Pennsylvania Insurance Department
Public Informational Hearing

Highmark Request for Modification of the Commissioner's Approving Determination and Order (Order No. ID-RC-13-06) Dated April 29, 2013, as Modified July 28, 2017

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I. Summary of opinions

(1) As part of its 2013 approval of Highmark's acquisition of West Penn Allegheny Health System, Inc. (West Penn) and subsequent formation of the Allegheny Health Network (AHN), the Pennsylvania Insurance Department (PID) imposed the Order that has governed Highmark Health, the parent of the insurance entity Highmark Inc. and the sole member of the AHN health system, for the last 11 years.[1] The PID presumably crafted that Order to reflect and address concerns related to (1) the competitive landscape in Western Pennsylvania (WPA) leading into that 2013 approval; (2) the market position of Highmark at that time; and (3) the operational, financial, and reputational challenges of West Penn at that time.

(2) Insofar as those circumstances have changed significantly over the ensuing decade, Conditions that would be well-tailored to the current market landscape will necessarily be different than in 2013. As an example, Conditions premised on concern over a potential exercise of market power should be more stringent when the degree of competition is lower, but less stringent when the degree of competition is greater. Likewise, Conditions premised on concern over the financial viability and performance of the West Penn hospitals should be more stringent when those hospitals are struggling and losing patient volume, but less so when they are not.

(3) In my comments, I will show that insurance competition today is significantly increased relative to 2013. In this, I largely agree with the PID's expert economists from the firm Compass Lexecon.[2] On the hospital side, I will show that, after the transaction, the pattern of declining share for the West Penn hospitals reversed. In addition, data from the Centers for Medicare and Medicaid Services (CMS) show significant quality improvements for the AHN hospitals. The system is also expanding, with the recent successful openings of AHN Wexford Hospital and several smaller "neighborhood hospitals."[3]

(4) Figure 1 summarizes my main findings with respect to insurance competition, hospital competition, and the performance of AHN.

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1 Pennsylvania Insurance Department Order No. ID-RC-13-06, as amended ("2013 Order").

2 Compass Lexecon, "Competitive Assessment of the Western Pennsylvania Insurance and Healthcare Markets," May 2023, [hereinafter, "2023 CL Report"], 2 ("Competition within the WPA healthcare insurance marketplace has strengthened since 2017.").

3 AHN, "Neighborhood Hospitals Report," October 2021, https://www.ahn.org/content/dam/ahn/en/dmxahn/documents/about/caring-for-our-community/community-health-needs-assessment-neighborhood-hospitals-2021.pdf.

Figure 1. Main findings regarding healthcare competition in WPA and AHN's performance

Category	Segment	Key changes

Insurance	Commercial	• Increased commercial insurance competition in WPA.
		• In WPA, from 2013 to 2023:
		  ○ Highmark's main competitors, UPMC Health Plan, Aetna, United, and Cigna, have all increased their shares of enrollment.
		  ○ UPMC Health Plan, Highmark's largest competitor, has held a roughly 25% share of enrollment since 2018.
		• In Allegheny County, UPMC Health Plan's share of enrollment has been over 30% since 2018.

	Medicare Advantage	• Increased Medicare Advantage competition in WPA.
		• In WPA, from 2012 to 2024:
		  ○ Aetna's share increased from about 12% to nearly 30%.
		  ○ UPMC Health Plan's share has exceeded 30% since 2016.
		  ○ United's share has grown steadily since 2014.
		• Due to the population aging and more seniors selecting Medicare Advantage over Original Medicare, the number of WPA seniors in a Medicare Advantage plan has increased 42%.

Hospital services	All patients	• In WPA, from 2013 to 2023:
		  ○ AHN has reversed its pre-2013 trend of declining discharge share, increasing to nearly 20% in 2023, up substantially from 10% in 2013.
		  ○ UPMC has maintained a discharge share above 40%.
		  ○ Excela Health and Heritage Valley have held steady while St. Clair has gained share.
		• AHN's quality has improved since the transaction, with performance on patient safety, mortality, and patient satisfaction in recent years either tracking or exceeding the performance of other hospitals in WPA and nationwide.

	Commercially insured patients	• AHN's share of commercial discharges in WPA has increased from 10% in 2012 to over 20% in 2023. • UPMC has maintained a discharge share above 40% in WPA and the Pittsburgh metropolitan area. • Heritage Valley's discharge share has declined slightly while Excela Health's and St. Clair's have increased slightly.

(5) In addition to examining insurer competition, hospital competition, and AHN's performance, I address the following topics.

- Although AHN does not earn a consistent profit on a stand-alone basis, it does have years of positive operating income.[4] More importantly, Highmark Health, the parent of Highmark Inc. and AHN, is profitable and maintains substantial reserves.[5] Moreover, by creating a competitive alternative to UPMC in WPA, particularly in the Pittsburgh area, AHN provides a substantial

[4] AHN reported operating income of $44 million in 2019, its third consecutive year of positive operating income. *See* https://www.highmarkhealth.org/annualreport2019/highlights/ahn/index.shtml and https://www.highmarkhealth.org/annualreport2019/financials/performance.shtml. However, AHN reported operating losses of $181 million in 2022 and $173 million in 2023. Madeline Ashley, "Allegheny Health Network sees 4.4% operating loss improvement," March 18, 2024, *Becker's Healthcare*, https://www.beckershospitalreview.com/finance/allegheny-health-network-sees-4-4-operating-loss-improvement.html.

[5] Regarding the organizational structure of Highmark Health, *see* https://www.highmarkhealth.org/annualreport/about/glance.shtml.

economic benefit to Highmark Inc. and the overall Highmark Health entity, as well as to all area insurers other than UPMC Health Plan.

- In 2019, then Attorney General Shapiro filed a lawsuit against UPMC for "violating Pennsylvania's charity laws."[6] As part of its settlement of that lawsuit, UPMC agreed to enter a 10-year contract with Highmark under which all UPMC hospitals became in-network for most of Highmark's commercial insurance products effective mid-2019. This primarily affected Pittsburgh-area enrollees in Highmark's commercial insurance products, some of whom appear to have switched to UPMC hospitals after the 2019 agreement. Despite this, AHN's share of commercial discharges among all payers (rather than just Highmark) is higher in 2023 than in 2018 or 2019.[7]
- Greater symmetry between two vertically integrated healthcare systems is likely to benefit consumers through more intense competition.[8] A potential caveat is that, under certain market conditions, greater symmetry may also create a risk of coordination between competitors—a softening of competition—that could mitigate or reverse the consumer benefit. However, important market conditions that make coordination more likely are absent from health system competition in WPA.
- Vertical integration, such as the combination of a health insurer with a health provider, can affect firms' internal strategies and competitive incentives in ways that could either lessen competition or make firms more efficient and increase competition. The driver of any change in economic incentives is the *combination* of an upstream division with a downstream division. The *direction* in which that combination occurs—i.e., whether the upstream entity acquires or opens the downstream entity, or the other way around—does not affect a vertically integrated organization's economic incentives.

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6 "Attorney General Josh Shapiro Announces Legal Action Against UPMC for Violating Pennsylvania's Charities Laws," Press Release, Feb. 7, 2019, https://www.attorneygeneral.gov/taking-action/attorney-general-josh-shapiro-announces-legal-action-against-upmc-for-violating-pennsylvanias-charities-laws/. *See also, infra* note 56.

7 The most recent report by Compass Lexecon economists, written in 2022 and revised in 2023, used hospital discharge data from 2021 and earlier. Thus, the report did not account for AHN's Pittsburgh-area gains in 2022 and 2023. 2023 CL Report, section III. (I evaluate discharge data through the second quarter of 2023.)

In March 2024, Compass Lexecon economists issued a letter in response to Highmark's Request for Modification. That letter, in part, recapitulates findings from the 2023 CL Report, but does not introduce analyses of more recent hospital discharge data. Compass Lexecon "Response to Issues Related to Highmark Health's Request for Modification of the Commissioner's Approving Determination and Order dated April 29, 2013," March 4, 2024 [hereinafter, "2024 CL Letter"].

8 2023 CL Report, 73 ("Our assessment of the healthcare delivery markets finds that the two major vertically integrated systems, AHN and UPMC, are operating competitively by expanding access to care. Moreover, both Highmark and UPMC are expanding their geographic reach further across the Commonwealth—UPMC acquiring hospital systems and physicians, followed by offering its UPMC health plans, and Highmark via its health plan footprint, followed by hospital system affiliations/partnerships. Competition has been maintained by Highmark's investments in AHN via new and improved existing healthcare facilities and services.").

II. Highmark's health insurance competitors in WPA have grown, individually and collectively, since 2013

(6) One factor the PID considered in issuing the 2013 Order was whether the "effect of the Change of Control would be to substantially lessen competition in insurance in this Commonwealth or tend to create a monopoly therein."[9] As a result of its evaluation, the PID imposed "Competitive Conditions" that were "designed to mitigate potential adverse competitive effects on competition . . . " as viewed from 2013.[10] These "Competitive Conditions" were presumably based on an evaluation of the state of competition in the WPA insurance sector at that time. In subsequent evaluations of the impact of the transaction and the 2013 Order, the PID and its expert economists have pointed to Highmark's share and the overall concentration of the WPA insurance marketplace as indicators that "market conditions" remain a "competitive concern."[11]

(7) The PID's Conditions were imposed over a decade ago, in 2013 when Highmark's acquisition of West Penn closed, and the competitive landscape of today is significantly changed. In particular, as I document in this section, Highmark's competitor insurers in WPA have grown in terms of both shares of enrollment and total enrollment. Rather than lessening, insurer competition has increased—for both commercial and Medicare Advantage products.

II.A. Insurance competition in WPA has steadily increased over the last decade

II.A.1. Competing insurers in the sale of commercial group insurance products in WPA have gained share

(8) I start with shares of enrollment in commercial group insurance products, including both self-funded and fully-funded products. As shown in Figure 2, UPMC Health Plan, Aetna, United, and Cigna all have a higher share of commercial group enrollment in WPA as of 2023 than in 2013. UPMC Health Plan, Highmark's largest competitor in WPA, has accounted for roughly 25% of commercial enrollment in WPA since 2018, whereas in 2013 it accounted for 16%. Likewise, Aetna reached a WPA enrollment share of more than 15% in 2020, before declining to 12% in 2023—still above its

9 2013 Order, 2.

10 2013 Order, 4.

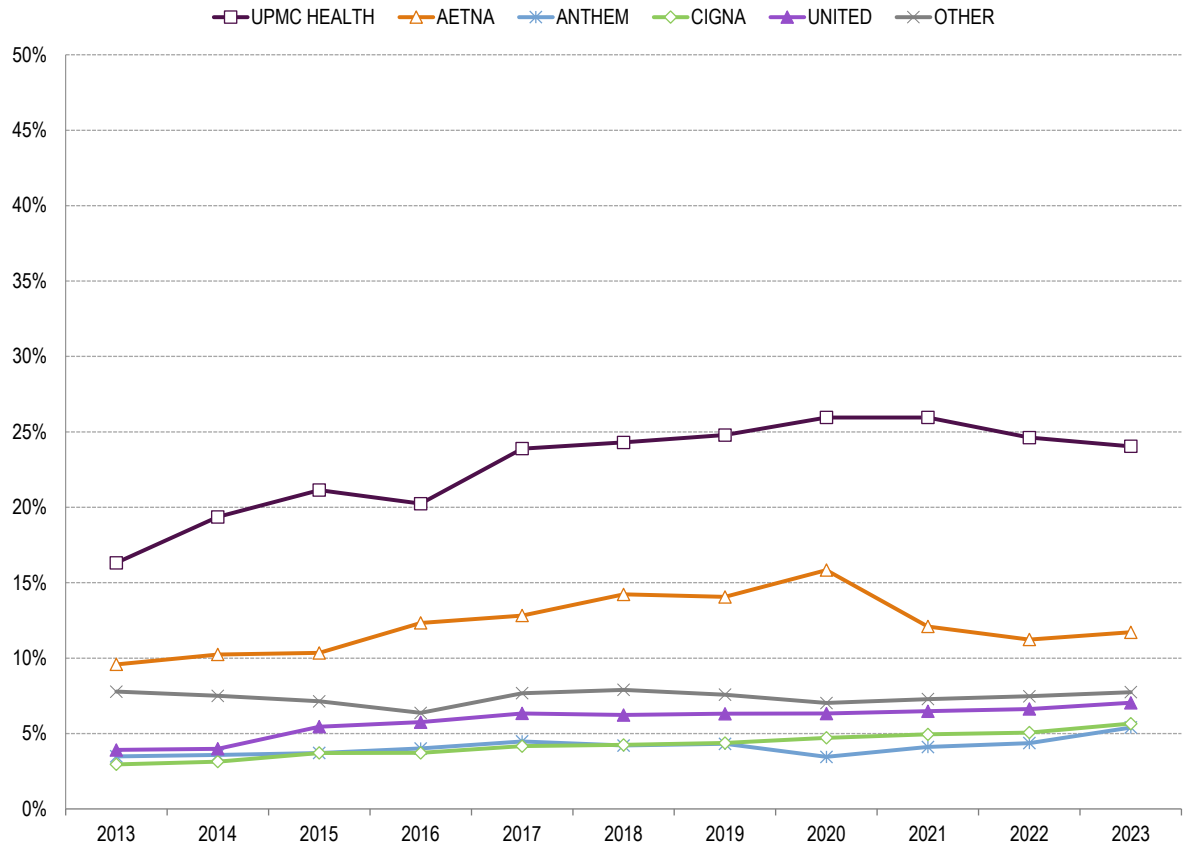
11 2024 CL Letter, 7 ("[W]e identified concerns in the 2017 and 2023 Reports that market conditions, such as the highly concentrated WPA healthcare insurance and delivery market segments, remain a competitive concern if Highmark and its rivals would re-engage in contracting practices subject to the 2013 Order's Conditions that have the potential to raise rivals' costs or foreclose access to the WPA market by new entrants or expansion by existing rivals.").

2013 share of 10%. United, Cigna, and Anthem each grew to a share above 5% in 2023; together, these three insurers increased from a WPA share of 10% in 2013 to 18% in 2023.

(9) Consumers in WPA now have a broader choice of significant-sized insurers as compared with a decade ago, and they have been able to substitute, and have substituted, across the offerings of various insurers active in the region.

(10) With respect to commercial group insurance, competitive conditions in WPA today are not the same as in 2013: Highmark now faces stronger competitors and greater competitive constraints—from UPMC Health Plan and others—than a decade ago. Conditions tailored to the competitive landscape in 2013 are unlikely to be appropriate to the changed landscape of the present.

Figure 2. Highmark's commercial group insurance competitors have increased their shares of enrollment in WPA

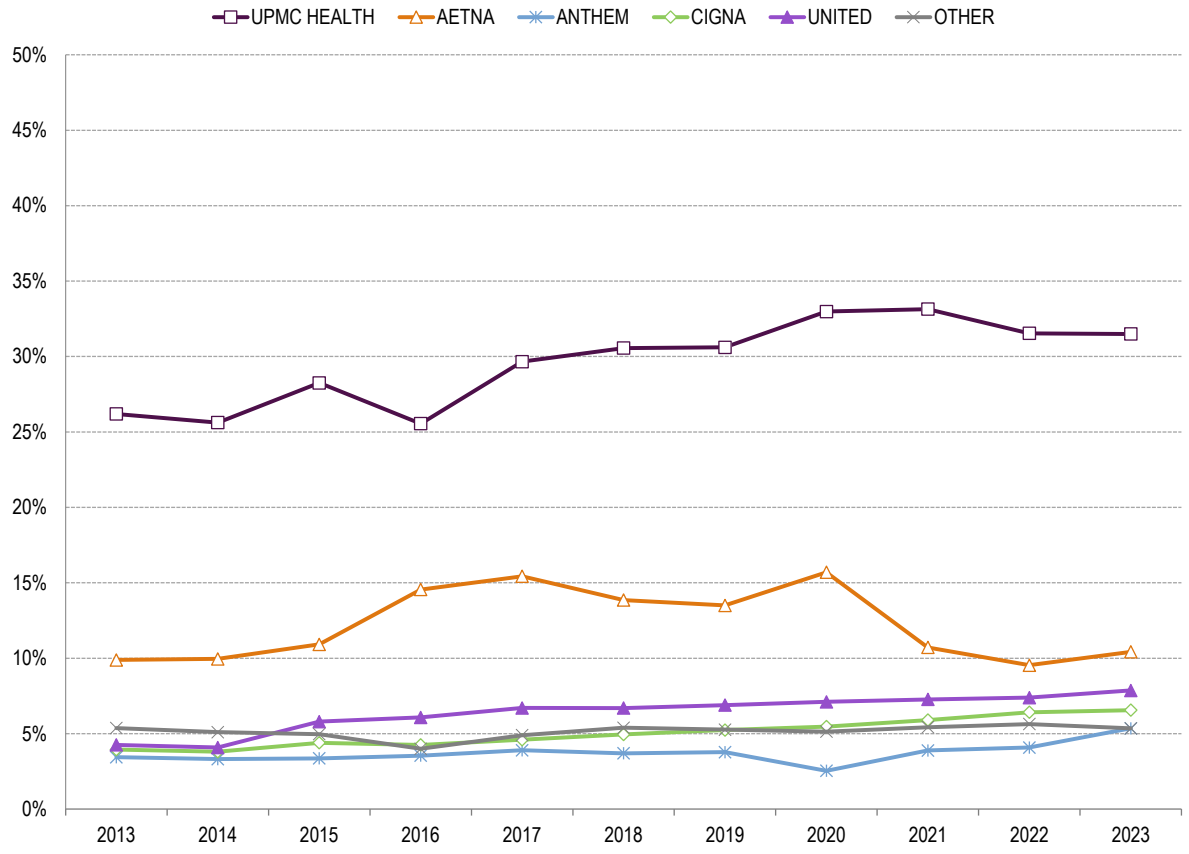


Source: Interstudy data.
Notes: Limited to fully- and self-insured commercial group enrollees (excluding ACA plans) in the 29-county WPA region. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2023.

