

# North Carolina Hospitals: Extreme Price Markups, Failures in Transparency for Shoppable Hospital Services

North Carolina  
State Health Plan  
for Teachers and  
State Employees

Data Analysis:  
Johns Hopkins  
Bloomberg School  
of Public Health

Data Source:  
Turquoise Health

Too many North Carolina hospitals are violating federal rules to hide their prices from patients. The anti-competitive infractions thwart patients' ability to make informed decisions about their health care. High prices, especially those charged by hospitals, are the main reason why the United States spends far more on health care than other developed countries, but there is little accountability and less transparency to protect patients' financial health.<sup>1 2 3 4</sup> Across 140 North Carolina hospitals, prices vary widely, costing some patients thousands of dollars simply for choosing one hospital over another. Hospitals levy price markups of up to 1,120% on routine care and basic services. Even uninsured patients face inflated cash prices far above Medicare rates, which the government sets to reimburse hospitals for their cost of care. The majority of North Carolina hospitals self-reported profiting off Medicare rates over six years, but this has not stopped the most expensive subset of hospitals from charging patients and businesses as much as 24 times what Medicare pays for common services. On average, only 51% of the 140 hospitals disclosed commercial insurance prices across 16 common shoppable services, and this disclosure rate dropped to 42% for cash prices across the 16 shoppable services. Just five hospitals disclosed commercial prices for every service.<sup>5</sup> Until the state acts to strengthen and enforce federal price transparency rules, patients have little recourse against crippling medical debt. Workers now lose 20% of a paycheck to health care costs,<sup>6</sup> and one in five North Carolinians is trapped in medical debt collections.<sup>7</sup> Worse, hospitals sued 7,517 patients to collect medical debt, using the court system to charge interest on judgments and place liens on families' homes.<sup>8</sup>

Widespread failures in price transparency have exposed North Carolinians to huge markups and extreme variations in hospital prices. For even a simple urinalysis, the most expensive hospitals charge up to 12 times what more affordable hospitals ask patients to pay.<sup>9</sup>

Statewide data show hospitals inflating median commercial prices by more than 700% of Medicare rates for some common services. Rising deductibles have

made patients responsible for a larger portion of these bills, but because of opaque billing processes patients often cannot see their charges until months after the fact.<sup>10 11 12 13 14</sup>

The current and former presidents of the United States signed executive orders to establish patients' right to know hospital prices and to empower patients to protect their financial health. Under the Hospital Price Transparency Final Rule,

the Centers for Medicare and Medicaid Services (CMS) requires hospitals to post: 1) a consumer-friendly display of at least 300 shoppable services, and 2) a comprehensive, machine-readable file of all standard charges for all payers and all plans.

These federal rules elevate patients' access to hospital prices, but many North Carolina hospitals are hiding their prices, blocking patients from shopping for affordable care. The problem of hospital noncompliance is especially severe for "cash prices," further hurting uninsured patients already vulnerable to high costs, crippling medical debt and hospital lawsuits.<sup>15 16</sup>

Rising health care costs are endangering the future of the North Carolina State Health Plan for Teachers and State Employees. When North Carolina State Treasurer Dale R. Folwell, CPA, took office, he inherited a \$32.5 billion unfunded liability, making the State Health Plan just 2.94% funded.<sup>17</sup> When Treasurer Folwell asked UNC Health what it charged to treat state employees, the hospital rebuffed his request. Instead, it sent him more than 200 pages of nothing but redacted black boxes.<sup>18</sup> All but three of the state's hospitals have boycotted the State Health Plan's Clear Pricing Project, which aimed to increase transparency and lower prices.<sup>19</sup>

Treasurer Folwell reached out to researchers from the Johns Hopkins Bloomberg School of Public Health who previously have studied hospital prices and compliance with federal price transparency rules. The Bloomberg School researchers provided a summary analysis of hospital pricing data based on June 2023 data from Turquoise Health, a software company that collects and displays hospital prices for patients and researchers to facilitate price transparency in health care.<sup>20</sup> Turquoise Health's data has been cited in numerous academic studies and media investigations.

