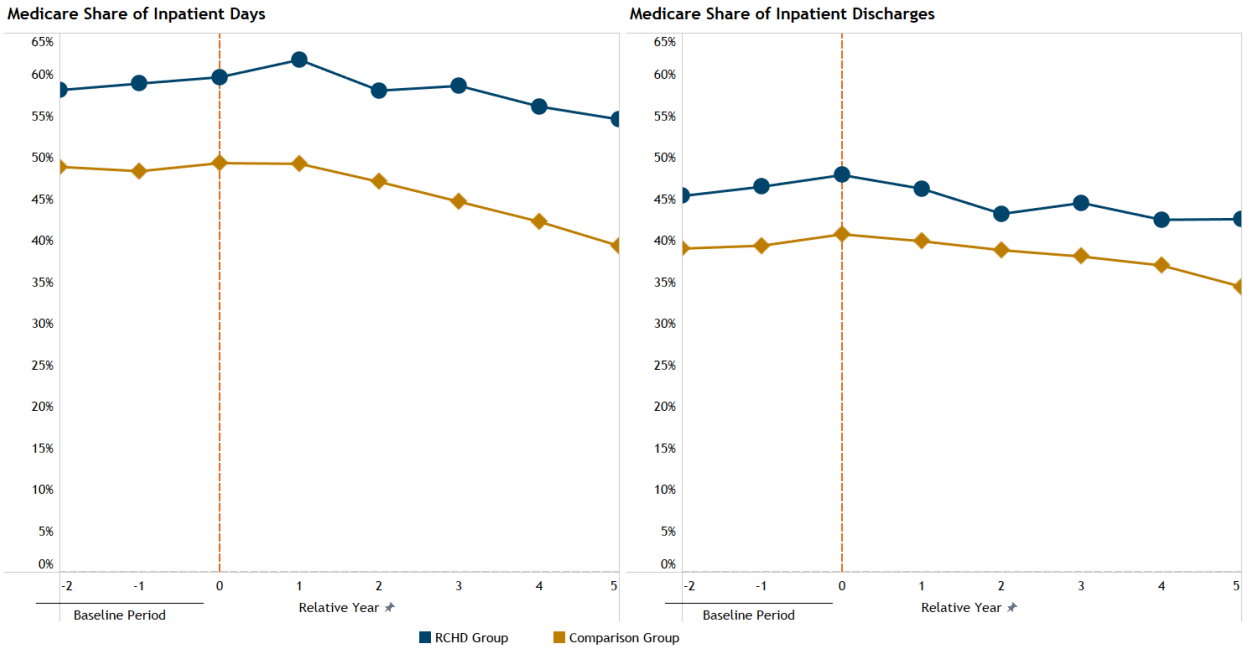
Continuing Hospitals



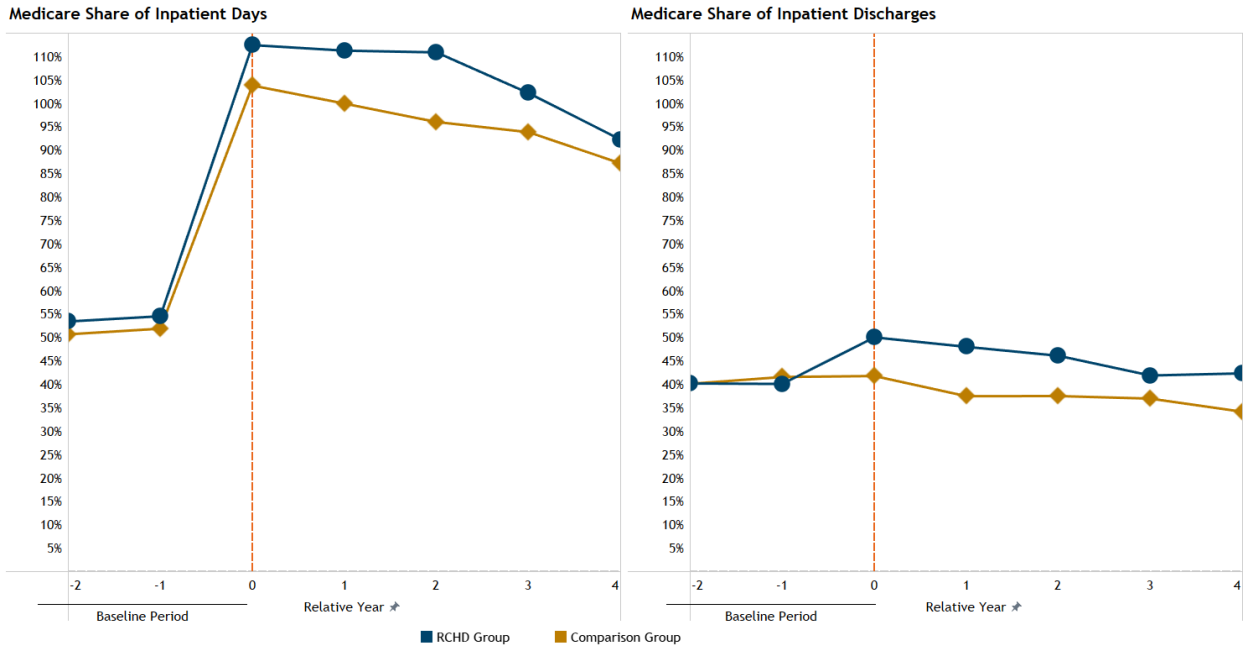
New Hospitals