(11) Figure 3 presents the analogous shares for Allegheny County, where the West Penn transaction was most impactful. The pattern is consistent with WPA. UPMC Health Plan's share of commercial enrollment increased from about 26% in 2013 to about 31% in 2023, while other insurers—Aetna, Cigna, United, and Anthem—have collectively gained about 10 percentage points of share. And, for about the last five years, Highmark and UPMC Health Plan have held comparable shares of enrollment in Allegheny County. Nonetheless, Highmark is subject to the Conditions of the 2013 Orders, but the other insurers are not.[12]

[12] The PID recently imposed conditions on Risant Health, the Kaiser entity that acquired Geisinger Health in Central Pennsylvania. https://www.insurance.pa.gov/Companies/IndustryActivity/CorporateTransactionsofPublicInterest/Documents/Geisinger/22-FinalDecisionandOrder-3-27-24.pdf.

Figure 3. Highmark's commercial group insurance competitors have increased their shares of enrollment in Allegheny County



Source: Interstudy data.
Notes: Limited to fully- and self-insured commercial group enrollees (excluding ACA plans) in Allegheny County. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2023.

II.A.1.a. The "BCBS MDL" settlement will likely soon further increase commercial insurance competition, and may have already done so

(12) In the wake of the 2022 settlement of nationwide litigation against the Blue Cross and Blue Shield Association and its member plans, Highmark is likely to face a further increase in competition.[13] Historically, as the holder of the Blue Cross and Blue Shield licenses in WPA, Highmark was the only "Blue" entity that could market Blue Cross or Blue Shield branded products to employers headquartered in WPA. Under the settlement, the largest employers in WPA can now seek a bid from

[13] JAMA Network, "The Settlement of the Blue Cross Blue Shield Antitrust Litigation," December 16, 2022, https://jamanetwork.com/journals/jama-health-forum/fullarticle/2799531; Advisory Board, "BCBSA insurers' newest rivals? Other Blues plans," July 14, 2023, https://www.advisory.com/daily-briefing/2023/07/13/bcbsa-competition. https://www.bcbssettlement.com/admin/services/connectedapps.cms.extensions/1.0.0.0/asset?id=3fb49639-4495-49a2-bc72-d126dd0ab1de.

a Blue plan other than Highmark, such as Anthem (now Elevance), Horizon, etc.[14] The settlement also allows Blue entities to offer non-Blue plans (i.e., plans that do not market under the Blue Cross or Blue Shield trademarks) throughout the country without restriction, whereas such non-Blue business had previously been capped at one-third of any Blue carrier's revenue.[15]

(13) The net impact of the BCBSA settlement is that Highmark will likely soon face additional competition from both Blue-branded and non-Blue branded insurance products offered by competing Blue Cross and Blue Shield entities.[16] Figure 2 and Figure 3 show that Anthem, the Blue Cross and Blue Shield licensee in neighboring Ohio and New York, among other states, has gained share in both WPA and Pittsburgh over the last several years, including an uptick in 2023. While it is too soon to know with certainty, Anthem's latest share increase could reflect its new, post-settlement ability to compete against Highmark and other WPA insurers to provide health insurance to commercial customers in WPA.

II.A.2. Competing insurers in the sale of Medicare Advantage insurance products in WPA have gained share

(14) In this section, I report trends in shares of enrollment among insurers offering Medicare Advantage plans to seniors in WPA.[17] Figure 4 shows that, compared with 2013, insurers that compete with Highmark have grown significantly. Aetna has more than doubled its share of Medicare Advantage enrollment in WPA, increasing from about 12% in 2012 to almost 30% in 2024. Likewise, UPMC Health Plan's share has increased from about 25% to as high as 36% in 2019 and has exceeded 30%

14 "Second Blue Bids" BCBSA Settlement Website, https://www.bcbssettlement.com/secondbluebid.

15 *In re Blue Cross Blue Shield Antitrust Litig. MDL*, 2023 WL 7012247 (11th Cir. Oct. 25, 2023), https://media.ca11.uscourts.gov/opinions/pub/files/202213051.pdf, 6–7 ("The parties first negotiated injunctive relief that requires Blue Cross to make structural reforms to increase competition between its members. The structural changes include eliminating the 'National Best Efforts Requirement,' which restricted the member plans' ability to market under other brands . . .").

16 2023 CL Report, 11–12. ("[T]he BCBSA Settlement requires BCBSA to eliminate two restrictive rules for its Blue licensees. First, it eliminates the rule restricting the amount of business from non-Blue brands for insurers that hold a Blue license. . . . These changes have the potential to increase competition and choice for individuals and employers in WPA and more broadly. Second, the BCBSA maintained a rule that limited Blue licensees from competing with each other for large national employers that have employees in regions covered by different Blue insurers. . . . The rule change in the Settlement enables BCBSA licensees to compete with each other for large national contracts. This could potentially increase competition within WPA and provide national employers greater choice and ability to compare prices across competing Blue licensees.").

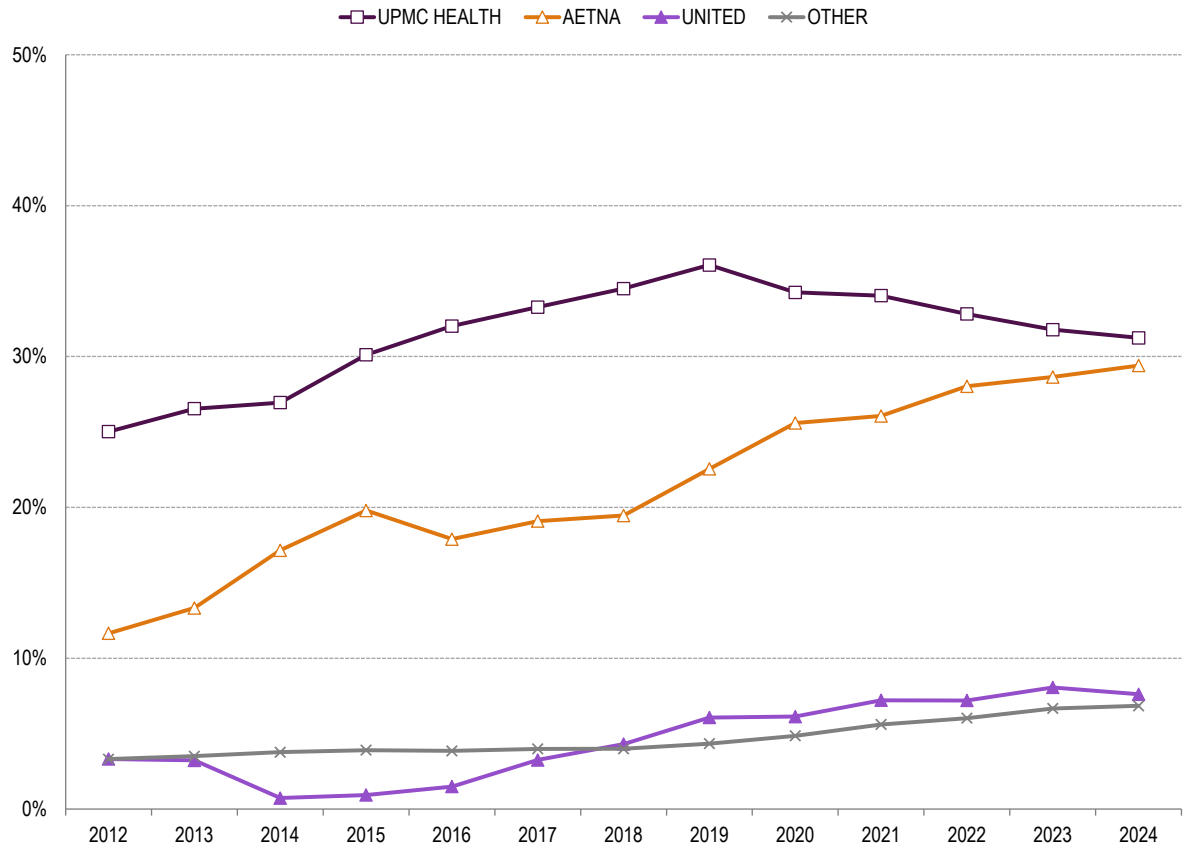
17 The analysis in this section is based on CMS Medicare Advantage/Part D Contract and Enrollment data that include information on the number of enrollees in various types of Medicare Advantage plans. My analyses focus on all Medicare Advantage plan types except for stand-alone prescription drug plans. Shares and enrollment are based on February snapshots of CMS data for each year. The figures in this section end in 2024 because CMS data are available for 2024 whereas Interstudy data are only available through 2023.

ever since 2016.[18] United had almost no WPA enrollment in 2014 and has now reached a share of about 8%. Other smaller insurers have, collectively, also gained share.

(15) The share shifts, and overall increases for Highmark's rivals, show that consumers can and do substitute across Medicare Advantage offerings from competing insurers. As with commercial group insurance, seniors now can and do choose from a greater number of significant-sized Medicare Advantage insurers. The competitive landscape is significantly different, with more competition now than in 2013. Despite this, the Conditions imposed on Highmark, which were presumably tailored to address the competitive landscape in 2013, remain in effect.

[18] The trend of increasing share Highmark's competitors is consistent for all Medicare Advantage plans as a whole, as well as for group plans, individual non-SNP products, and SNP products taken separately (SNP stands for "special needs plans," which are plans designed to service specific categories of seniors such as low-income seniors or seniors with certain chronic conditions).

Figure 4. Highmark's Medicare Advantage insurance competitors have increased their shares of enrollment in WPA



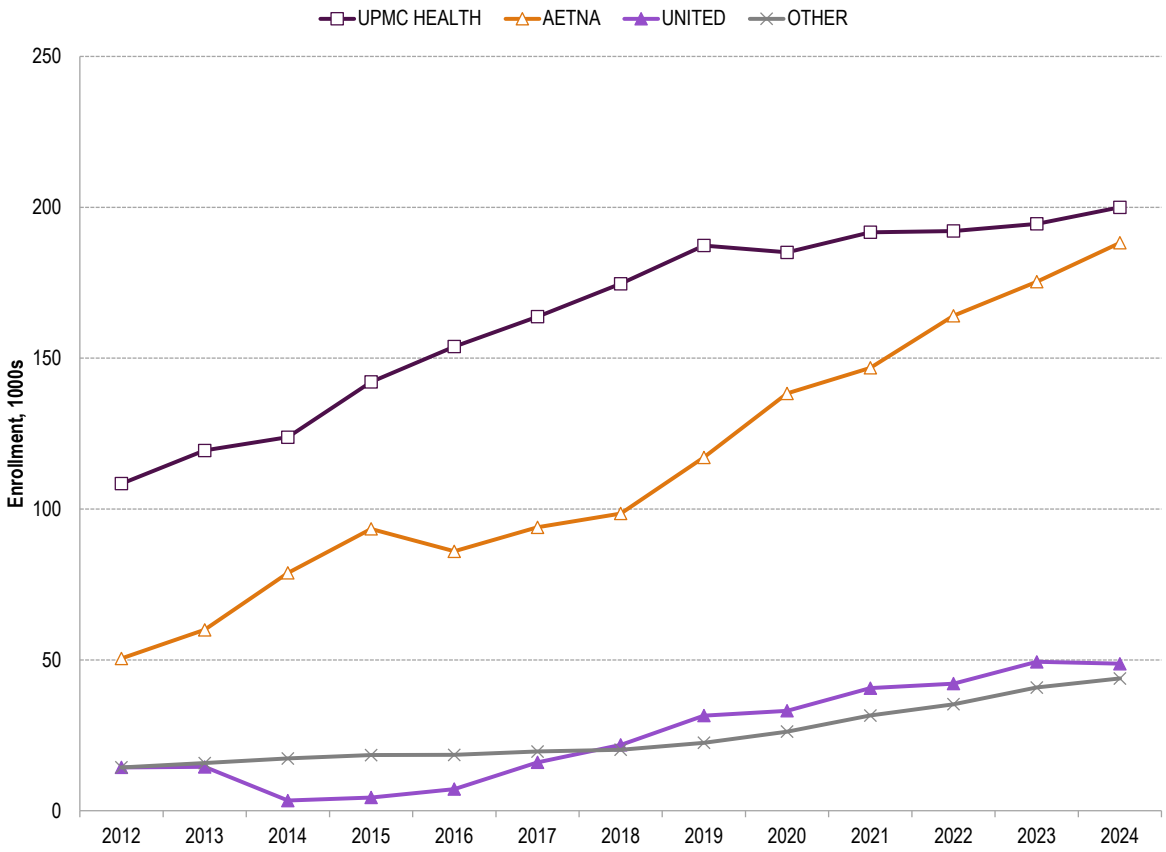
Source: CMS data, includes all Medicare Advantage plan types except stand-alone prescription drug plans.
Notes: Limited to enrollees in the 29-county WPA region. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2024.

(16) Not only have Aetna, UPMC Health Plan, United, and others gained enrollment share, each has also seen its total enrollment grow substantially as a result of growth in the total number of Medicare-eligible seniors in WPA as well as an increased propensity for those seniors to select a Medicare Advantage plan rather than Original Medicare. Together, these factors led to a 42% increase from 2013 to 2024 in the number of WPA seniors enrolled in a Medicare Advantage plan. Specifically, in 2013, there were 840,000 Medicare-eligible seniors in WPA, 460,000 (55%) of whom were in a Medicare Advantage plan. As of 2024, the number of Medicare-eligible seniors has increased to 980,000, with 650,000 (66%) of them selecting a Medicare Advantage plan.

(17) This expansion in total Medicare Advantage enrollment—shown in Figure 5 for Highmark's competitors—means that for any given level of enrollment share, each insurer will have an even greater number of total enrollees. For example, United's 2024 enrollment share of 8% is roughly

double its 2013 share of about 4% (and even farther above its 2014 share of nearly 0%). But, as Figure 5 shows, United's total WPA enrollment of 50,000 in 2024 is more than three times its 2013 enrollment of about 15,000. Likewise, total WPA enrollment has nearly doubled for UPMC Health Plan and more than tripled for Aetna.

Figure 5. Total enrollment for Highmark's Medicare Advantage competitors in WPA has increased substantially since 2013



Source: CMS data, includes all Medicare Advantage plan types except stand-alone prescription drug plans.
Notes: Limited to enrollees in the 29-county WPA region. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2024.