**A common blood test might cost...**

**\$12.05**

at affordable hospitals.

**\$88.40**

at expensive hospitals.

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Researchers analyzed the prices of 16 common shoppable services for 140 hospitals in North Carolina, including: a major joint replacement, gallbladder removal, mammography, colonoscopy, sleep study, routine electrocardiogram, complete blood test, automated urinalysis, routine obstetric care for cesarean and vaginal deliveries, tonsillectomy, MRI of a leg joint, CT scan of the head, MRI of the brain, CT scan of the abdomen and pelvis, and an ultrasound of a uterus during pregnancy in June 2023.<sup>21</sup>

Their analysis uncovered alarming disparities in prices and huge markups from Medicare. The most expensive subset of North Carolina hospitals charged commercially insured patients as much as 1,670% more than other hospitals for the same service, and such price disparities can cost patients and businesses tens of thousands of dollars. Noncompliance with federal price transparency rules was also widespread, with an average disclosure rate of 51% for commercial negotiated rates and 42% for cash prices. Only five hospitals disclosed commercial negotiated rates for all 16 services, and just one hospital disclosed cash prices for all 16 services.<sup>22</sup>

North Carolina hospitals are charging commercially insured patients hundreds or thousands of dollars more than Medicare for common services. For commer-

# North Carolina Hospital Commercial, Cash and Medicare Advantage Prices

Description	Median Commercial	Median Cash	Median Medicare Advantage	Median Commercial Markup from Medicare	10th to 90th Percentiles Commercial
Automated urinalysis test	\$28.80	\$31.20	\$2.36	<b>1120%</b>	\$5.00 - \$58.65
CT scan, head or brain, w/o contrast	\$1,167.23	\$1,067.88	\$108.44	<b>976%</b>	\$298.89 - \$1,620.00
Complete blood test, automated	\$58.30	\$55.38	\$6.79	<b>759%</b>	\$12.05 - \$88.40
MRI of leg joint	\$1,897.12	\$1,655.75	\$228.90	<b>729%</b>	\$541.56 - \$3,132.68
CT scan of abdomen and pelvis with contrast	\$2,857.17	\$2,788.75	\$370.93	<b>670%</b>	\$810.00 - \$4,433.25
MRI scan of brain before and after contrast	\$2,522.47	\$2,304.50	\$368.76	<b>584%</b>	\$837.36 - \$3,964.42
Ultrasound of pregnant uterus	\$466.16	\$414.56	\$106.88	<b>336%</b>	\$180.84 - \$724.08
Sleep Study	\$2,679.57	\$2,307.60	\$894.68	<b>199%</b>	\$1,118.00 - \$3,345.40
Mammography of both breasts	\$315.98	\$288.72	\$112.24	<b>182%</b>	\$144.44 - \$532.31
Colonoscopy	\$1,693.20	\$1,520.17	\$759.94	<b>123%</b>	\$509.41 - \$3,269.00
Major joint replacement of lower extremity	\$26,305.00	\$28,837.67	\$13,869.44	<b>90%</b>	\$17,498.62 - \$35,043.92
Routine obstetric care for cesarean delivery, including pre-and-post delivery care	\$3,850.31	\$3,470.10	\$2,629.86	<b>46%</b>	\$2,550.00 - \$6,456.00
Routine obstetric care for vaginal delivery, including pre-and-post delivery care	\$3,769.48	\$3,041.83	\$4,540.99	<b>-17%</b>	\$2,550.00 - \$5,255.38
Gallbladder removal	\$2,550.00	\$6,583.71	\$3,138.34	<b>-19%</b>	\$1,418.04 - \$13,469.00
Electrocardiogram, routine, with interpretation and report	\$40.31	\$36.76	\$74.34	<b>-46%</b>	\$24.55 - \$171.50
Removal of tonsils and adenoid glands for a patient younger than age 12	\$2,888.49	\$4,616.36	\$5,028.10	<b>-43%</b>	\$697.95 - \$12,370.00

Median prices are the middle value of a set of prices across North Carolina hospitals that disclosed commercial, cash, and Medicare Advantage price information for each service. The median commercial price for each hospital is measured as the median negotiated price across all of its commercial plans.