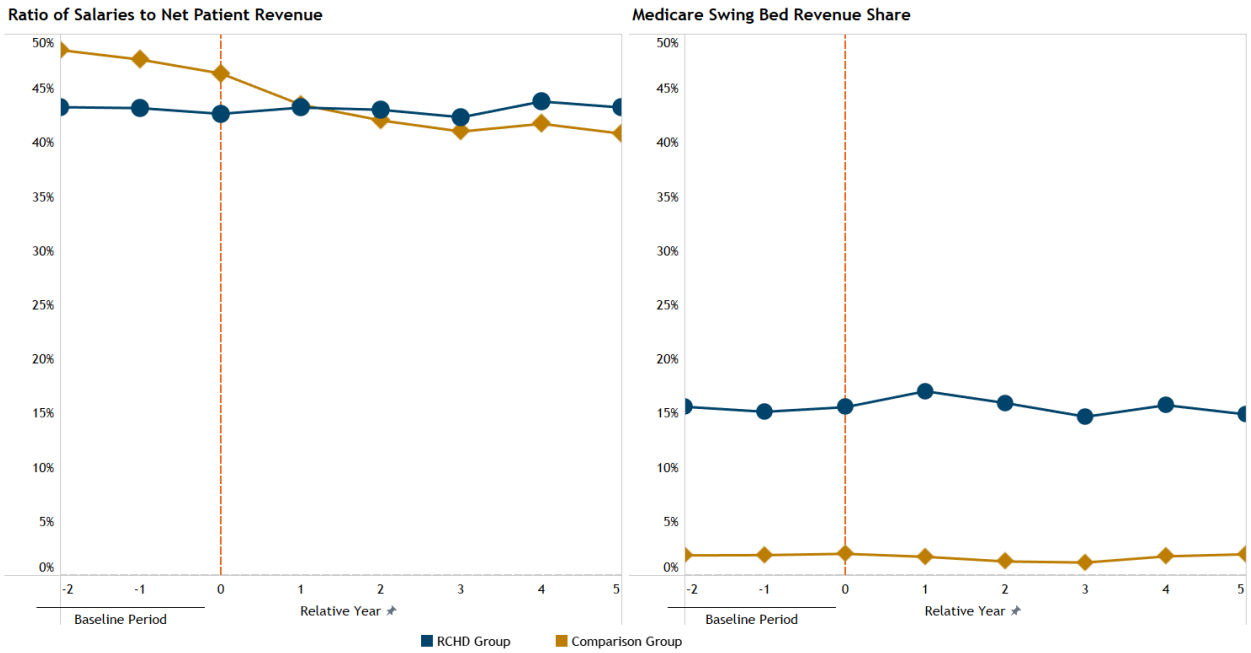
Continuing Hospitals



New Hospitals



Continuing Hospitals



New Hospitals