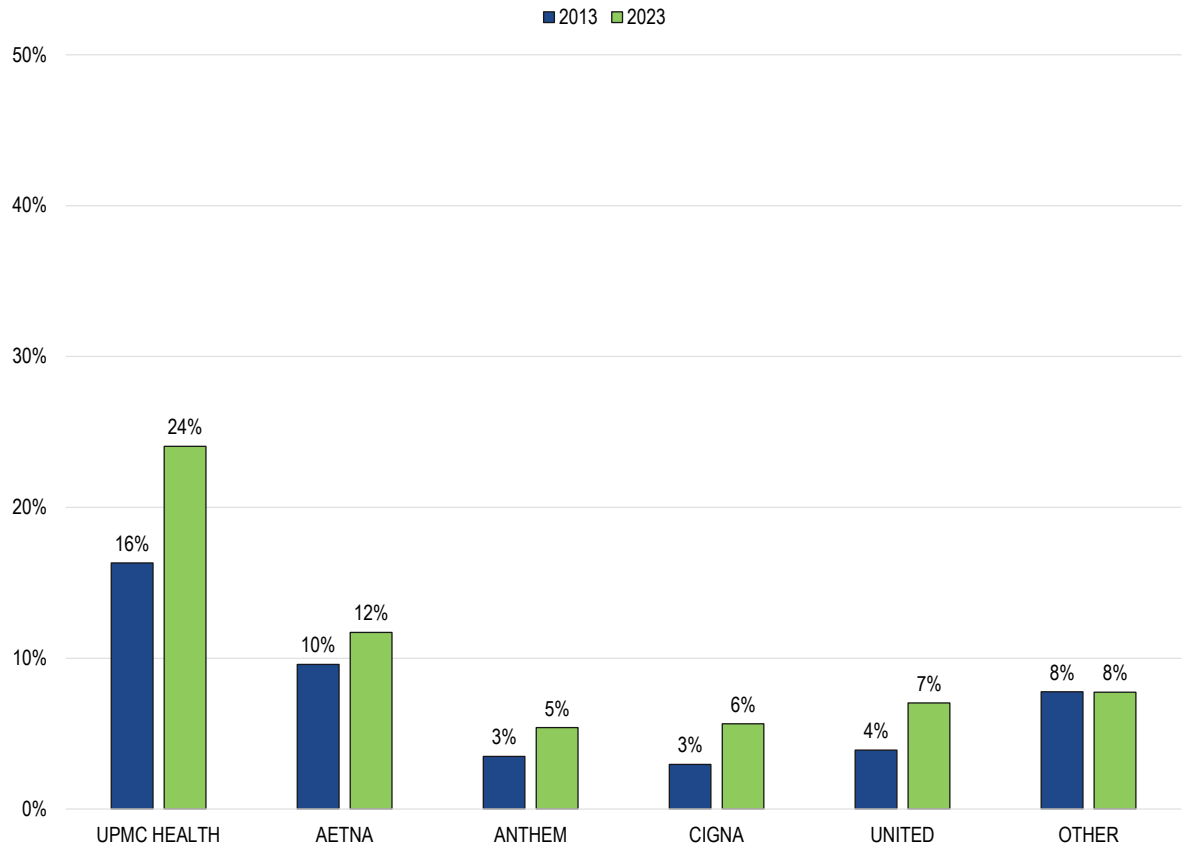
II.B. Comparing 2013 with today shows marked increases in competition among WPA insurers

(18) Comparing the insurance landscape in WPA today with 2013 shows sharp increases in enrollment shares for Highmark's competitors.

- **Commercial insurance**. UPMC's share has increased from 16% in 2013 to 24% in 2023. Aetna, Anthem, Cigna, and United have all grown as well, collectively increasing from 20% to 30% of commercial enrollment over the same period.
- **Medicare Advantage**. UPMC Health Plan's share of enrollment has increased from 27% in 2013 to 31% in 2024, and Aetna's share has increased from 13% to 29% over the same period. Since 2016, United has also been gaining share. Collectively, these three insurers have more than doubled their total WPA enrollment, growing from about 194,000 enrollees in 2013 to more than 437,000 in 2024.

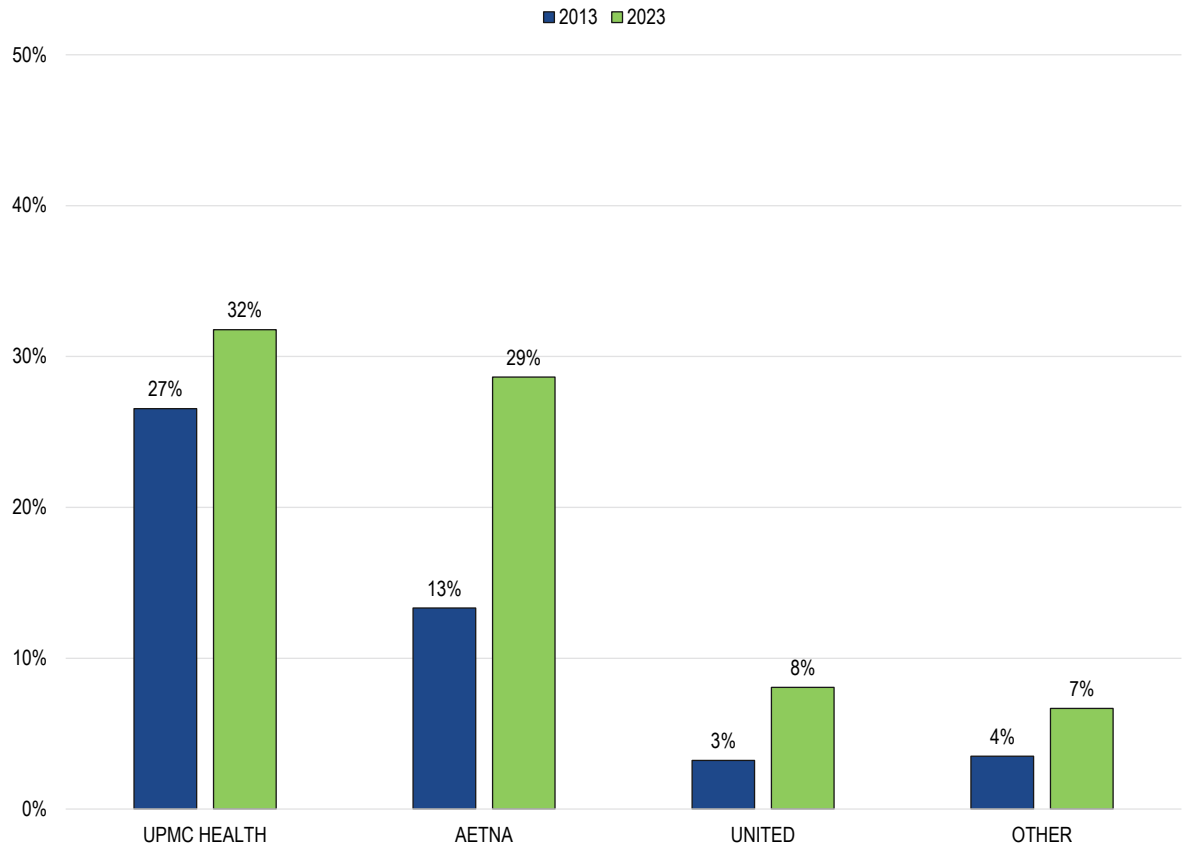
(19) Insofar as the Conditions in the 2013 Order were tailored to the competitive landscape of 2013, the changed competitive landscape of today implies that Conditions well-suited to the present would be different than in 2013. In particular, Conditions premised on concern over a potential exercise of market power by Highmark should be less stringent when, as is currently the case, competitors have grown and the extent of competition is greater.

Figure 6. Since 2013, Highmark's leading commercial insurance competitors have all increased their enrollment shares in WPA



Source: Interstudy data.
Notes: Limited to fully- and self-insured commercial group enrollees (excluding ACA plans) in the 29-county WPA region. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2023.

Figure 7. Since 2013, Highmark's leading Medicare Advantage competitors have all increased their enrollment shares in WPA



Source: CMS data, includes all Medicare Advantage plan types except stand-alone prescription drug plans.
Notes: Limited to enrollees in the 29-county WPA region. Insurers listed individually had at least a 5% share in at least one year between 2013 and 2024.

III. AHN has shown steady improvements since the transaction, significantly growing its WPA discharge share while demonstrating high quality

(20) In issuing the 2013 Order, the PID also considered whether the additional "financial commitments" made in connection with the West Penn acquisition would interfere with "Highmark's stated goal of delivering tangible policyholder benefits."[19] The PID appears to have been concerned about the competitive viability of the struggling West Penn system (the predecessor to AHN) and how the expense of reviving it could undermine or inhibit Highmark's ability to compete effectively as an

[19] 2013 Order, 6.

insurer.[20] As a result, the 2013 Order included financial Conditions to ensure that the struggling AHN would not financially burden the integrated Highmark Health.[21]

(21) Events, however, unfolded favorably for the system after the transaction. Already in 2017, the PID's economists summarized Highmark and AHN's progress as follows:[22]

> As a result of its affiliation with Highmark, AHN is now a more effective competitor in delivering healthcare services to residents of Western Pennsylvania . . . [T]he capital investments that Highmark has funded not only have improved facilities relative to what otherwise had been the case, but also has expanded both access to care and the quality of care delivered.

(22) In their 2023 report, the PID's economists point to additional improvements in subsequent years: "AHN has experienced a growth in revenues over time. AHN revenues increased by 6.9% in 2018 and 8.7% in 2019. Although revenues had a slower growth in 2020 (only 2.1%), there was a sharp increase of 10.3% in 2021[.]"[23]

(23) AHN's improvements also facilitated greater insurance competition. In their 2013 economic analysis of the transaction, the PID's economists wrote that "the competitiveness of the insurance marketplace and the ability of competing insurers to expand significantly and to serve as a reliable competitive constraint are not separable from the competitiveness and conditions in the hospital marketplace, which is fragile due to the current health of WPAHS and the predominance of UPMC and its contracting practices."[24] The more recent conclusions of the PID's economists, just discussed, indicate that the WPA hospital marketplace is not in the fragile state that they described in 2013, primarily because AHN is now a stronger, stable competitor. As I show in this section, AHN's

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[20] Regarding the state of West Penn at the time of the transaction, the PID's economists observed in 2023 that "[f]inancial difficulties over a prolonged period had weakened [West Penn] as a competitor, affecting its investments in facilities and resources, and its perceived quality of service."). 2023 CL Report, 29.

[21] *See, e.g.*, Conditions 11 (financial commitments require PID approval if Highmark's risk-based capital rating is below a critical value), 12 (UPE was required to file regular reports of key financial and operational information for West Penn, including a comparison of actual and budget/forecast values), 15–17 (UPE was required to submit a corrective action plan in the event of specific signs of West Penn's financial instability). UPE ("ultimate parent entity") was the interim term used by the PID for the forthcoming parent entity of Highmark and West Penn. 2013 Conditions, 27.

See also, Compass Lexecon, "Assessment of Healthcare Competition Following Highmark Inc.'s Affiliation with West Penn Allegheny Health System, Inc. and other Healthcare Providers," July 2017 [hereinafter, "2017 CL Report"], 2 ("Additionally, the 2013 Order included financial conditions, among other things, to limit the amount of policyholder funds that may be transferred to Highmark Health or other affiliates and to establish an enhanced standard of review and assessment that is required to be undertaken prior to any Highmark Domestic Insurer entering into additional material financial commitments.").

[22] 2017 CL Report, 46–47.

[23] 2023 CL Report, 44.

[24] "Economic Analysis of Highmark's Affiliation with WPAHS and Implementation of an Integrated Healthcare Delivery System," Compass Lexecon, April 24, 2013, 10.

improved performance and ability to compete is evidenced by its increased WPA discharge share and improved quality metrics.

III.A. Post-transaction, the AHN hospitals gained share for several years and then stabilized

(24) Leading into the transaction in 2013, West Penn was in decline and losing share. In 2017, the PID's economists summarized West Penn's pre-transaction condition:[25]

> WPAHS [West Penn] prior to its affiliation with Highmark Inc. was in many respects a flailing hospital system. WPAHS reported significant operating losses in 2010, 2011, and 2012. In 2011, WPAHS's increasing financial difficulties made it vulnerable to violating its bond covenants. Rating agencies had downgraded WPAHS's credit ratings—first, Moody's moved WPAHS from B1 to Ba3 (junk or non-investment grade status) in June 2010, and second, all three major credit rating agencies downgraded WPAHS further into junk grade status in November 2012.

(25) West Penn's pre-transaction decline was mirrored by UPMC's gains. In WPA, UPMC's share of commercial discharges grew from about 35% in 2008 to over 45% in 2013 and its share of all-payer discharges grew from 30% in 2008 to over 40% in 2013. In the Pittsburgh metropolitan area, UPMC's share of commercial discharges increased from below 45% in 2008 to over 50% in 2013.

(26) Discharge share trends for WPA are summarized below in Figure 8 (commercially-insured patients) and Figure 9 (all payers). After Highmark's acquisition of West Penn and formation of AHN, the pre-2013 growth trend in UPMC's share and the resulting increases in market concentration stopped. However, these trends did not reverse, as UPMC's share of discharges has generally not declined. In other words, increases in UPMC's share and increases in concentration leading into 2013 stopped, but largely did not reverse.

(27) One exception is that UPMC's share of commercial discharges among Pittsburgh-area residents has declined. In 2014, AHN (including Jefferson Hospital and St. Vincent) had about a 20% share of commercial discharges in the Pittsburgh area, and UPMC had about a 50% share. By 2023, AHN's share had increased to about 28% and UPMC's had declined to about 45%. See Figure 10.

(28) Overall, UPMC remains the largest provider system in WPA, especially in the Pittsburgh area.[26] As the closest competitor to UPMC, AHN's improvements have increased competition among hospital

[25] 2017 CL Report, 46.

[26] Since Highmark first proposed to acquire West Penn in 2011, UPMC has made five hospital acquisitions in WPA: UPMC Altoona in 2013, UPMC Jameson in 2016, UPMC Kane in 2017, UPMC Cole in 2018, and UPMC Somerset in

systems. The 2023 CL Report reaches a consistent conclusion: "Healthcare delivery services competition in WPA remains strong as compared with the level of competition before the 2013 Order."[27] However, unlike UPMC, Highmark/AHN is subject to Conditions under the 2013 Order. Given UPMC's market position, imposing constraints on its closest competitor, AHN, risks sustaining UPMC's market power—a *reduction* in competition that would otherwise likely benefit consumers.

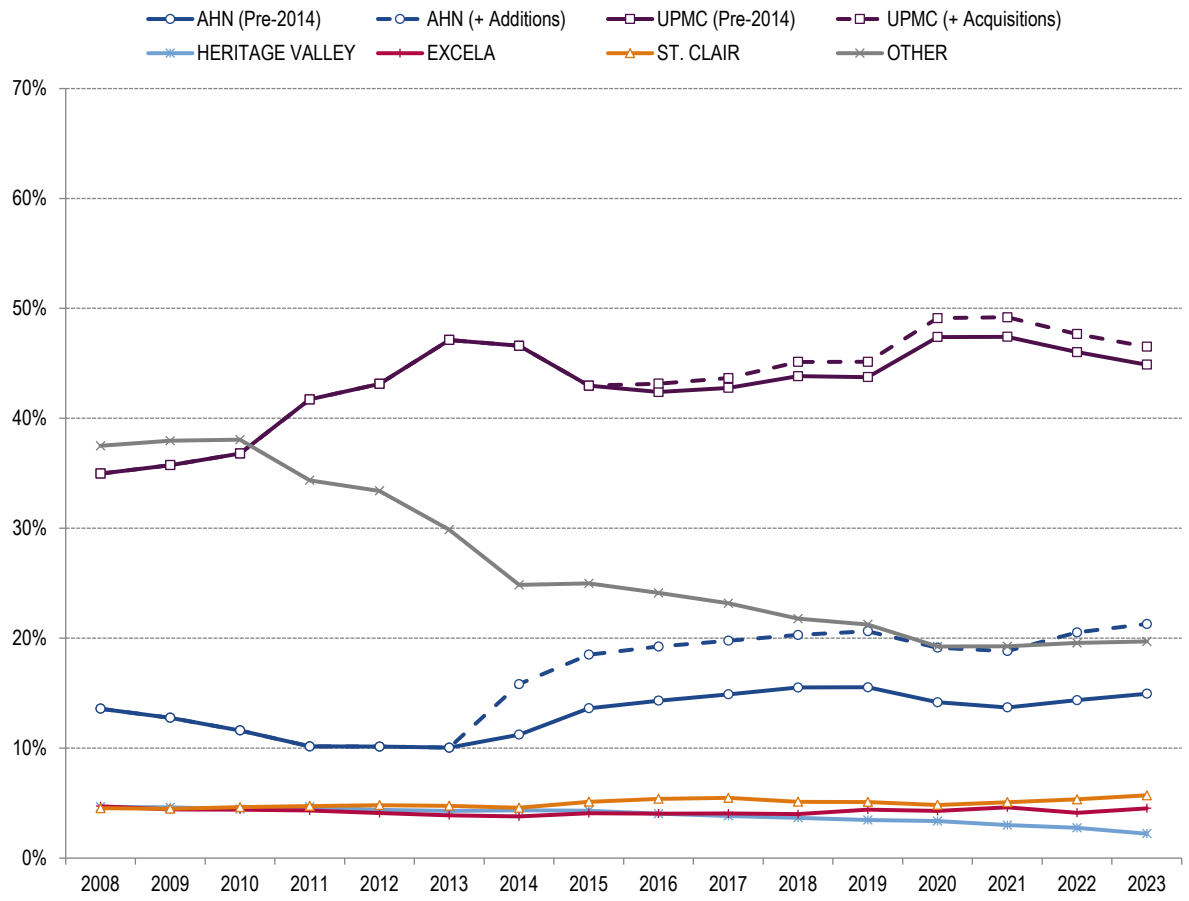
2019. These have added to UPMC's share in WPA but have had little impact in the Pittsburgh area.