The 10th to 90th percentile range measures the difference between the most and least affordable group of hospital prices, respectively. For a more complete summary of the services and the prices analyzed in this report, see the Appendix. All data was sourced from Turquoise Health in June 2023.

**“Lawmakers should consider reforms to strengthen price transparency and antitrust protections.”**

cial patients, even services as simple as a urinalysis test can carry a 1,120% median markup, forcing patients to pay a median \$28.80 while Medicare pays a median of just \$2.36. Likewise, hospitals charge patients with commercial insurance a median \$58.30 for an automated blood test, though Medicare pays a median of only \$6.79. As employers seek to contain costs, workers are footing the bill for these high prices in the form of lost wages, higher premiums, benefit cuts, larger deductibles and widespread medical debt.<sup>23 24 25 26</sup>

Uninsured patients also face significant price inflation, raising concerns over negative financial impact and nonprofit hospitals’ debt collection policies. Across the majority of the 16 shoppable services, hospitals charged uninsured patients more than 150% more than Medicare rates, and a fourth of the 16 analyzed shoppable services had a higher markup on “cash” prices than on commercial rates.<sup>27</sup>

Nationally, hospitals often give more generous discounts on “cash prices” to help uninsured patients afford care, but North Carolina hospitals are billing uninsured patients as much as 1,222% more than Medicare for common services.<sup>28</sup> These high cash prices risk exacerbating the cost exposure of almost 1.1 million uninsured North Carolinians who are often responsible for paying their medical bills without help from the government or a third party.<sup>29</sup> For a gallbladder removal, uninsured patients are responsible for a median \$6,583.71 cash price — or \$4,033.71 more than the median commercial price.<sup>30</sup>

These price disparities are especially troubling because North Carolina hospitals sued 7,517 patients and family members to collect medical debt from 2017 to 2022. Hospitals used the court system to obtain liens against patients’ houses and to charge significant interest on medical judgments. When patients tried to fight

An **MRI of a leg joint** might cost...

**\$228.90**

for Medicare patients.

**\$541.56**

at affordable hospitals.

**\$3,132.68**

at expensive hospitals.