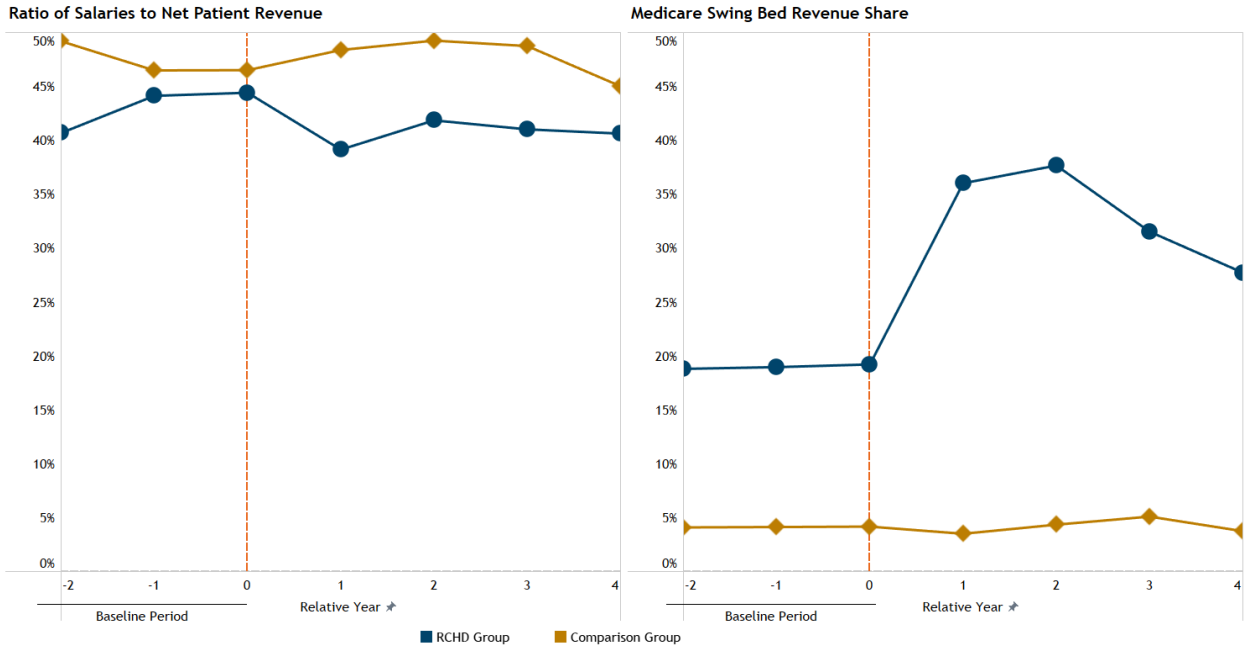
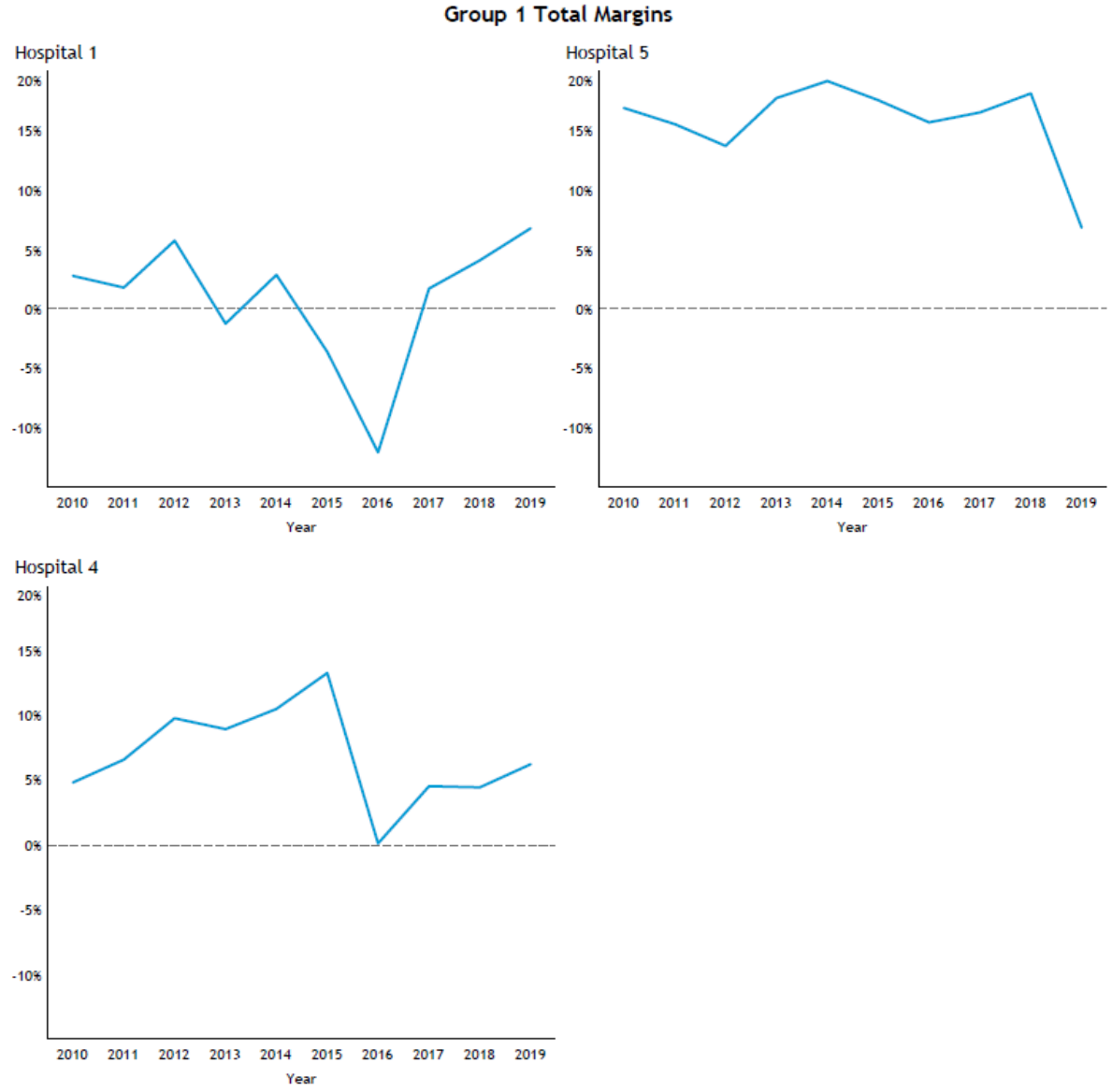
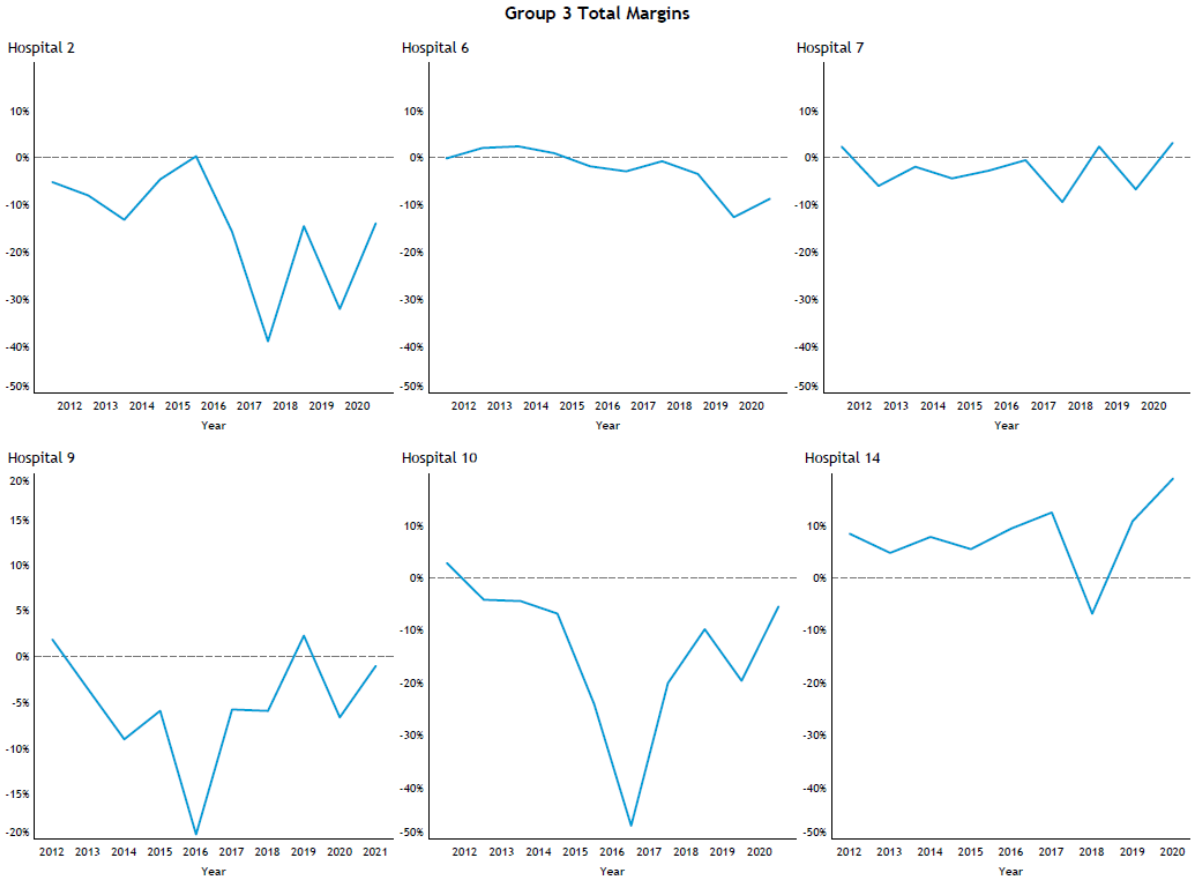