"Hospital becomes UPMC Altoona," *Altoona Mirror*, July 1, 2013, https://www.altoonamirror.com/news/local-news/2013/07/hospital-becomes-upmc-altoona/; UPMC, "Jameson Health System and UPMC Merge to Officially Form UPMC Jameson," May 2, 2016, https://www.upmc.com/media/news/upmc-jameson-merge; UPMC, "Kane Community Hospital Becomes UPMC Kane, Finalizing Affiliation Agreement with UPMC Hamot," April 6, 2017, https://www.upmc.com/media/news/upmc-kane; UPMC, "Cole Memorial becomes UPMC Cole in affiliation official March 1," March 5, 2018, https://www.upmc.com/media/news/cole-affiliation; Rucosky, John, "Somerset Hospital officially merges into UPMC network, becomes UPMC Somerset," *The Tribune Democrat*, Feb 2, 1019, https://www.tribdem.com/news/somerset-hospital-officially-merges-into-upmc-network-becomes-upmc-somerset/article_802aba74-2679-11e9-942d-6b8c47e822b7.html.

Outside WPA, UPMC also acquired Susquehanna Health and Pinnacle Health. UPMC, "Susquehanna Health Joins UPMC to Expand Health Care Services, Advance Quality Care in Region," October 18, 2016, https://www.upmc.com/media/news/susquehanna; DuPuis, Roger, "PinnalceHealth wraps merger with UPMC, becomes UPMC Pinnacle," *Central Penn Business Journal*, September 1, 2017, https://www.cpbj.com/pinnaclehealth-wraps-merger-with-upmc-becomes-upmc-pinnacle/.

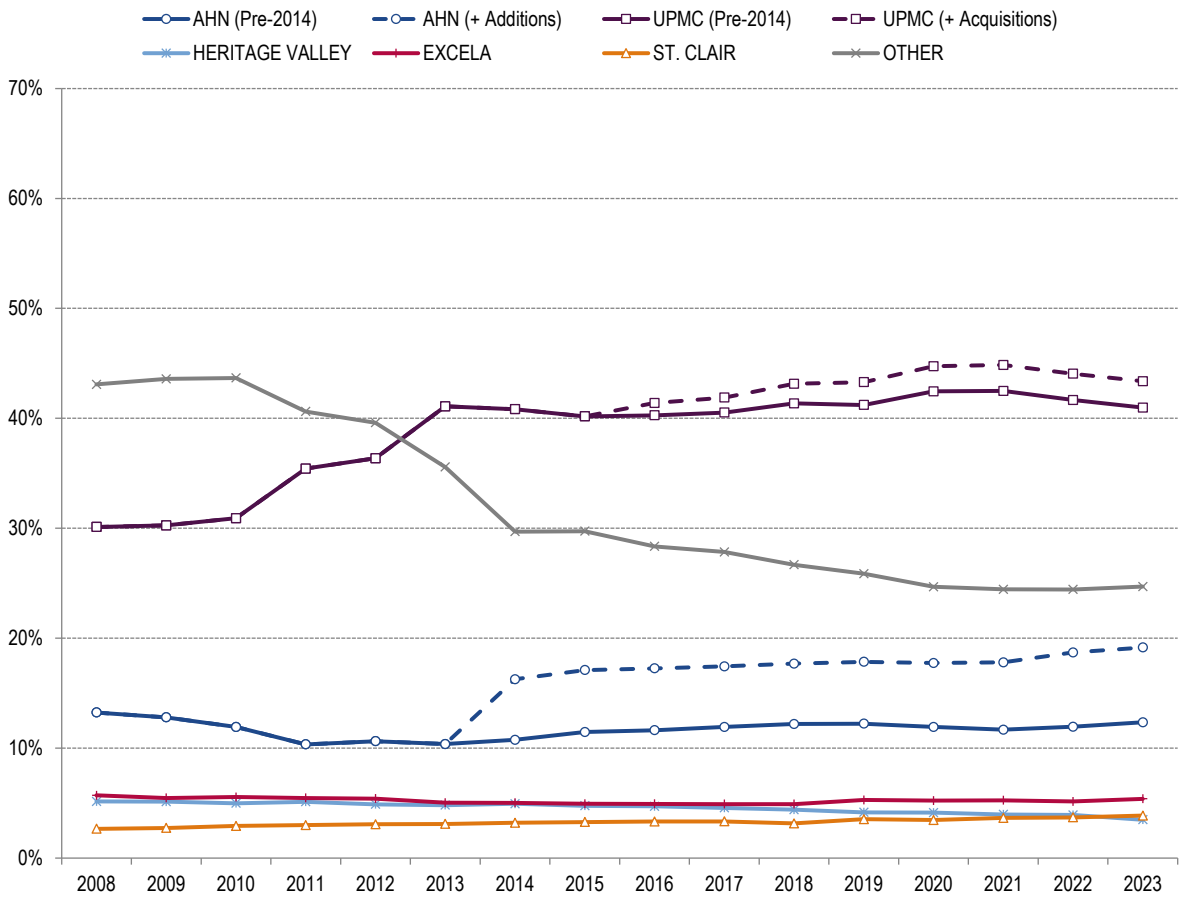
[27] 2023 CL Report, 2. As noted above, this report was based on discharge data for 2021 and prior years and so does not incorporate the AHN discharge share increases in 2022 and 2023 described herein.

Figure 8. Commercially-insured discharge shares in WPA, 2008–2023



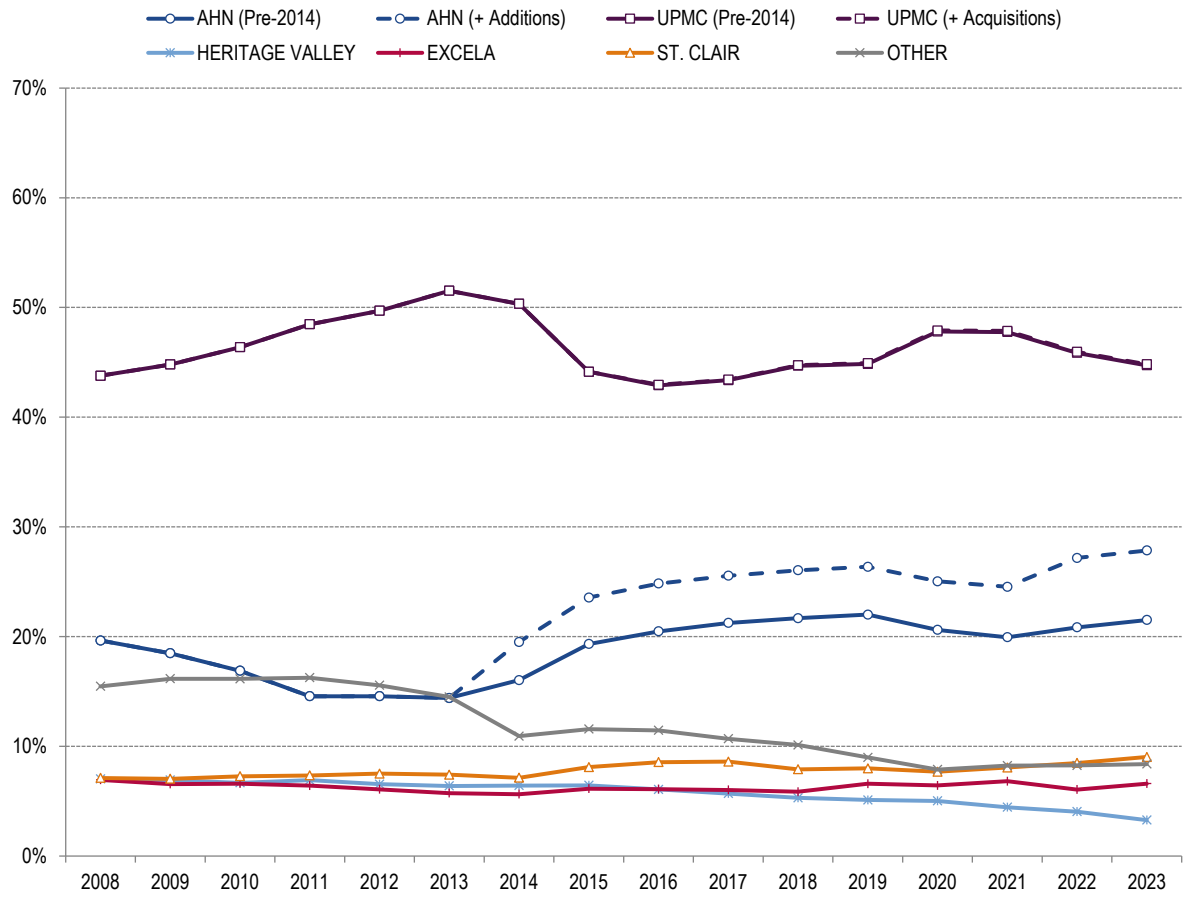
Source: PHC4 inpatient discharge data
Notes: Limited to general acute care discharges and patients who reside in the 29-county WPA region. Prior to 2014, AHN's share includes the five West Penn hospitals (solid line). In 2014 onward, AHN's share also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

Figure 9. All-payer discharge shares in WPA, 2008–2023



Source: PHC4 inpatient discharge data
Notes: Limited to general acute care discharges and patients who reside in the 29-county WPA region. Prior to 2014, AHN's share includes the five West Penn hospitals (solid line). In 2014 onward, AHN's share also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

Figure 10. Commercial discharge shares in the Pittsburgh MSA, 2008–2023



Source: PHC4 inpatient discharge data
Notes: Limited to general acute care discharges and patients who reside in the Pittsburgh MSA. Prior to 2014, AHN's share includes the five West Penn hospitals (solid line). In 2014 onward, AHN's share also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

(29) In addition to analyzing discharge shares, I evaluate trends in discharge volumes. Figure 11 shows annual inpatient discharges among hospitals located in WPA for AHN, UPMC, and other hospitals.[28] The solid lines reflect the trend in discharges for the hospitals that made up the AHN and UPMC systems as they existed at the start of 2013 and the dashed lines also include hospitals that the two systems subsequently acquired or opened. Before the 2013 transaction, West Penn's total discharges were on a steady decline, falling from about 75,000 in 2008 to about 55,000 in 2011, when the transaction was first announced.[29] From 2011 to 2013, while the Commonwealth reviewed the

[28] *See* Appendix C for the corresponding figure for commercial discharges.

[29] "Highmark seeks to acquire cash-strapped West Penn Allegheny Health System," *Healthcare Finance*, June 28, 2011,

transaction, West Penn's decline slowed as it remained above 50,000 discharges each year. Although difficult to substantiate, this stabilization may reflect increased confidence in the long-term prospects of the West Penn system after Highmark announced the acquisition.

(30) Between the 2013 transaction and 2019 (the year before Covid), discharges at the five legacy West Penn hospitals remained steady at about 50,000 per year, with 2019 discharges up about 5% relative to 2013. By contrast, discharges at UPMC hospitals fell by about 11% over that period, from about 205,000 in 2013 to about 182,000 in 2019.[30] Other hospitals, meaning those that were not part of AHN or UPMC in 2013 or any subsequent year, also had a substantial volume decline, falling from 191,000 discharges in 2013 to 163,000 in 2019, a 15% decline. In other words, while discharges were declining for hospitals in WPA overall from 2013 to 2019, they did not decline for West Penn.

(31) Thereafter, from 2019 to 2023, discharges fell for AHN, but fell by more for UPMC and other WPA hospitals. Accounting for the 2019 opening of AHN's Hempfield Neighborhood Hospital, the 2021 opening of 160-bed AHN Wexford, and the 2019 acquisition of 67-bed Grove City Medical Center, AHN's discharge volume fell by 12%, from 79,000 in 2019 to 70,000 in 2023.[31] In comparison, discharges at UPMC hospitals, including its acquired hospitals, fell from 190,000 in 2019 to 158,000 in 2023, a 17% decrease. Discharges among other WPA hospitals declined from 163,000 in 2019 to 133,000 in 2023, an 18% decrease.[32]

(32) Viewed over the entire 2013 to 2023 period, and including all of AHN's acquired and opened hospitals throughout, discharges fell by 10% for AHN, by 27% for the UPMC hospitals, and by 30% for other hospitals.[33] That is, the decline in discharges was smallest for AHN. (Figure 12 reports the specific number of discharges reflected in the line chart in Figure 11 for the three years used in these comparisons, 2013, 2019, and 2023.[34])

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https://www.healthcarefinancenews.com/news/highmark-seeks-acquire-cash-strapped-west-penn-allegheny-health-system.

30 This is based on the hospitals that were part of UPMC as of 2013. UPMC gained some additional discharges from hospitals that it acquired in subsequent years.

31 For information on the three additional AHN hospitals, *see* Jacob Tierny, "Allegheny Health Network acquires Grove City Medical Center," Aug. 19, 2019, https://triblive.com/local/regional/grove-city-medical-center-to-join-ahn/; Megan Tomasic, "Hempfield facility highlights micro-hospital trend in Western Pa.," Nov. 8, 2019, https://triblive.com/local/westmoreland/hempfield-facility-highlights-micro-hospital-trend-in-western-pa/; and AHN, "About Wexford Hospital," https://www.ahn.org/locations/hospitals/wexford/about.

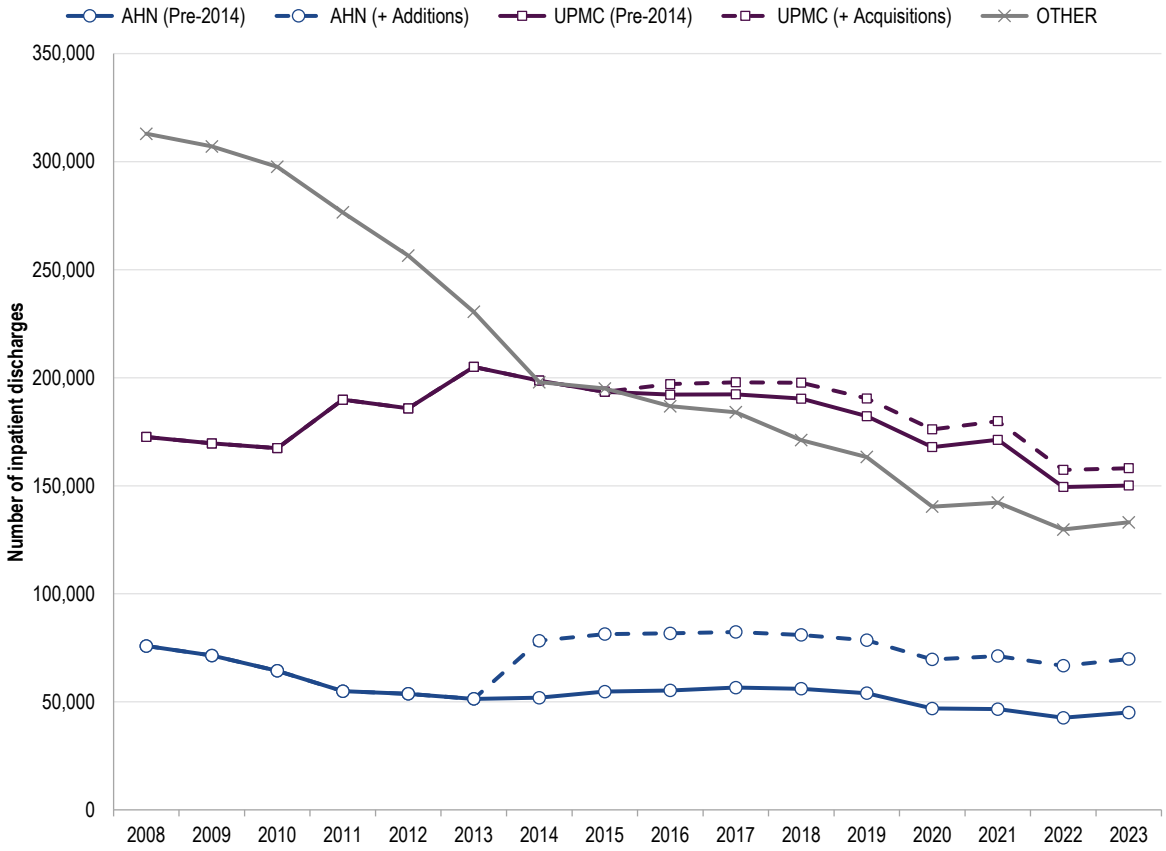
32 Comparing AHN hospitals with all non-AHN hospitals combined, from 2019 to 2023 AHN discharges declined by 12% and non-AHN discharges declined by 18%.