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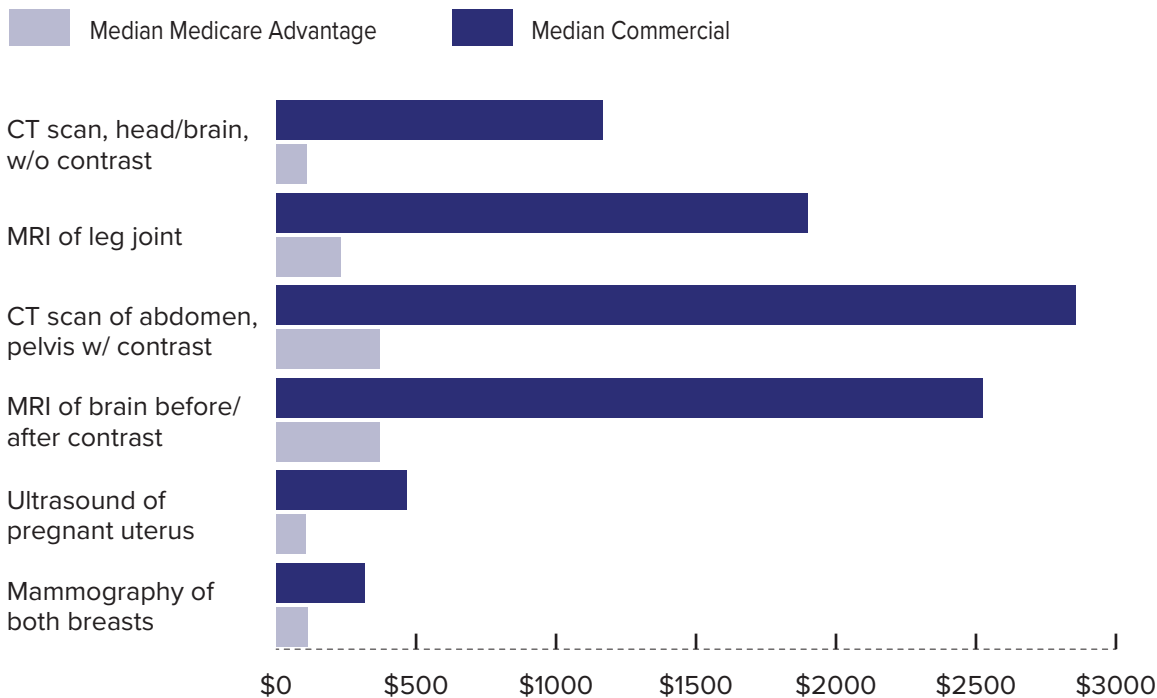
these lawsuits, they often argued that they “lack information necessary” to determine if they had been charged a fair price. Hidden prices and opaque health care billing processes left them unable to decide if “the value of the treatment was reasonable” before being sued.<sup>31</sup>

Litigious hospitals charged price markups that were significantly higher than the national average, with an average 480.5% charge-to-cost ratio. Furthermore, hospitals also sued patients over “surprise bills,” which are notorious for exploiting patients’ vulnerability to charge exorbitant prices. These lawsuits left patients owing an average judgment of \$16,623.<sup>32</sup> Half of Americans do not have the savings to cover even a \$500 emergency bill in full, and medical debt is the leading cause of bankruptcy in the United States.<sup>33 34</sup>

Hospitals’ enormous price markups over Medicare rates are especially troubling because an efficient hospital can break even on Medicare reimbursements, according to the federal government.<sup>35</sup> Academically peer-reviewed research from

# Hospitals Charge Commercial Payers Far More Than Medicare Advantage Rates for Radiological Services

Median prices paid by commercially insured patients v. Medicare advantage.



SOURCE: Researchers’ analysis of Turquoise Health data as of June 2023.

the State Health Plan also found that the majority of North Carolina hospitals profited on Medicare from 2015 to 2020. Although North Carolina hospital lobbyists claimed \$3.1 billion in Medicare losses in 2020, hospitals self-reported to the federal government turning a profit of \$87 million on Medicare — a difference of 3,670%.<sup>36 37</sup>

The vast majority of North Carolina’s nonprofit hospitals failed to justify an estimated \$1.8 billion in tax breaks in 2020.<sup>38</sup> Instead of providing free or discounted care to impoverished patients, some hospitals billed almost \$150 million to indigent patients.<sup>39</sup> Worse, North Carolina’s nonprofit hospital systems encouraged more than 100,000 patients to sign up for “medical credit cards” that can charge up to 18% interest on medical debt.<sup>40 41</sup>