Exhibit E2.7: Hospital-Level Total Profit Margins for Continuing Hospitals




Group 2 Total Margins
Hospital 3
Hospital 8
Hospital 11
Hospital 12
Hospital 13
20%
15%
10%
5%
0%
-5%
-10%
-15%
-20%
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
Year



Notes: Group 1 hospitals are those that began participation in the CCA extension in FY 2015, Group 2 hospitals are those that began participation in FY 2016. Group 3 hospitals began participation in FY 2017. Hospitals in Groups 1-3 are continuing hospitals that continued participation in the CCA extension having participated in the RCHD previously under the ACA extension.

E.2.2 Regression Analysis Results Accompanying Section 4.3

Exhibit E2.8: Difference-in-Differences Results: Other Financial Outcomes for Continuing Hospitals

Measure	Days Cash on Hand	Long-Term Debt-to-Capitalization Ratio	Ratio of Salaries to Net Patient Revenue	Full-Time Equivalents per Occupied Bed	Average Age of Plant
Average Impact Estimate	-13.71	6	-2	-0.15	-2.09
90% Confidence Interval	(-36.55, 9.12)	(-7, 20)	(-4, 1)	(-0.94, 0.65)	(-5.07, 0.88)
Standard Error	(13.86)	(8)	(2)	(0.48)	(1.81)
Regression *p*-value	[0.32]	[0.45]	[0.21]	[0.76]	[0.25]
Randomization Inference *p*-value	[0.40]	[0.86]	[0.43]	[0.83]	[0.23]
Baseline Mean for RCHD Hospitals	168.16	20%	43%	8.01	9.62
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-8%	31%	-4%	-2%	-22%
Sample Size in Hospital-Years[§]	7,022	6,997	7,005	6,963	6,403
Number of RCHD Hospitals	14	14	14	14	14
Number of Comparison Hospitals	351	351	351	350	339

Notes: Impact estimates, standard errors, and 90% confidence intervals for Long-Term Debt-to-Capitalization Ratio and Ratio of Salaries to Net Patient Revenue are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. None of the coefficient estimates in this table are statistically significant at the 10% level using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Parallel baseline trends did not pass for three outcomes: days cash on hand, FTEs per occupied bed, and the average age of plant. As a result, we do not consider the impact estimates for these three outcomes to be valid for continuing hospitals. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E2.9: Difference-in-Differences Results: Other Financial Outcomes for New Hospitals