33 To maintain an accurate comparison between 2023 and 2013 for AHN, I compare (1) the volume of all AHN hospitals in 2023 (69,825 discharges) with (2) the sum of the 2013 volume for the five West Penn hospitals (51,371 discharges) plus the 2013 volume of St. Vincent and Jefferson Hospitals (25,991 discharges). That is, I do not treat the 2013 acquisitions of St. Vincent and Jefferson hospitals as "growth" for AHN.

34 In the line chart, the "Other" category is year-specific and includes discharges for hospitals that were not part of either UPMC or West Penn/AHN at the start of each year. The table provides additional detail by separately identifying volume for hospitals that became part of either system during or after 2013. Thus, in the table, the "Other" row reports discharges only for the set of hospitals that never became part of UPMC or AHN.

(33) Since the 2013 transaction, Highmark and AHN have reversed West Penn's declining trend and improved its competitive position, gaining discharge volume relative to other systems, including UPMC (i.e., declines in discharges have been smaller for AHN than for other systems in WPA). AHN has become a greater competitive constraint that provides payers with additional bargaining leverage in negotiations with UPMC.

Figure 11. Total inpatient discharges among WPA hospitals, 2008–2023



Source: PHC4 data.
Notes: Includes all inpatient discharges from hospitals in WPA (including patients who reside outside of WPA). Prior to 2014, AHN's volume includes the five West Penn hospitals (solid line). In 2014 onward, AHN's volume also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

Figure 12. Total inpatient discharges among WPA hospitals, selected years

System		2013	2019	2023
Ever AHN	5 West Penn	51,371	54,002	45,047
	Jefferson & St. Vincent	25,991	24,508	20,562
	Other 3	0	506	4,216
Ever UPMC	UPMC circa 2013	205,020	182,239	150,157
	UPMC Additions	13,039	8,177	8,001
Other (Never AHN nor UPMC)		191,488	162,812	133,097

Source: PHC4 inpatient discharge data
Notes: Includes all inpatient discharges from hospitals in WPA (including patients who reside outside of WPA). "5 West Penn" includes the five West Penn hospitals. "Other 3" includes Grove City Hospital, AHN Wexford Hospital, and AHN Hempfield Neighborhood Hospital. "UPMC Additions" include UPMC Cole, UPMC Jameson, UPMC Kane, and UPMC Somerset. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

III.B. AHN has improved quality relative to peer hospitals

(34) Leading into the transaction, the period of declining share and financial struggles for West Penn had led to perceived if not actual concerns regarding the system's quality. In their 2023 report, the PID's economists recount that prior to the 2013 transaction, "[f]inancial difficulties over a prolonged period had weakened [West Penn] as a competitor, affecting its investments in facilities and resources, and its perceived quality of service."[35] Similarly, in their 2017 report, they report that "AHN and Highmark recognize that many consumers perceive UPMC as providing higher quality of care and services than offered by AHN."[36] To address quality concerns surrounding AHN, Highmark implemented a "WPAHS Corrective Action Plan," which included "Highmark's commitments to implement actions to improve AHN's financial and operating performance along with needed infrastructure changes[.]"[37] CMS hospital quality metrics data show that Highmark and AHN have reversed the decline in West Penn quality that was ongoing prior to the 2013 transaction. This is consistent with the evidence presented above showing that AHN's share has increased since the transaction.

(35) The figures in this section show the performance of the AHN hospitals on three sets of CMS metrics related to patient safety, mortality, and patient satisfaction.[38] Each shows performance for AHN and two comparator groups: other WPA hospitals and all hospitals nationwide (the "national average").

35 2023 CL Report, 29.

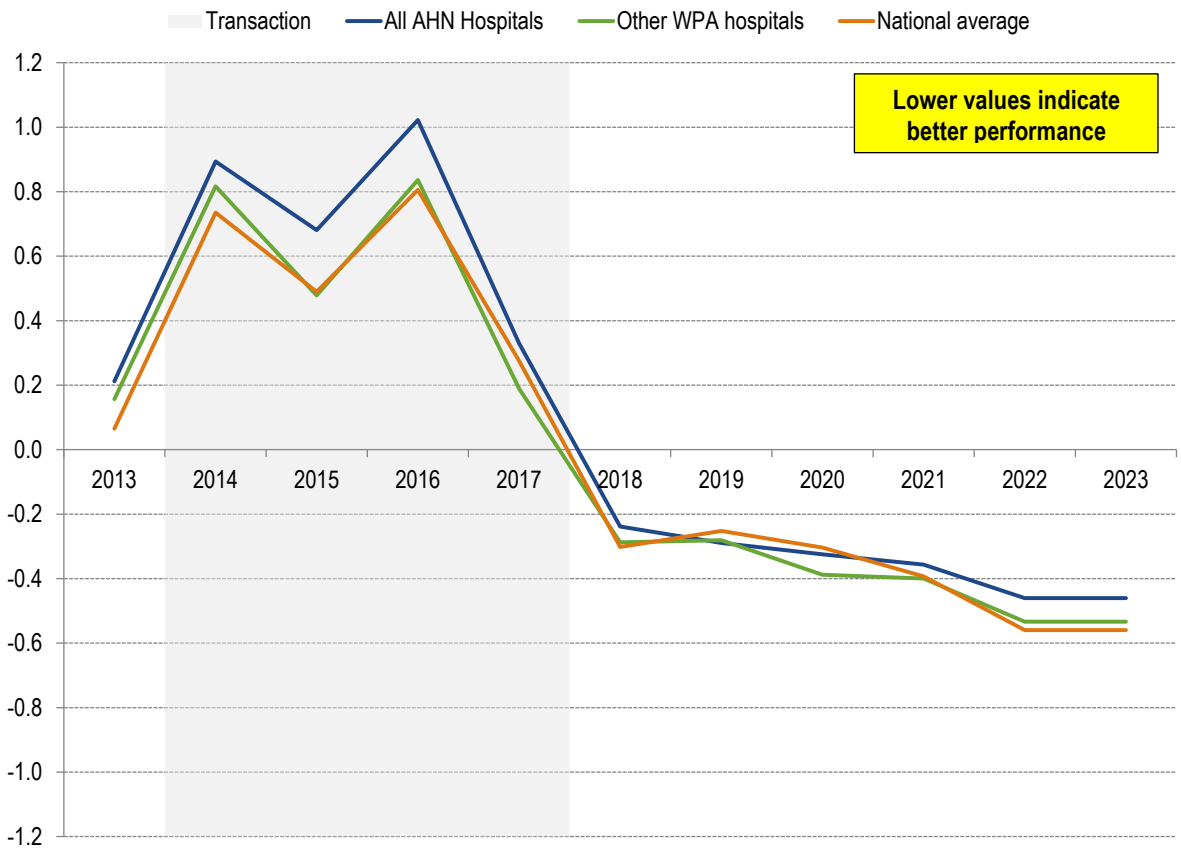
36 2017 CL Report, 27.

37 2017 CL Report, 2.

38 I aggregate across survey questions for each hospital by calculating a z-score, which is a standardized statistic that allows me to compare a particular hospital's survey responses in a given year to the average response for all hospitals. I report the average of these z-scores for the three groups of questions related to safety, mortality, and satisfaction at the year-category level (where the categories are AHN hospitals, Other WPA hospitals, and Other nationwide hospitals). *See* Appendix A.2 for details.

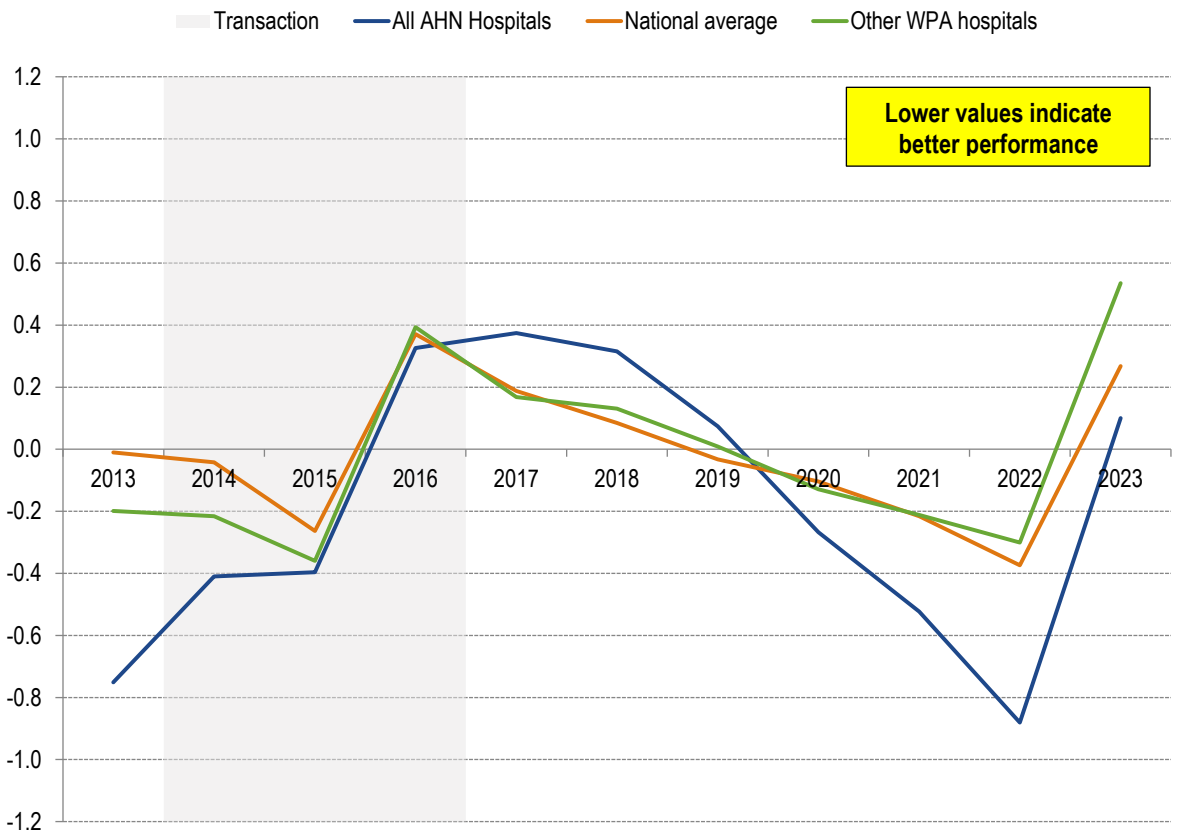
- **Patient safety indicators**. Figure 13 displays the index I construct for CMS metrics related to patient safety. AHN's patient safety measures have closely tracked those of other hospitals in WPA and nationwide since the transaction. Along with both sets of comparator hospitals, AHN has made significant improvements in patient safety since report-year 2016. (CMS uses an average of data from the preceding four years in reporting the score for a given year. For example, a CMS metric for 2017 is based on data from 2013–2016.)
- **Patient mortality.** Figure 14 displays the index I construct for CMS metrics related to patient mortality. From 2015 to 2017, AHN hospitals generally tracked the mortality scores of the two comparator groups. Between 2017 and 2019 AHN hospitals performed worse than comparator hospitals. However, beginning around 2018, AHN's mortality score performance improved sharply relative to other hospitals in WPA and nationwide, and it has outperformed both groups since report-year 2020. (For mortality metrics, CMS uses data from the three trailing years.)
- **Patient satisfaction.** Figure 15 displays the index I construct for CMS metrics related to patient satisfaction. AHN hospitals, on average, had lower patient satisfaction scores than the two comparator groups through 2019. Since then, AHN patient satisfaction has improved, and it outperformed both comparator groups in report years 2022 and 2023. (For patient satisfaction metrics, CMS uses data from the preceding year.)

Figure 13. Patient safety indicators index, 2013–2023



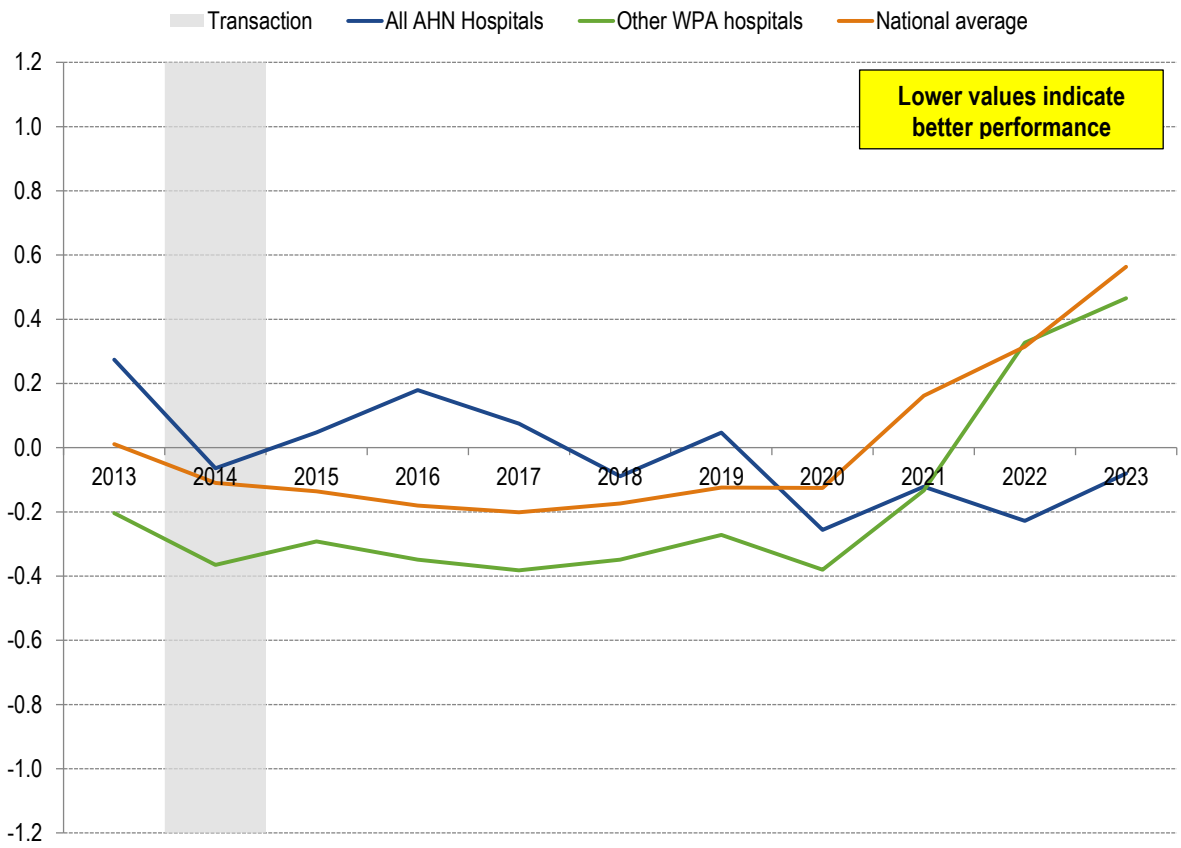
Source: CMS Hospital Compare data
Notes: Years are report years and scores in each year are based on performance in the prior four years. The shaded region identifies report years that contain data collected during 2013. See Appendix A.2 for methodological details.