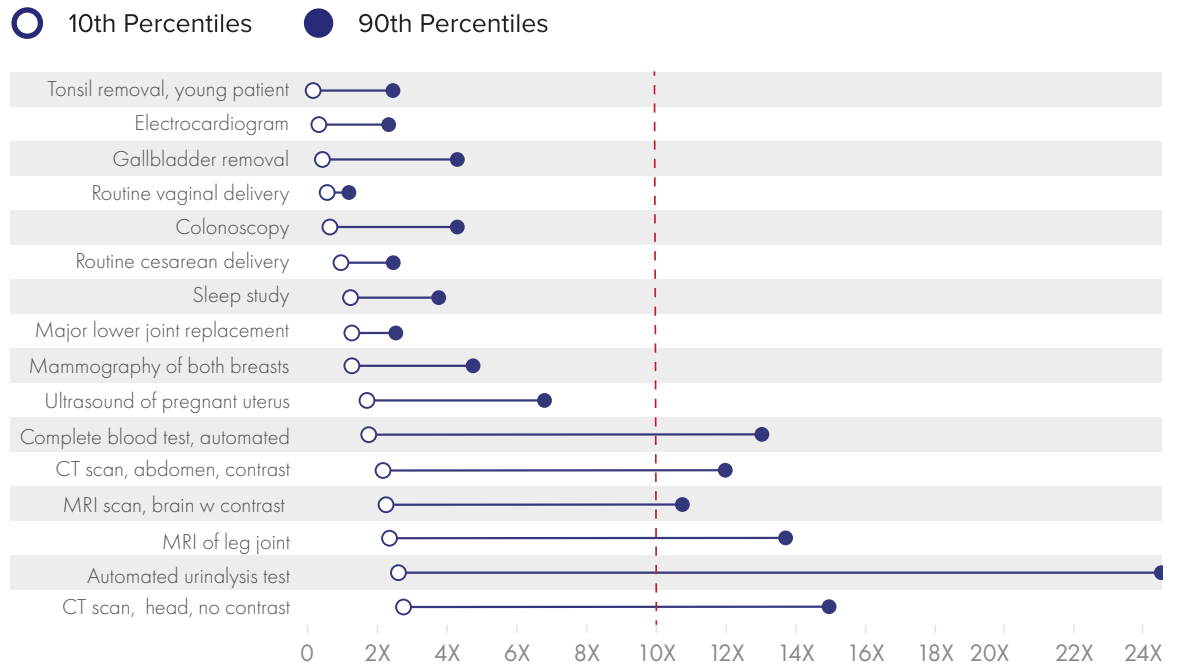
North Carolina lawmakers should consider reforms to strengthen price transparency and antitrust protections against hospital monopolies. High prices are directly linked to hospital consolidation, as are violations against price transparency rules.<sup>42 43</sup> Patients cannot protect their financial health until they can shop for the best price — which requires both access to price information and choices between providers. Both are scarce in North Carolina, where health care is both highly expensive and extremely monopolistic.<sup>44 45 46 47</sup>

## Hospital Prices and CON Laws

Many of the largest price disparities appeared in radiological services, including CT and MRI scans. Hospitals inflated their \$1,167.23 median commercial price for a CT scan of the brain by 976% from Medicare’s \$108.44 median rate.

## The most and least affordable commercial hospital prices across 16 shoppable services in North Carolina

The 10th to 90th Percentile Prices as a Percent of Median Medicare Advantage



SOURCE: Researchers’ analysis of Turquoise Health data as of June 2023.

Commercial patients face similarly high markups for MRIs. While Medicare pays a median of \$228.90 for an MRI of a leg joint, privately insured patients must pay a median \$1,897.12 for the same scan — or an 729% markup.<sup>48</sup>

Patients get little in return for paying such high prices. Research shows that higher prices do not guarantee better or safer care. In monopolistic markets, higher prices are even linked to lower quality and worse patient outcomes.<sup>49 50 51 52 53</sup>