Measure	Days Cash on Hand	Long-Term Debt-to-Capitalization Ratio	Ratio of Salaries to Net Patient Revenue	Full-Time Equivalents per Occupied Bed	Average Age of Plant
Average Impact Estimate	-16.21	-1.19*^^	-4*	-0.41	-8.43^^^
90% Confidence Interval	(-35.57, 3.15)	(-2.27, -11)	(-8, -1)	(-1.58, 0.76)	(-17.95, 1.10)
Standard Error	(11.75)	(66)	(2)	(0.71)	(5.78)
Regression *p*-value	[0.17]	[0.07]	[0.06]	[0.57]	[0.15]
Randomization Inference *p*-value	[0.44]	[0.03]	[0.11]	[0.66]	[0.01]
Baseline Mean for RCHD Hospitals	128.45	-4%	43%	8.24	18.58
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-13%	-2751%	-10%	-5%	-45%
Sample Size in Hospital-Years[§]	2,141	2,133	2,135	2,127	1,904
Number of RCHD Hospitals	12	12	12	12	11
Number of Comparison Hospitals	309	309	309	309	293

Notes: Impact estimates, standard errors, and 90% confidence intervals for Long-Term Debt-to-Capitalization Ratio and Ratio of Salaries to Net Patient Revenue are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. None of the coefficient estimates in this table are statistically significant at the 10% level using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E2.10: Difference-in-Differences Results: Medicare Revenue Indicators for Continuing Hospitals

Measure	Medicare Share of Inpatient Discharges	Medicare Share of Inpatient Days	Medicare Swing-bed Revenue Share
Average Impact Estimate	-3**^	0	-0
90% Confidence Interval	(-5, -1)	(-3, 3)	(-3, 3)
Standard Error	(1)	(2)	(2)
Regression *p*-value	[0.02]	[0.99]	[0.97]
Randomization Inference *p*-value	[0.08]	[1.00]	[0.94]
Baseline Mean for RCHD Hospitals	47%	59%	15%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-7%	0%	-0%
Sample Size in Hospital-Years[§]	7,020	7,020	7,011
Number of RCHD Hospitals	14	14	14
Number of Comparison Hospitals	351	351	351

Notes: Impact estimates, standard errors, and 90% confidence intervals for all three outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E2.11: Difference-in-Differences Results: Medicare Revenue Indicators for New Hospitals

Measure	Medicare Share of Inpatient Discharges	Medicare Share of Inpatient Days	Medicare Swing-bed Revenue Share
Average Impact Estimate	13*^^^	2	7***^^^
90% Confidence Interval	(1, 26)	(-2, 6)	(3, 11)
Standard Error	(7)	(2)	(2)
Regression *p*-value	[0.08]	[0.43]	[0.00]
Randomization Inference *p*-value	[0.00]	[0.41]	[0.00]
Baseline Mean for RCHD Hospitals	43%	55%	9%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	31%	3%	73%
Sample Size in Hospital-Years[§]	2,140	2,140	2,135
Number of RCHD Hospitals	12	12	12
Number of Comparison Hospitals	309	309	309

Notes: Impact estimates, standard errors, and 90% confidence intervals for all three outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

E.2.3 Regression Analysis Results Before and After the Pandemic Accompanying Section 4.3

Exhibit E2.12: Two Periods Difference-in-Differences Results: Continuing RCHD Hospitals

Measure	Pre-Pandemic	Post-Pandemic
Medicare Inpatient Margin	2^^^	-2
Medicare Combined Margin	3^^	4
Total Profit Margin	-3^^	-6*
Operating Margin	-3^^^	-2^^
Days Cash on Hand	-15.71	-3.66
Long-Term Debt-to-Capitalization Ratio	2	28^^
Ratio of Salaries to Net Patient Revenue	-2^	-4
Full-Time Equivalents per Occupied Bed	0.07	-1.23***
Average Age of Plant	-2^^	-2.66^^
Medicare Share of Inpatient Discharges	-3**^^^	-4**^^^
Medicare Share of Inpatient Days	0^	0
Medicare Swing-bed Revenue Share	0^^^	0

Notes: Impact estimates, standard errors, and 90% confidence intervals for outcomes except Days Cash on Hand, Full-Time Equivalents per Occupied Bed, and Average Age of Plant are in % terms. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E2.13: Two Periods Difference-in-Differences Results: New RCHD Hospitals

Measure	Pre-Pandemic	Post-Pandemic
Medicare Inpatient Margin	14^^^	-5
Medicare Combined Margin	9^^	-2
Total Profit Margin	7^	6
Operating Margin	13**^^	12^
Days Cash on Hand	-14	-20
Long-Term Debt-to-Capitalization Ratio	-65^	-222^^
Ratio of Salaries to Net Patient Revenue	-5**^	-4
Full-Time Equivalents per Occupied Bed	-0.06	-1.11
Average Age of Plant	-9.03^^^	-7.27^
Medicare Share of Inpatient Discharges	14*^^^	12^^^
Medicare Share of Inpatient Days	3	0
Medicare Swing-bed Revenue Share	9***^^^	4*^

Notes: Impact estimates, standard errors, and 90% confidence intervals for outcomes except Days Cash on Hand, Full-Time Equivalents per Occupied Bed, and Average Age of Plant are in % terms. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

E.3 Robustness Checks

This section describes the robustness check performed for the regression analyses reported in previous parts of **Section 4**.