Figure 14. Patient mortality index, 2013–2023



Source: CMS Hospital Compare data
Notes: Years are report years and scores in each year are based on performance in the prior three years. The shaded region identifies report years that contain data collected during 2013. See Appendix A.2 for methodological details.

Figure 15. Patient satisfaction index, 2013–2023



Source: CMS Hospital Compare data
Notes: Years are report years and scores in each year are based on performance in the prior year. The shaded region identifies report years that contain data collected during 2013. See Appendix A.2 for methodological details.

(36) The picture painted by the CMS statistics is consistent with conclusions in the 2017 and 2023 CL Reports, which both conclude that AHN hospitals have improved across multiple dimensions of quality:[39]

- Between 2013 and 2017, AHN hospitals received several accolades for quality.[40]
- "AHN continues to be a strong competitor of UPMC and has continued to expand care delivery and outreach in the area post-2017."[41]

[39] 2017 CL Report, 28. ("Due to investments from Highmark, AHN hospitals have improved their ability to compete to attract patients in WPA.") 2023 CL Report, 42. ("Since the 2013 Order, AHN and its affiliates have improved its service offerings to be a more effective competitor to UPMC and other providers in the WPA.")

[40] 2017 CL Report, 27–28.

[41] 2023 CL Report, 43.

- "Highmark has made key facility enhancements and service line upgrades."[42]
- "At AHN hospitals, commercially insured admissions increased substantially from 2012 to 2016."[43]
- "As part of Highmark's initiative to implement an integrated delivery network to better serve residents and enhance AHN's ability to compete more effectively in the WPA market, Highmark added board certified medical staff to its physician network to manage care and meet the demand for general and more specialized healthcare services more effectively."[44]

IV. Western PA has two effective integrated healthcare delivery systems, but only Highmark Health is subject to the 2013 Order

(37) In section III, I showed that Highmark and AHN's turnaround of the flailing West Penn system was successful. This is an important point on its own: Conditions designed and well-suited for 2013, when this outcome was not certain, are unlikely to be appropriate in 2024 and onward, when that uncertainty is greatly reduced. In section II, I showed that insurance competition has also increased since 2013, with Highmark's commercial insurance and Medicare Advantage rivals growing significantly.

(38) The end result of these marketplace changes is that there are now two effective integrated delivery systems in WPA—Highmark/AHN and UPMC—that offer both health insurance and healthcare provider services. Of the two leading competitors, only Highmark/AHN is subject to Conditions under the 2013 Order.

(39) Relaxing the constraints faced by just one of the two leading competitors would likely increase competition in ways that would benefit consumers in WPA. In general, firms compete with rivals by seeking to reduce prices or improve the attributes of their offerings. A firm that lags behind a market leader competes in these ways in order to close or reverse that gap. A market leader competes in these ways in order to protect its lead. This type of competitive race generally benefits consumers, absent atypical factors that would contradict this general conclusion. Slowing or imposing additional costs on one of the competitors is likely to hamper this competitive dynamic.

(40) In this section, I evaluate whether two such atypical factors that the PID and its economists have identified as potential concerns are relevant to Highmark and AHN moving forward. First, I examine AHN's role in the WPA marketplace and explain why it would be in the business interest of

42 2017 CL Report, 28.

43 2017 CL Report, 28.

44 2023 CL Report, 37.

Highmark Health, the parent of both the insurance entity Highmark Inc. and the hospital system AHN, to sustain AHN even if and when the system is unprofitable. Second, I evaluate whether it is likely that increased symmetry between Highmark and UPMC could lead to coordination—a softening of competition—rather than more intense competition. I explain that coordination between Highmark and UPMC is unlikely because this marketplace lacks important characteristics that might support it. Thus, allowing for more symmetric competition between Highmark and UPMC is likely to benefit WPA consumers.

IV.A. AHN is the critical competitive alternative to UPMC for WPA payers other than UPMC Health Plan—including but not limited to Highmark

(41) Hospital prices are determined in negotiations between hospital systems and insurers, with hospital systems generally seeking a higher price and insurers typically seeking a lower price. The outcomes of a negotiation are determined primarily by what would happen to each of the parties should they fail to reach an agreement—i.e., each side's "outside option" to reaching an agreement. A negotiator who holds a more attractive outside option, or who faces a counterparty with a less attractive outside option, will have a better bargaining position and therefore will generally obtain a more favorable outcome. This comports with simple intuition: one party to a negotiation does better the more the other side needs a deal.

(42) Applied to WPA, the implication is clear. Even before the transaction, West Penn was the closest competitive alternative to UPMC, especially in the Pittsburgh area. But, as discussed above, the West Penn hospitals were in poor condition and had been losing share over the years leading into 2013. For WPA insurers other than UPMC Health Plan, the main outside option to reaching an agreement with UPMC—namely, West Penn—was steadily deteriorating, causing the bargaining leverage of UPMC to increase. After the transaction, the improvements and growth at the AHN hospitals created a stronger alternative to UPMC and thereby served to constrain its bargaining leverage in negotiations with insurers.

(43) In this way, AHN creates strategic value for insurers other than UPMC Health Plan by improving their outside option. For Highmark Health, AHN's overall value includes both this strategic value and AHN's direct financial gain or loss.

IV.A.1. Highmark Health has maintained a positive operating margin and over $10 billion in reserves

(44) As shown in Figure 16, the parent entity Highmark Health operates a sustainable business with a consistently positive operating margin, even after incorporating operating losses at AHN. Highmark Health's net income was negative in 2022, but that loss was smaller in magnitude than the gains in the adjacent years—for the 2021–2023 period overall, Highmark Health averaged over $500 million in net income per year. It also maintains reserves in excess of $10 billion.

Figure 16. Highmark Health financial metrics, 2021–2024E

Financial indicator	2021	2022	2023	2024E
Operating revenue	$22B	$26B	$27B	$28B
Operating margin	$301M	$440M	$338M	$413M
Net income	$1,448M	($346M)	$532M	$330M
Cash and investments	$12B	$11B	$11B	n/a

Source: Highmark Health financial data ("HH Historical Financial Results - updated.xlsx"); Highmark Health year-end financials for public release (www.highmarkhealth.org/hmk/pdf/newsroom/HighmarkHealth2021YearEndFinancialsPresentation.pdf; www.highmarkhealth.org/annualreport2022/financials/2022YearEndFinancials.pdf; www.highmarkhealth.org/hmk/pdf/newsroom/2023yearendFinancials.pdf).

(45) This shows that, as an enterprise, Highmark Health is able to sustain and invest in AHN. Moreover, the economic impact of AHN on the enterprise is not fully measured by AHN's gain or loss in any given year, because that takes no account of the difference between (1) the prices Highmark pays to AHN, UPMC, and other providers when AHN is a stable, viable health system and (2) the prices Highmark would pay to UPMC and other providers if AHN were not available (or were significantly diminished, as the West Penn hospitals were at the time of the transaction). In the second, low competition scenario, Highmark would likely pay substantially higher prices to providers, especially UPMC. This gives Highmark the incentive, along with the ability, to sustain and make investments in AHN.

IV.A.2. The 2019 Highmark-UPMC contract has not undermined Highmark's financial condition or AHN's performance improvements

(46) From 2014 to June 30, 2019, UPMC and Highmark were subject to a consent decree under which most of UPMC's Pittsburgh-area UPMC hospitals were out-of-network with Highmark; most UPMC hospitals located outside the Pittsburgh area remained in-network with Highmark during this period.[45]

[45] "In 2012, UPMC announced it would no longer continue to contract with Highmark following Highmark's proposed affiliation with health care provider Allegheny Health Network (AHN). In 2014, Highmark and UPMC each entered into a Consent Decree with the Office of Attorney General, the Insurance Department and the Department of Health to provide clarity and certainty for consumers concerning in-network access for Highmark members to UPMC providers."

In 2019, then Attorney General Shapiro filed a lawsuit against UPMC for "violating Pennsylvania's charity laws."[46] As part of its settlement of that lawsuit, UPMC agreed to enter a 10-year contract with Highmark under which all UPMC hospitals became in-network for most of Highmark's commercial insurance products effective mid-2019.[47] This change would have the greatest effect in the Pittsburgh area, since that is where most of UPMC's hospitals had previously been out-of-network with Highmark.

(47) In their 2023 report, the PID's economists observed that "[t]he 2019 provider/insurer contract between Highmark and UPMC appears to have resulted in some Highmark members choosing UPMC hospital facilities over other facilities in some areas, but it is too early to draw conclusions about its longer-term impact on consumer hospital facility choice."[48] They also observed that "UPMC's share of Highmark commercial member discharges has increased significantly since the mid-2019 contract between Highmark and UPMC."[49]

(48) To explore the impact of the 2019 contract, I evaluate discharge shares for each individual Pittsburgh-area UPMC hospital, as shown in Figure 17 (each individually-listed UPMC hospital was out-of-network with Highmark until the 2019 settlement and contract). I therefore focus my analysis of the 2019 contract on Highmark commercial enrollees in the Pittsburgh MSA.

(49) The 2019 contract does appear to have led to some Pittsburgh area Highmark enrollees switching to UPMC hospitals. However, the increase in UPMC's volume appears to have come from both AHN hospitals and other hospitals, suggesting that some Highmark enrollees, both among those who previously went AHN hospitals as well as those who previously went to other hospitals, had latent demand for UPMC hospitals.

(50) Overall, the percentage of Pittsburgh area Highmark commercial enrollees discharged from any of the UPMC hospitals that became in-network in 2019 increased from about 9.4% in 2018 to about 19.6% in 2023. Notably, the increase in UPMC's share among Highmark enrollees is concentrated at UPMC Magee-Womens Hospital, a popular hospital for labor and delivery services: the percentage of

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Pennsylvania Insurance Department, "FAQs for End of Consent Decree Between Highmark and UPMC," www.insurance.pa.gov/Companies/Documents/FAQ%20for%20End%20of%20Consent%20Decree%20Final.pdf, 1. See *Id*. at 4–5 for lists of the UPMC hospitals that were in-network and out-of-network with Highmark during the Consent Decree period. Except for two UPMC specialty hospitals, UPMC Children's Hospital of Pittsburgh and UPMC Western Psychiatric Hospital, all of UPMC's Pittsburgh area hospitals were out-of-network with Highmark under the Consent Decree.

46 *See infra* note 56.

47 "AG Shapiro, Governor Wolf announce new 10-year contract between UPMC and Highmark," June 24, 2019, https://www.attorneygeneral.gov/taking-action/ag-shapiro-governor-wolf-announce-new-10-year-contract-between-upmc-and-highmark/ ("UPMC and Highmark have agreed to enter into a 10-year contract that . . . ensures Highmark patients will have access to UPMC doctors and facilities. . . . This is a global agreement as all UPMC hospitals are now an option for Highmark's insured patients.").

48 2023 CL Report, 2.

49 2023 CL Report, 50.

Highmark's commercial enrollees that selected Magee-Womens increased from 0.8% in 2018 to 8.5% in 2023. In contrast to that 7.7 percentage point increase, all other UPMC hospitals affected by the 2019 contract had a less than 1 percentage point increase in their share of Highmark discharges.

Figure 17. Discharge shares among Highmark commercial enrollees in the Pittsburgh MSA, 2017–2023

Hospital	2017	2018	2019	2020	2021	2022	2023	Percentage point difference, 2023 vs 2018
UPMC Hospitals OON pre-2019	**11.3%**	**9.4%**	**7.3%**	**16.5%**	**19.9%**	**20.5%**	**19.6%**	**10.2%**
UPMC MAGEE-WOMENS	0.9%	0.8%	0.7%	5.0%	7.1%	8.1%	8.5%	7.7%
UPMC PRESB. SHADYSIDE	5.0%	4.6%	3.2%	5.6%	6.7%	6.5%	5.4%	0.8%
UPMC PASSAVANT	2.1%	1.5%	1.5%	2.1%	2.1%	1.8%	1.8%	0.3%
UPMC MERCY	1.4%	1.1%	0.9%	1.5%	1.9%	1.7%	1.8%	0.7%
UPMC ST. MARGARET	0.9%	0.7%	0.3%	1.0%	1.0%	1.2%	1.0%	0.4%
UPMC EAST	0.5%	0.4%	0.4%	0.9%	0.9%	0.8%	0.8%	0.5%
UPMC MCKEESPORT	0.4%	0.4%	0.3%	0.4%	0.4%	0.3%	0.2%	-0.2%
UPMC Other*	0.2%	0.2%	0.1%	0.2%	0.3%	0.2%	0.2%	0.0%
AHN	**44.7%**	**46.3%**	**46.2%**	**41.8%**	**38.9%**	**39.8%**	**41.4%**	**-4.9%**
Other Hospitals	**43.8%**	**44.1%**	**46.3%**	**41.5%**	**40.8%**	**39.6%**	**38.8%**	**-5.3%**

Source: PHC4 inpatient discharge data
Notes: Limited to general acute care discharges and patients who reside in the Pittsburgh MSA. AHN's share includes acquired/opened. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time. Some "UPMC Other" hospitals were in-network with Highmark prior to 2019.

(51) Despite losing some share among Highmark enrollees, AHN's market position in the Pittsburgh area did not deteriorate. For example, AHN's overall share of commercial discharges from Highmark and all other insurers in the Pittsburgh area is higher in 2023 than it was prior to the 2019 agreement, as shown in Figure 10 in section III.A. Several factors would mitigate or reverse the potential adverse effects of the settlement on AHN. First, the agreement would primarily affect the hospital selections of Highmark's commercial enrollees, which are a minority of AHN's discharges. Second, adding the previously out-of-network UPMC hospitals to its networks would increase the appeal of Highmark's insurance plans to certain potential customers, possibly allowing it to win additional customers, particularly in the Pittsburgh area. Third, AHN's opening of Wexford Hospital in 2021 appears to have grown the system's commercial and overall discharges.

IV.B. Policies that allow for greater symmetry and more intense competition between UPMC and Highmark are likely to benefit consumers in WPA

(52) While competition has increased since 2013, it remains the case that the leading healthcare systems in WPA are UPMC and Highmark Health. Both are vertically integrated entities that include both a hospital system arm and a health insurance arm. They are now the two largest sellers of commercial insurance and two of the largest three sellers of Medicare Advantage insurance. This means that the most significant competition in WPA—in terms of both insurance and hospital services—is the competition between UPMC and Highmark Health.

(53) In their March 2024 filing, the PID's economists identify potential benefits to consumers from "intense competition" between UPMC and Highmark and AHN, but also note a potential tradeoff:[50]

> [T]he Compass Lexecon 2023 report noted the potential that "but-for" the Order, WPA runs a risk of potential anticompetitive behavior due to the highly concentrated healthcare insurance and provider sectors, the Highmark/UPMC contract, and these two rivals' increasing symmetrical vertical structures.
>
> Specifically, as stated in the 2023 [Compass Lexecon] Report, '[w]ith two large and more symmetrical vertically-integrated healthcare delivery and financing networks competing against one another in WPA, competition can take one of two forms—intense competition or tacit collusion.

(54) This implies a balancing between two potential economic consequences of the "two rivals' increasing symmetrical vertical structures."

- *Greater intensity of competition*. When two sellers' offerings are more similar, competition between them will be more intense because one seller's reduction in price or improvement in quality will take more business from the other.[51] More intense competition generally lowers prices and improves quality.

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[50] 2024 CL Letter, 3 (citing the 2023 CL Report, 11). They explain that "tacit collusion" refers to "diminished competition as rivals may tend to accommodate rather than react to competitor's actions to raise price or reduce the quantity or quality of products and services." Tacit collusion is often referred to as "coordination"; both are distinct from overt collusion such as cartel formation.