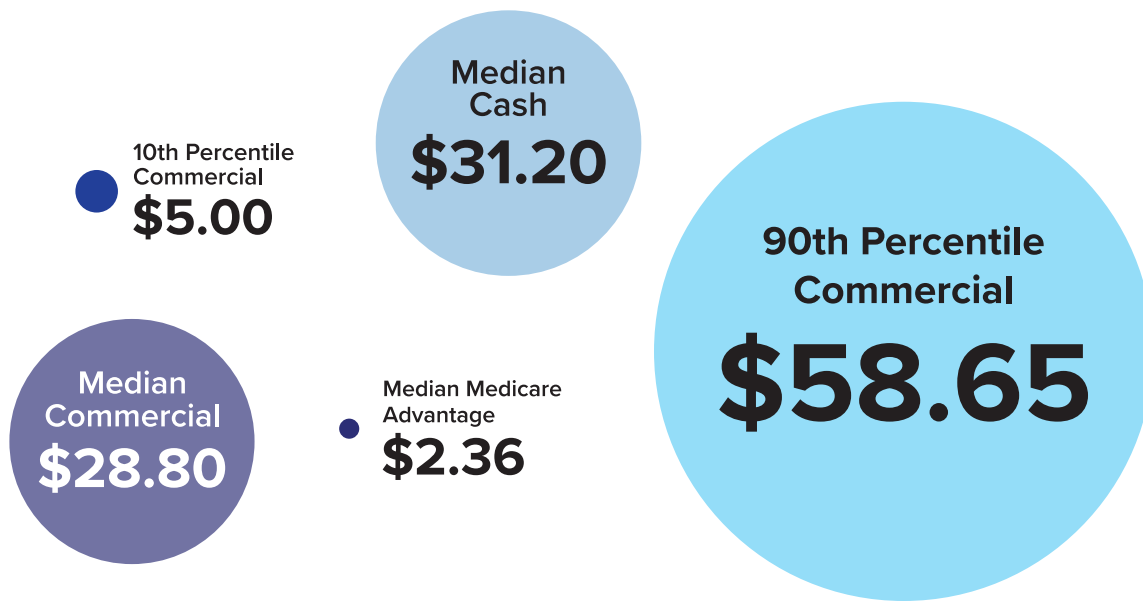
The huge price disparities for radiological services have troubling ties to North Carolina public policy. State Certificate of Need laws (CON) restrict the supply of imaging equipment. In order to purchase any equipment or build new facilities above the state’s monetary threshold, providers must apply for state permission and demonstrate the “need”

in their service area. The state CON board is staffed by 25 appointees, many of whom are affiliated with large hospital systems.<sup>54</sup> Even if the state board grants permission, incumbent competitors can sue to block competition, often resulting in time-consuming and expensive litigation that has a “chilling” effect on commercial entities that do not have the financial resources of large medical groups.<sup>55 56</sup>

The body of existing research shows that CON laws drive up prices and reduce access to care.<sup>57 58 59</sup> When the laws were first implemented, the federal government paid hospitals based on costs, which created an incentive to overspend.<sup>60</sup> At the time, policymakers hoped that restricting hospitals’ ability to overspend by tightly controlling the supply of equipment and facilities would solve the problem, but this approach

## Commercial, cash, and Medicare advantage hospital prices for an automated urinalysis test in North Carolina

How hospital median and percentile prices compare across North Carolina.



SOURCE: Researchers' analysis of Turquoise Health data as of June 2023.

was not successful.<sup>61</sup> Payers have since switched to paying hospitals for providing services instead for costs — eliminating the original rationale for CON laws' existence.<sup>62</sup>

The North Carolina General Assembly recently passed the first major CON reforms in decades, but the reforms are not scheduled to take effect for at least another two years, raising the worry that they could be delayed indefinitely.<sup>63</sup> The North Carolina Healthcare Association, the hospitals' lobbying arm, has vigorously opposed any reforms, and hospitals are among the most powerful industry lobbying groups.<sup>64 65 66</sup> In the meantime, patients will have to wait to access more affordable care.