One potential limitation of matching methods, which can be severe in the case of entropy balancing, is that the matching algorithm may assign very large weights to a few comparison units because they contribute the most information about the counterfactual of interest.[49] Large weights increase the variance of the subsequent DID analyses (which can limit the ability to detect statistically significant effects) and also make the analysis sensitive to changes in a few comparison group observations.

To test the sensitivity of the analysis to extreme weights, the entropy weights were capped at the 95th percentile, and then the weight distribution was re-normalized to ensure that the sum of the weights of the comparison units was equal to the sum of the weights of the treated units. As described below, there was little evidence of sensitivity to extreme weights. The results are reported in **Exhibit E3.4** through **Exhibit E3.8** of Appendix E. Next, the findings from capping and re-normalizing the entropy weights are discussed.

A. Continuing RCHD Hospitals

Upon running this robustness check, many impacts for *continuing* RCHD hospitals were found to be qualitatively consistent with the main specification for all outcomes. This means that while magnitudes of impact estimates differed slightly across the two specifications, the sign and significance of the estimates remained the same.

Among the results that did not change, Medicare inpatient and Medicare combined margins for *continuing* RCHD hospitals did not experience a statistically significant change relative to their levels during the previous authorization phase, as shown in **Exhibit E3.4**. This robustness check specification also indicates that the decline in total profit margins observed for *continuing* hospitals during the CCA authorization extension was not significant per randomization inference *p*-values (**Exhibit E3.6**). All other (non-margin) outcomes, except Medicare share of inpatient discharges, did not experience a statistically significant change across both specifications (**Exhibit E3.5** and **Exhibit E3.8**).

Similar to the main specification, the robustness check specification indicates a decrease in *continuing* hospitals' Medicare share of inpatient discharges during the CCA authorization

[49] Hainmueller, J. (2012). Entropy balancing for causal effects: A multivariate reweighting method to produce balanced samples in observational studies. *Political Analysis*, *20*(1), 25–46. https://doi.org/10.1093/pan/mpr025

extension. This decrease was still statistically significant per the statistical inference *p*-value but not significant per the randomization inference *p*-value (**Exhibit E3.7**).

B. New RCHD Hospitals

When running this robustness check, most impacts for *new* RCHD hospitals were found to be qualitatively consistent with the main specification for all outcomes. Among the results that changed, Medicare inpatient and Medicare combined margins for *new* RCHD hospitals improved as a result of participating in the RCHD for the first time, as shown in **Exhibit E3.5**. This result was not statistically significant in the main analysis but is significant after capping and re-normalizing weights.

All other outcomes did not change across both specifications. Specifically, in keeping with the main analysis, the robustness check specification indicates that total profit and operating margins for *new* hospitals improved during the demonstration period (**Exhibit E3.7**). The robustness check specification also indicates a decrease in the ratio of salaries to net patient revenue for *new* hospitals (**Exhibit E3.6**). Also in keeping with the main analysis, the Medicare share of inpatient discharges and Medicare swing-bed revenue share increased for *new* RCHD hospitals during the demonstration period (**Exhibit E3.8**). In **Section 4.3** it is noted that the decrease in the ratio of salaries to net patient revenue is likely a mechanical artifact due to higher patient revenues under the demonstration, and the increase in Medicare swing-bed revenue may indicate strategic behavior on the part of participating hospitals to increase base year costs and maximize revenue under the demonstration.

Exhibit E3.1: Difference-in-Differences Results: Medicare Margins after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for Continuing Hospitals

Measure	Medicare Inpatient Margin	Medicare Combined Margin
Average Impact Estimate	1	2
90% Confidence Interval	(-3, 5)	(-1, 6)
Standard Error	(2)	(2)
Regression *p*-value	[0.74]	[0.31]
Randomization Inference *p*-value	[0.81]	[0.54]
Baseline Mean for RCHD Hospitals	-3%	-16%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	30%	13%
Sample Size in Hospital-Years[§]	7,011	7,013
Number of RCHD Hospitals	14	14
Number of Comparison Hospitals	351	351

Notes: Impact estimates, standard errors, and 90% confidence intervals for both outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.2: Difference-in-Differences Results: Medicare Margins after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for New Hospitals

Measure	Medicare Inpatient Margin	Medicare Combined Margin
Average Impact Estimate	14*^^^	11**^^
90% Confidence Interval	(1, 26)	(3, 18)
Standard Error	(8)	(5)
Regression *p*-value	[0.08]	[0.02]
Randomization Inference *p*-value	[0.01]	[0.03]
Baseline Mean for RCHD Hospitals	-20%	-26%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	69%	41%
Sample Size in Hospital-Years[§]	2,135	2,136
Number of RCHD Hospitals	12	12
Number of Comparison Hospitals	309	309