[51] In the limit, two identical sellers can result in price equal to marginal cost (the lowest possible price). This creates an incentive for firms to invest in differentiating their offerings in ways that customers value. *See, e.g.*, Jean Tirole, *The Theory of Industrial Organization* (Cambridge: MIT Press, 1988), 209–210. Against this, when one seller is small, it has an incentive to emulate the product attributes of the larger seller in an effort to win away its customers. *See, e.g.*, Tirole (1988), 286 ("The spatial models [reviewed here], and others like them . . . make important predictions about business strategies. One such prediction is the principle of differentiation: Firms want to differentiate to soften price competition . . . [But] there exist forces that oppose maximal product differentiation, and even forces that oppose any

- *Potential coordination or tacit collusion*. In markets with few sellers, coordinated interaction "involves conduct by multiple firms that is profitable for each of them only as a result of the accommodating reactions of others."[52] For example, sellers may refrain from cutting their prices as long they expect each other to do likewise—effectively, a tacit understanding, or coordination, among the firms. Coordination can be difficult to reach and sustain, however, because each seller will face a sustained economic incentive to defect from the tacit agreement.[53] Antitrust practitioners have identified market conditions that make coordination more or less likely and one factor that can make coordination more likely is greater symmetry among firms.

(55) If the Order is modified in ways that reduce the time and financial costs to Highmark of competing with UPMC, the likely result would be, in the language of Compass Lexecon, two "more symmetrical vertically-integrated healthcare delivery and financing networks" (to a greater extent than at present). This poses the following question: which of the potential effects—intensification of competition or increased potential for coordination—is greater or more likely? If coordination is unlikely, then the policy implication is clear: relaxing the Conditions to allow each system to compete without regulatory delays or costs would likely intensify competition and benefit consumers. (Currently, Highmark is subject to regulatory oversight, in the form of Conditions, that does not apply to UPMC.) If coordination were a significant possibility, then the question is more complex because the two effects would need to be balanced in order to evaluate whether the risk of coordination is large enough to outweigh the benefit of increased competition. In the case at hand, the structure of the industry makes the risk of coordination between Highmark and UPMC low.

(56) The market factors that make coordination more or less likely are summarized in the 2023 Merger Guidelines, which describe how the Department of Justice and Federal Trade Commission "assess the extent to which a merger may increase the likelihood, stability, or effectiveness of coordination."[54] The guidelines identify three "primary factors" and a set of "secondary factors" relevant to assessing

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product differentiation." One category of such forces is "*Be where the demand is*[:] It is clear that, although firms like to differentiate for strategic purposes, they also all want to locate where the demand is."). In turn, the smaller seller's incentive to emulate the larger one gives the latter an incentive to improve the price and quality of its offering in order to preserve its market position.

See also, Michael Mazzeo, "Product Choice and Oligopoly Market Structure," *RAND Journal of Economics* 33, no. 2 (2002): 221 ("[C]ompetition among firms may be less intense if they offer products that consumers find less substitutable, but firms may have an opposing incentive to select an undifferentiated product for which demand is strong.").

In addition, the smaller seller's incentive to emulate the larger one gives the latter an incentive to improve the price and quality of its offering in order to preserve its market position. *See, e.g.*, Carl Shapiro, "Competition and Innovation: Did Arrow Hit the Bull's Eye?" in *The Rate and Direction of Incentive Activity Revisited*, eds. Josh Lerner and Scott Stern (Chicago: University of Chicago Press, 2012), 364 ("The prospect of gaining or protecting profitable sales by providing greater value to customers spurs innovation.").

52 *Horizontal Merger Guidelines* (2010), § 7.

53 *See, e.g.*, Timothy F. Bresnahan, "Competition and Collusion in the American Automobile Industry: The 1955 Price War," *Journal of Industrial Economics* 35, no. 4 (1987): 457–482.

54 2023 Merger Guidelines, § 2.3.

the risk of coordination. Evaluating these factors in the context of healthcare providers and insurers in WPA, particularly Highmark and UPMC, shows that key conditions that make coordination likely are absent.

(57) The three primary factors are a highly concentrated market, prior actual or attempted coordination, and the elimination of a maverick.[55] While the healthcare provider and insurance markets in WPA are concentrated, concentration has decreased steadily since the 2013 Order, as shown in sections II and III.A. Regarding concentration, the trend since the Order was entered has been towards less concentration and increased competition. Regarding historical coordination, there is no evidence of such activity since the Order took effect. In fact, UPMC Health Plan has consistently limited the number of AHN hospitals in its network since 2013. UPMC had sought to withhold many UPMC providers from Highmark's insurance networks, relenting only in the face of a 2014 Consent Decree and a 2019 lawsuit by the Pennsylvania attorney general.[56] This history is more consistent with active and intense rivalry than with coordination. Regarding the elimination of a maverick (a firm, often a smaller one looking to gain share, that competes aggressively in ways that disrupt attempts at coordination) the proposed Modification does not entail any merger or acquisition and so there is no potential elimination of a maverick.[57]

(58) Two important secondary factors relevant to assessing the risk of coordination are market observability and competitive responses.[58] These matter because the crux of coordination is for firms

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55 A "maverick" is defined as a "firm with a disruptive presence in a market" that "reduces the risk of coordination." *Id*.

56 In 2019, then Attorney General Shapiro filed a lawsuit against UPMC for "violating Pennsylvania's charity laws." The lawsuit asked the court to "impose modifications to protect and promote the public interest by ensuring that UPMC abides by its charitable obligations to the Commonwealth of Pennsylvania." Noting "UPMC's refusal to contract with Highmark," the lawsuit sought measures to "[e]nable open and affordable access to UPMC's health care services and products through negotiated contracts with any health plan."

As explained by the Attorney General, the proposal terms "were presented to UPMC and Highmark in late 2018, to which Highmark agreed and UPMC did not, leading to today's action." "Attorney General Josh Shapiro Announces Legal Action Against UPMC for Violating Pennsylvania's Charities Laws," Press Release, Feb. 7, 2019, https://www.attorneygeneral.gov/taking-action/attorney-general-josh-shapiro-announces-legal-action-against-upmc-for-violating-pennsylvanias-charities-laws/. UPMC ultimately settled and agreed to allow its Pittsburgh-area hospitals and doctors to be included in the provider networks of Highmark's insurance products. "AG Shapiro, Governor Wolf announce new 10-year contract between UPMC and Highmark," June 24, 2019, https://www.attorneygeneral.gov/taking-action/ag-shapiro-governor-wolf-announce-new-10-year-contract-between-upmc-and-highmark/ ("UPMC and Highmark have agreed to enter into a 10-year contract that . . . ensures Highmark patients will have access to UPMC doctors and facilities. . . . [A]ll UPMC hospitals are now an option for Highmark's insured patients.").

57 Viewing a maverick as a firm that is aggressive and pursuing growth, there are multiple such entities in WPA. UPMC Health Plan, Aetna, and United are all gaining share in commercial insurance and/or Medicare Advantage markets; Highmark and AHN are likewise investing in their hospitals and opening new facilities in an effort to grow and serve the healthcare needs of WPA residents. *See*, e.g., AHN, About Wexford Hospital, https://www.ahn.org/locations/hospitals/wexford/about. ("AHN Wexford Hospital in Wexford, Pennsylvania is the newest full-service, clinician-led hospital in the Allegheny Health Network. The new AHN hospital provides world-class health care closer to home for residents in the North Hills communities of Pittsburgh.")

58 The 2023 Merger Guidelines define these as follows:

- "Market Observability: a market is more susceptible to coordination if a firm's behavior can be promptly and easily observed by its rivals. Observability can refer to the ability to observe prices, terms, the identities of the

to refrain from acting in their unilateral economic self-interest (e.g., cutting price to win customers from a rival) so as not to trigger a competitive response from rivals. In the context of coordination, a firm pursuing its unilateral economic interest is labeled a "defection" and the competitive response by rivals is labeled "punishment." Greater market observability and stronger competitive responses make punishment more swift and more severe. Effective punishment makes defection less profitable and therefore less likely, which in turn can make coordination more sustainable.

(59) To illustrate the mechanisms, suppose two firms are coordinating and one of them defects by cutting its price to win a large customer. If the rival can quickly respond in kind and win that customer back, or punish more strongly by initiating a broader price war, then the benefit of defection will be reduced or eliminated.[59] However, in most healthcare market settings, competitive responses from rivals are unlikely to be sufficiently rapid to make the relevant markets susceptible to coordination.[60] In particular, most transactions in the industry are governed by contracts between hospital systems and insurers that often span three to five years or more. Similarly, contracts between insurers and employers commonly have a formal duration of one year, but that is extended in practice because of the switching costs employers face when changing their health insurer.[61] This means that a coordinating integrated delivery system that defects in order to win additional customers is likely to keep those customers for at least several years, even if the defection—such as an employer changing its insurer—is readily observable. The delay in competitive responses attributable to contract lengths and employer switching costs makes defection more profitable and punishment less swift and less severe, and thereby makes coordination unlikely in the first place.[62]

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firms serving particular customers, or any other competitive actions of other firms."

- "Competitive Responses: a market is more susceptible to coordination if a firm's prospective competitive reward from attracting customers away from its rivals will be significantly diminished by its rivals' likely responses."

59 *See* Bresnahan (1987), *supra* note 53.

60 Recent hospital transparency laws have increased market observability for reasons unrelated to the Order or Highmark's Request for Modification. Alex Kacik, "Higher fines compel most hospitals to disclose prices," *Modern Healthcare*, Apr. 4, 2024, https://www.modernhealthcare.com/providers/price-transparency-fines-cms. ("Researchers estimate at least three-quarters of hospitals have posted prices they negotiated with commercial insurers. That's about a three-fold increase since 2021. . . . Under the hospital price transparency law, implemented in 2021, providers must post machine-readable files with data on prices they negotiated with payers.").

61 Multi-year contracts limit the number of customers a firm can lose in a given year. For example, if contracts last four years then, in any given year, only about one-fourth of a firm's customers are potentially winnable by rivals. Switching costs have a similar protective effect in that they make it harder for a rival to win away a firm's incumbent customers. Both mechanisms make defections more profitable because the defecting firm would be able to keep its added customers for longer.

62 In 2016, the DOJ filed and ultimately won lawsuits to block two proposed health insurer mergers, Aetna/Humana and Anthem/Cigna. In neither case did the DOJ allege an increased risk of coordination from the merger. Instead, the DOJ challenged both transactions under a "unilateral effects" theory of harm. Complaint, United States et al. v. Aetna Inc. and Humana Inc., No. 1:16-cv-01494 (D.D.C. July 21, 2016), https://www.justice.gov/opa/file/877881/dl and Complaint, United States et al. v. Anthem, Inc. and Cigna Corp., No. 1:16-cv-01493 (D.D.C. July 21, 2016), https://www.justice.gov/opa/file/877886/dl.

IV.C. The direction of vertical integration is not economically significant

(60) Vertical integration—the joining under common control of firms that are in a buyer/supplier relationship—can affect economic incentives both within the integrating firm and across the upstream (input) and downstream (output) markets. Integration may allow better coordination between the divisions of a firm, improve a firm's access to important inputs and potentially create an incentive to lower the downstream price, and, in some circumstances, raise concerns about rivals' ability to access inputs controlled by a vertically integrated firm.[63] Vertical integration can come about either as the result of an upstream seller opening or acquiring a downstream business entity (forward integration) or as the result of a downstream buyer opening or acquiring an upstream entity (backward integration). An example of the former is Disney's creation of Disney+ to distribute its entertainment content directly to consumers. Examples of the latter include Netflix's opening of a content production studio and Walmart's construction of milk processing plants.[64]

(61) Vertical integration can improve a firm's performance when efficient arm's length contracts between independent buyers and sellers are difficult to craft and enforce. This could be the case if important dimensions of performance are difficult to quantify. The parties to such a contract may have incentives to behave opportunistically when disagreements arise, seeking to claim an outsized share of the gains from their mutual investments in the trading relationship. Foreseeing such opportunism, they will rationally underinvest in the relationship in the first place, reducing the gains from trade. Vertical integration replaces formal contracts with internal governance mechanisms that can expand the range of enforceable agreements, thereby enhancing incentives to invest in the (now internal) relationship.

(62) This change in incentives does not depend on whether vertical integration came about because an upstream firm acquired a downstream firm or the other way around. There is no economic basis to analyze Highmark Health's competitive incentives differently because it is an insurer-first organization.[65]

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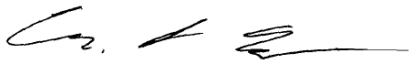
63 The economic literature on vertical integration is lengthy. For an overview, see Paul L. Joskow, "Vertical Integration," in *Handbook of New Institutional Economics*, eds. C. Ménard, and M.M. Shirley (Berlin: Springer, 2005), 319–348. Bolton and Whinston provide a canonical evaluation of the effects of vertical integration on competition for inputs provided in the upstream market. Bolton, Patrick, and Michael D. Whinston, "Incomplete Contracts, Vertical Integration, and Supply Assurance," *The Review of Economic Studies* 60, no. 1 (1993): 121–148.

64 "Walmart announces $350M Robinson milk processing plant," *Waco Tribune Herald*, March 7, 2024, https://wacotrib.com/news/local/business/walmart-robinson-milk-processing-plant/article_e3db0d64-dca2-11ee-bc0a-0769d78da804.html; "Walmart Announces Plans to Build $350 Million Milk Processing Plant in Southern Georgia," AgWeb, updated October 11, 2023, https://www.agweb.com/news/livestock/dairy/walmart-announces-plans-build-350-million-milk-processing-plant-southern.

65 As an example, in its February 9, 2024 comments encouraging the PID to reject Highmark's Request for Modification, the Insurance Federation of Pennsylvania (IFP) attaches particular significance to the way in which Highmark/AHN came about, though without explanation of why that is significant: "Unlike other IDSs that start with a hospital system creating or acquiring a health insurer, Highmark inverted that model through its acquisition of what was then the West



Cory S. Capps

April 24, 2024

Date

Penn/Allegheny Health System. In that sense, Highmark/AHN is different from other IDSs and is precisely why the 2013 Order exists." Letter of Jonathan C. Greer, President and CEO, Insurance Federation of Pennsylvania, to the Honorable Michael Humphreys, Insurance Commissioner, Pennsylvania Insurance Department, February 9, 2024, 4.

Appendix A. Methodology

A.1. Discharge data processing

(63) The Pennsylvania Health Care Cost Containment Council (PHC4) publishes data that contain information on inpatient discharges of patients from Pennsylvania hospitals. For each discharge, the data report patient characteristics, including location and diagnosis, payer information, and hospital characteristics, including name, system, and facility type. I use these data for the discharge analyses in section III.

(64) For figures that display discharge *shares* among WPA residents, I limit the data by excluding the following types of discharges:[66]

- Non-GAC facilities based on American Hospital Association (AHA) Facility Profiles.
- Non-GAC discharges: MDC 19 and 20 and DRGs 945, 946, 949, 950, 981, 999 (except when associated with MDC 23), and 795.
- Long-term care.
- Patients with reported discharges inconsistent with their patient characteristics.
- Patients who reside outside the 29-county WPA region.

(65) For figures that report total volume for hospitals in WPA, I do not limit to residents of the WPA region.

(66) In the various charts, hospital systems that never exceeds a 5% share in any year are grouped together in the "OTHER" category.

(67) I do not have access to PHC4 data for 2019Q4, so I annualize 2019 discharges based on the distribution of discharges over each quarter in the years 2015 to 2018. Similarly, PHC4 data for quarters three and four of 2023 are not yet available. I annualize 2023 based on the distribution of discharges between the first half and second half of the year in the years 2018, 2021, and 2022.

(68) For each hospital, I review the system affiliations provided in the original PHC4 data against the system affiliation in the AHA Facility Profiles. I update AHN and UPMC hospital system affiliations over time as the two systems open or acquire additional hospitals. For acquisitions that take place

[66] Some analysts, including myself, drop certain transfers to avoid double-counting of patients. In the analysis herein, I keep all transfers because the variable that identifies transfers is not populated in some years of the PHC4 data.

during the middle of the year, I update the system affiliations beginning in the subsequent year. For example, AHN acquired Jefferson Hospital and St. Vincent Hospital in the summer of 2013 and I first attribute their discharges to AHN in 2014.[67]

A.2. Quality analysis

(69) CMS publishes hospital quality performance information in a "Provider Data Catalog."[68] Within that catalog, the "Hospital datasets" contain "data about the quality of care at over 4,000 Medicare-certified hospitals across the country."[69] I focus on three categories of quality metrics: (1) patient safety indicators; (2) mortality rates data; and (3) patient satisfaction survey responses.[70] Each category of quality includes multiple underlying metrics. The included metrics for each category, summarized in Figure 18, are broadly reported across hospitals and over time.

Figure 18. CMS metrics included in the quality analysis

Metric category	Included metrics
Patient safety	• Serious blood clots after surgery • A wound that splits open after surgery on the abdomen or pelvis • Accidental cuts and tears from medical treatment" measures.
Mortality	• Pneumonia 30-day death rate • Heart attack 30-day death rate • Heart failure diagnoses 30-day death rate
Patient satisfaction	• How often were the patients' rooms and bathrooms kept clean? • How often did doctors communicate well with patients? • How often did patients receive help quickly from hospital staff? • How often did staff explain about medicines before giving them to patients? • Were patients given information about what to do during their recovery at home? • How do patients rate the hospital overall? • How often was the area around patients' rooms kept quiet at night? • Would patients recommend the hospital to friends and family?"

(70) For each measure, I first limit to hospitals that report information in all years and use the distribution of responses across all national hospitals over the 2013–2023 period to calculate a z-score for each

67 Highmark Health, "Highmark Health, Allegheny Health Network celebrate 10th anniversary milestone." https://www.highmarkhealth.org/hmk/newsroom/pr/2023/2023-04-26-10th-Anniversary-Milestone.shtml.

68 CMS, "Hospital Quality Initiative Public Reporting," https://www.cms.gov/medicare/quality/initiatives/hospital-quality-initiative/hospital-compare.

69 CMS, "Hospital datasets," https://data.cms.gov/provider-data/search?theme=Hospitals.

70 Patient safety indicators and mortality data are reported in CMS, "Complications and Deaths – Hospital," https://data.cms.gov/provider-data/dataset/ynj2-r877. Patient satisfaction data are reported in CMS, "Patient survey (HCAHPS) – Hospital," https://data.cms.gov/provider-data/dataset/dgck-syfz.

hospital. The z-score represents how far away each hospital's score for a given measure in a given year is from the average national hospital's score on that measure across all years.[71]

(71) For each group of measures (patient safety, mortality, and patient satisfaction), I then calculate the average z-score across all individual measures for each of the three sets of hospitals evaluated in section III.B—AHN, Other WPA hospitals, and all hospitals nationwide. The set of AHN hospitals includes the original five West Penn hospitals in 2013, adds Jefferson Hospital and St. Vincent Hospital in 2014, adds Grove City Hospital in 2021, and adds Wexford Hospital in 2022.[72]

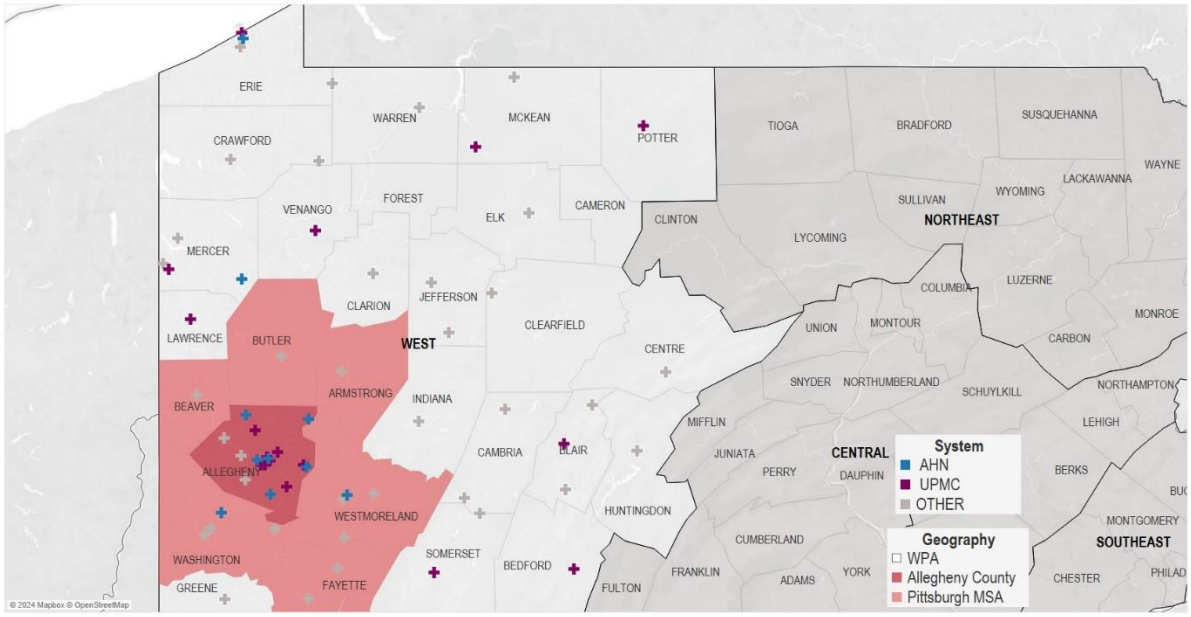
(72) Under the CMS methodology, the metrics in each year are based on information collected and aggregated over one or more prior years. The patient safety measures for a given year reflect the average score for each hospital collected over the prior four years. For example, the 2018 value of a patient safety metric is the average over the years 2014–2017. Similarly, the mortality measures in each year are based on data spanning the previous three years. The patient satisfaction survey measures are based on data from the prior year. To highlight the impact of the 2013 transaction, years that include information that was collected during 2013 are shaded in grey on the charts in section III.B.

[71] If x is an observed value from a distribution with mean μ and standard deviation σ then the z-score for x is defined as $Z = \frac{x-\mu}{\sigma}$. The z-score for x indicates the distance of x from the mean of the distribution, where distance is measured in terms of standard deviations. For example, an observation with a z-score of 2.0 is 2 standard deviations above the mean while a z-score of –0.3 is 0.3 standard deviations below the mean.

[72] The CMS data do not contain information for Hempfield Neighborhood Hospital, which AHN opened in 2021. Wexford Hospital first appears in the CMS data in 2022.

Appendix B. WPA map and system affiliation of WPA hospitals

Figure 19. Map of WPA counties and hospitals



Source: AHA data
Notes: Displays hospitals in the 29-county WPA region.

Figure 20. AHN hospitals, by year of acquisition or opening

Hospital name	Hospital county	Pre-trans.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
ALLEGHENY GENERAL HOSPITAL	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
FORBES HOSPITAL	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
WEST PENN HOSPITAL	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
ALLEGHENY VALLEY HOSPITAL	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
CANONSBURG HOSPITAL	WASHINGTON	X	X	X	X	X	X	X	X	X	X	X
JEFFERSON HOSPITAL	ALLEGHENY		X	X	X	X	X	X	X	X	X	X
SAINT VINCENT HOSPITAL	ERIE		X	X	X	X	X	X	X	X	X	X
GROVE CITY HOSPITAL	MERCER								X	X	X	X
HEMPFIELD NEIGHBORHOOD HOSP	WESTMORELAND								X	X	X	X
WEXFORD HOSPITAL	ALLEGHENY										X	X

Notes: All AHN hospitals are located within the 29-county WPA region.

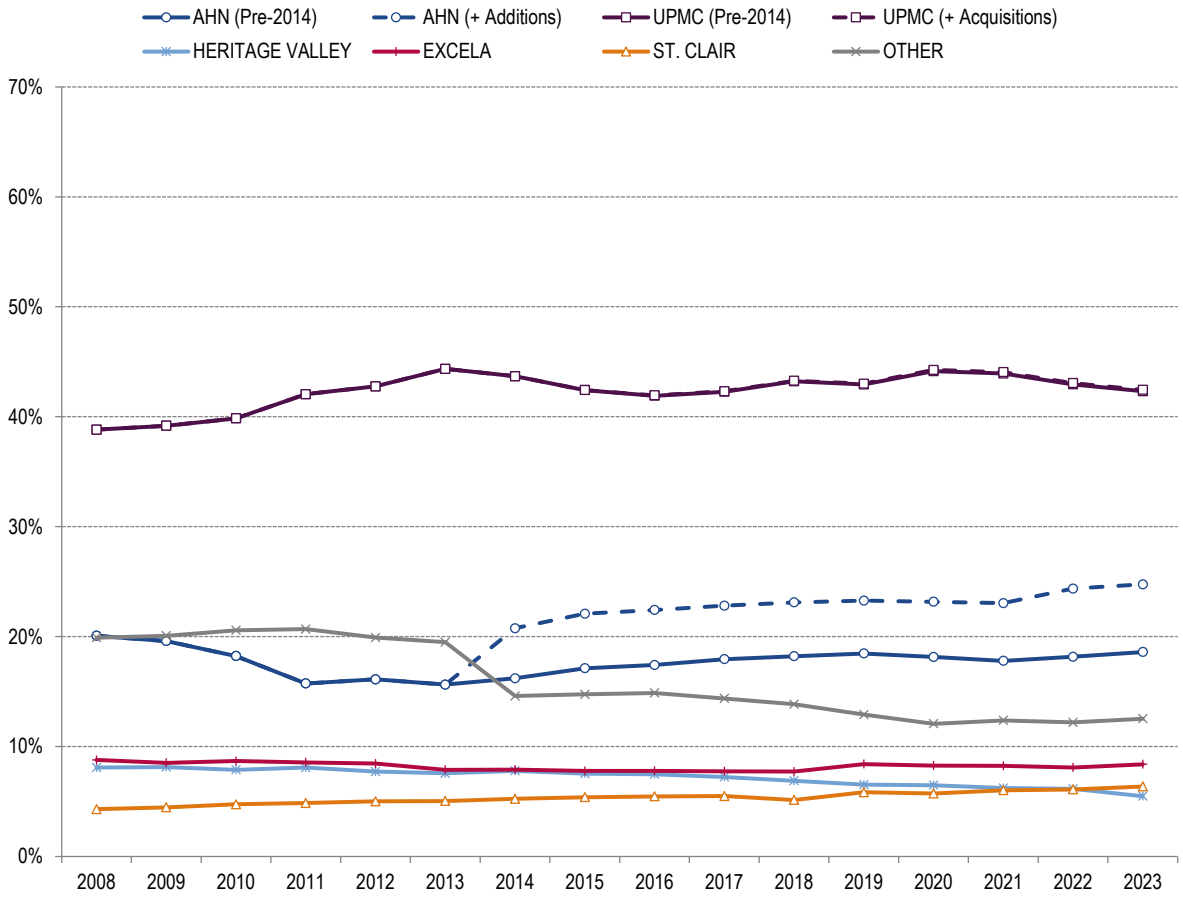
Figure 21. UPMC hospitals, by year acquired

Hospital name	Hospital county	Pre-trans.	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
PRESBYTERIAN SHADYSIDE*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
MAGEE-WOMENS HOSPITAL*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
PASSAVANT*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
CHILDREN'S HOSP. OF PITTSBURGH*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
ST. MARGARET*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
MCKEESPORT*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
HORIZON*	MERCER	X	X	X	X	X	X	X	X	X	X	X
NORTHWEST*	VENANGO	X	X	X	X	X	X	X	X	X	X	X
BEDFORD*	BEDFORD	X	X	X	X	X	X	X	X	X	X	X
MERCY*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
SUNBURY COMMUNITY HOSPITAL	NORTHUMBERLAND	X	X	X	X	X	X	X	X	X	X	X
HAMOT*	ERIE	X	X	X	X	X	X	X	X	X	X	X
EAST*	ALLEGHENY	X	X	X	X	X	X	X	X	X	X	X
ALTOONA*	BLAIR	X	X	X	X	X	X	X	X	X	X	X
JAMESON*	LAWRENCE				X	X	X	X	X	X	X	X
WILLIAMSPORT	LYCOMING				X	X	X	X	X	X	X	X
WELLSBORO	TIOGA				X	X	X	X	X	X	X	X
KANE*	MCKEAN					X	X	X	X	X	X	X
PINNACLE HOSPITALS	DAUPHIN					X	X	X	X	X	X	X
LOCK HAVEN	CLINTON					X	X	X	X	X	X	X
CARLISLE	CUMBERLAND					X	X	X	X	X	X	X
MEMORIAL	YORK					X	X	X	X	X	X	X
HANOVER	YORK					X	X	X	X	X	X	X
LITITZ	LANCASTER					X	X	X	X	X	X	X
LANCASTER	LANCASTER					X	X	X	X	X	X	X
MUNCY	LYCOMING					X	X	X	X	X	X	X
COLE*	POTTER						X	X	X	X	X	X
SOMERSET*	SOMERSET							X	X	X	X	X

Notes: Asterisks indicate UMPC hospitals located within the 29-county WPA region.

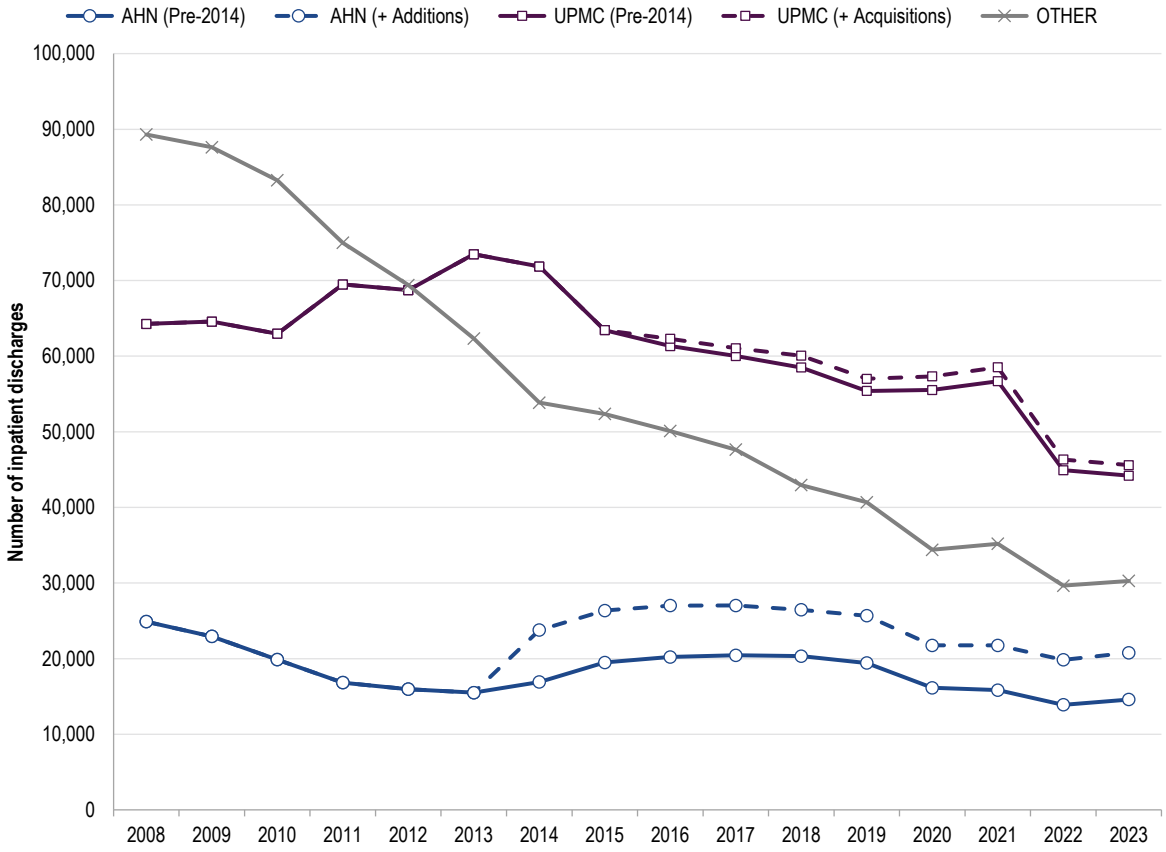
Appendix C. Additional figures

Figure 22. All-payer discharge shares in the Pittsburgh MSA, 2008–2023



Source: PHC4 inpatient discharge data
Notes: Limited to general acute care discharges and patients who reside in the Pittsburgh MSA. Prior to 2014, AHN's share includes the five West Penn hospitals (solid line). In 2014 onward, AHN's share also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.

Figure 23. Total inpatient commercial discharges in WPA, 2008–2023



Source: PHC4 inpatient discharge data
Notes: Includes all inpatient discharges from hospitals in WPA (including patients who reside outside of WPA). Prior to 2014, AHN's volume includes the five West Penn hospitals (solid line). In 2014 onward, AHN's volume also includes acquired/opened hospitals (dashed line). Likewise, the solid UPMC line reflects hospitals that were part of the system as of 2013 and the dashed line includes hospitals it acquired. See Appendix A.1 for methodology details and Appendix B for the hospital composition of AHN and UPMC over time.