Notes: Impact estimates, standard errors, and 90% confidence intervals for both outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.3: Difference-in-Differences Results: Overall Profitability Margins after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for Continuing Hospitals

Measure	Total Profit Margin	Operating Margin
Average Impact Estimate	-4	-3
90% Confidence Interval	(-7, 0)	(-7, 1)
Standard Error	(2)	(2)
Regression *p*-value	[0.11]	[0.25]
Randomization Inference *p*-value	[0.19]	[0.45]
Baseline Mean for RCHD Hospitals	1%	-2%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-426%	-167%
Sample Size in Hospital-Years[§]	7,005	7,005
Number of RCHD Hospitals	14	14
Number of Comparison Hospitals	351	351

Notes: Impact estimates, standard errors, and 90% confidence intervals for both outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.4: Difference-in-Differences Results: Overall Profitability Margins after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for New Hospitals

Measure	Total Profit Margin	Operating Margin
Average Impact Estimate	7^	13***^^
90% Confidence Interval	(-0, 14)	(5, 22)
Standard Error	(4)	(5)
Regression *p*-value	[0.12]	[0.01]
Randomization Inference *p*-value	[0.09]	[0.02]
Baseline Mean for RCHD Hospitals	-3%	-8%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	212%	168%
Sample Size in Hospital-Years[§]	2,135	2,135
Number of RCHD Hospitals	12	12
Number of Comparison Hospitals	309	309

Notes: Impact estimates, standard errors, and 90% confidence intervals for both outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.5: Difference-in-Differences Results: Other Financial Outcomes after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for Continuing Hospitals

Measure	Days Cash on Hand	Long-Term Debt-to-Capitalization Ratio	Ratio of Salaries to Net Patient Revenue	Full-Time Equivalents per Occupied Bed	Average Age of Plant
Average Impact Estimate	-18.91	6	-1	-0.16	-2.26
90% Confidence Interval	(-39.99, 2.17)	(-3, 15)	(-4, 1)	(-1.09, 0.77)	(-5.41, 0.89)
Standard Error	(12.80)	(5)	(1)	(0.57)	(1.91)
Regression *p*-value	[0.14]	[0.25]	[0.30]	[0.78]	[0.24]
Randomization Inference *p*-value	[0.26]	[0.86]	[0.57]	[0.80]	[0.21]
Baseline Mean for RCHD Hospitals	168.16	20%	43%	8.01	9.62
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-11%	31%	-3%	-2%	-23%
Sample Size in Hospital-Years [§]	7,022	6,997	7,005	6,963	6,403
Number of RCHD Hospitals	14	14	14	14	14
Number of Comparison Hospitals	351	351	351	350	339

Notes: Impact estimates, standard errors, and 90% confidence intervals for Long-Term Debt-to-Capitalization Ratio and Ratio of Salaries to Net Patient Revenue are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. None of the coefficient estimates in this table are statistically significant at the 10% level using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.6: Difference-in-Differences Results: Other Financial Outcomes after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for New Hospitals

Measure	Days Cash on Hand	Long-Term Debt-to-Capitalization Ratio	Ratio of Salaries to Net Patient Revenue	Full-Time Equivalents per Occupied Bed	Average Age of Plant
Average Impact Estimate	-15.49	-116*^^	-4**^	-0.82	-7.03^^
90% Confidence Interval	(-34.13, 3.15)	(-222, -9)	(-8, -1)	(-2.22, 0.59)	(-14.95, 0.90)
Standard Error	(11.32)	(65)	(2)	(0.85)	(4.81)
Regression *p*-value	[0.17]	[0.07]	[0.03]	[0.34]	[0.15]
Randomization Inference *p*-value	[0.44]	[0.03]	[0.09]	[0.35]	[0.02]
Baseline Mean for RCHD Hospitals	128.45	-4%	43%	8.24	18.58
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-12%	2677%	-10%	-10%	-38%
Sample Size in Hospital-Years[§]	2,141	2,133	2,135	2,127	1,904
Number of RCHD Hospitals	12	12	12	12	11
Number of Comparison Hospitals	309	309	309	309	293

Notes: Impact estimates, standard errors, and 90% confidence intervals for Long-Term Debt-to-Capitalization Ratio and Ratio of Salaries to Net Patient Revenue are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. None of the coefficient estimates in this table are statistically significant at the 10% level using randomization inference. The comparison group was defined using an entropy balancing method. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.7: Difference-in-Differences Results: Medicare Revenue Indicators after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for Continuing Hospitals

Measure	Medicare Share of Inpatient Discharges	Medicare Share of Inpatient Days	Medicare Swing-bed Revenue Share
Average Impact Estimate	-3*	1	0
90% Confidence Interval	(-5, -0)	(-1, 4)	(-2, 3)
Standard Error	(1)	(2)	(2)
Regression *p*-value	[0.09]	[0.38]	[0.91]
Randomization Inference *p*-value	[0.13]	[0.42]	[0.85]
Baseline Mean for RCHD Hospitals	47%	59%	15%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	-5%	2%	1%
Sample Size in Hospital-Years[§]	7,020	7,020	7,011
Number of RCHD Hospitals	14	14	14
Number of Comparison Hospitals	351	351	351

Notes: Impact estimates, standard errors, and 90% confidence intervals for all three outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

Exhibit E3.8: Difference-in-Differences Results: Medicare Revenue Indicators after Capping and Re-normalizing Entropy Balancing Weights at 95th Percentile, for New Hospitals

Measure	Medicare Share of Inpatient Discharges	Medicare Share of Inpatient Days	Medicare Swing-bed Revenue Share
Average Impact Estimate	13^^^	1	8***^^^
90% Confidence Interval	(-1, 27)	(-3, 5)	(4, 12)
Standard Error	(8)	(2)	(2)
Regression *p*-value	[0.13]	[0.56]	[0.00]
Randomization Inference *p*-value	[0.00]	[0.53]	[0.00]
Baseline Mean for RCHD Hospitals	43%	55%	9%
Average Impact Estimate as a Percentage of the RCHD Group Baseline Mean	29%	3%	81%
Sample Size in Hospital-Years[§]	2,140	2,140	2,135
Number of RCHD Hospitals	12	12	12
Number of Comparison Hospitals	309	309	309

Notes: Impact estimates, standard errors, and 90% confidence intervals for all three outcomes are in % terms. Standard errors, clustered at the hospital level and robust to heteroscedasticity, are in parentheses. *** indicates statistical significance at the 1% level, ** at the 5% level, and * at the 10% level, using traditional inference. ^^^ indicates statistical significance at the 1% level, ^^ at the 5% level, and ^ at the 10% level, using randomization inference. [§] Differences in sample sizes across outcomes may exist on account of missing data for some outcomes. Regression *p*-values and randomization inference *p*-values are complementary and reflect two ways of establishing inference. When inconsistent, randomization inference *p*-values take precedence over regression *p*-values in this report, as the former are more appropriate for small samples.

E.4 Changes to Alternative Reimbursement Systems for Small Rural Hospitals

It is also worth considering whether changes to alternative reimbursement systems for small rural hospitals (in particular the CAH, SCH, and MDH programs), as well as changes to the IPPS more generally, affected Medicare inpatient reimbursements for hospitals in the comparison group. These changes, if not accounted for by the DID methodology, could bias the estimates produced for *continuing* or *new* hospitals. In **Section 1.3**, alternative reimbursement systems for small rural hospitals, as well as relevant IPPS adjustments, were reviewed, and changes that have occurred over the timeframe of the demonstration were highlighted. Any major changes to these reimbursement programs in the FY 2012–FY 2021 timeframe can be a potential source of bias for the DID estimates, which use data from this time period.

That said, there were no major legislative updates to most programs during the FY 2012–FY 2021 period, with the exception of the addition of a payment for uncompensated care to qualifying hospitals, under the DSH program, in FY 2014.[50,51] Additional payments to hospitals resulting from this change would depend in part on the level of uncompensated care at the hospital relative to the amount of uncompensated care for all DSHs expressed as a percentage, as well as on the change in the percentage of individuals under the age of 65 who are uninsured.

While the precise direction of bias created by this change is difficult to pin down, it is possible that not fully accounting for this policy change makes our estimates more conservative. It was observed in the data that while comparison group hospitals' participation in the DSH program remained roughly constant across the baseline and demonstration periods (around 85 percent of hospitals participated), fewer RCHD hospitals had DSH status during the demonstration period (with declines from 46 percent participating at baseline to 6 percent participating during the demonstration period). Therefore, this change could have boosted IPPS reimbursement more for comparison group hospitals than RCHD hospitals, and because we are not fully controlling for it, we could be underestimating the impact of the RCHD for a few hospitals. While an indicator variable measuring whether or not a hospital has DSH status in our regressions was controlled for, there could be some remaining bias stemming from not accounting for the DSH amounts for which hospitals are eligible.

[50] CMS. (2024, September 30). *Disproportionate Share Hospital (DSH)*. https://www.cms.gov/medicare/payment/prospective-payment-systems/acute-inpatient-pps/disproportionate-share-hospital-dsh

[51] Additionally, on April 1, 2013, CMS imposed a mandatory 2 percent payment reduction in the Medicare Fee-for-Service (FFS) Program—also known as "sequestration." Even though sequestration was a new policy that started within the timeframe of our analysis, since sequestration is a national policy affecting all hospitals, we do not specifically account for it in our DID model. However, all relevant financial outcomes were constructed by accounting for sequestration.

Appendix F: Data Cleaning

HCRIS data sometimes have outlier values. As a result, we examined the distribution of each variable through a variety of methods such as summary statistics, percentile values, and manually examining trends of hospitals with exceptionally large or small values of a certain variable. Through this process, we identified seven variables (six outcomes and one hospital market characteristic) to which we performed data cleaning. The list of variables we modified from the raw values in this report are the following:

HCRIS Variable	Winsorization Thresholds
Total profit margins	-100 percent and 100 percent
Operating margins	-100 percent and 100 percent
Medicare inpatient margins	-100 percent and 100 percent
Medicare combined margins	-100 percent and 100 percent
Average age of physical plant	-60 years and 60 years
Median home value	99th percentile
Full time equivalents per occupied bed	99th percentile

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