### Hospital Prices and Consolidation

Hospital price disparities become still more extreme when comparing the most and least expensive subset of hospital commercial prices, otherwise known

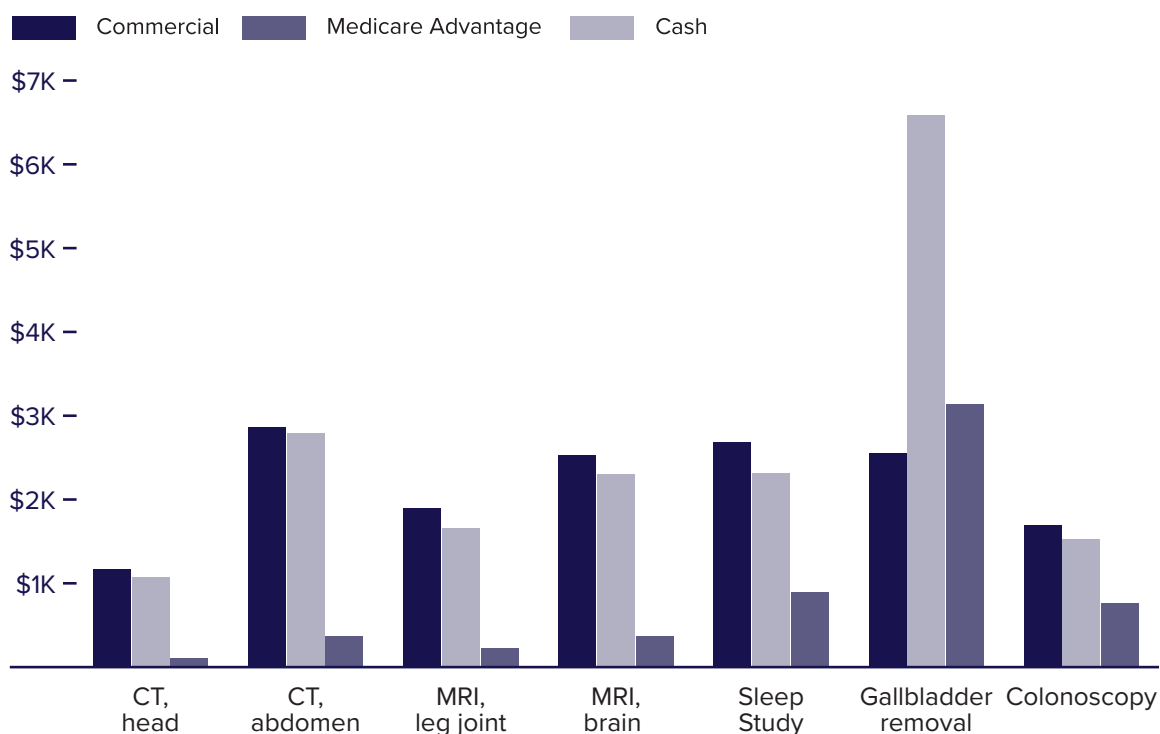
as 10<sup>th</sup> to 90<sup>th</sup> percentiles. For example, a gallbladder removal surgery could cost a commercial patient \$1,418.04 or \$13,469 — a price difference of 850%. Even routine care such as a colonoscopy carries a 542% price difference, depending on whether patients visit the affordable subset of hospitals that charge \$509.41 or the expensive hospitals that charge \$3,269.<sup>67</sup>

Past research shows that hospital prices are directly linked to hospital consolidation. When patients have no other options, hospitals can dictate prices. When researchers analyzed the nation's most monopolistic markets, they found that the price of a hospital stay had jumped between 11% to 54% for private insurers in subsequent years.<sup>68</sup> Likewise, when hospitals acquire independent physician practices, patients must pay significantly higher premiums for health insurance because of price increases.<sup>69</sup>

**“Hospital prices are directly linked to hospital consolidation.”**

## Hospital Markup Cash Prices From Medicare Rates

The median cash prices, commercial rates, and Medicare Advantage rates



SOURCE: Researchers' analysis of Turquoise Health data as of June 2023.

North Carolina has been described as one of the “worst, most expensive states for health care.”<sup>70</sup> North Carolina cities have repeatedly ranked among the top five most monopolistic metro areas for health care in the nation.<sup>71</sup> Even before recent major mergers, 57 North Carolina hospitals boasted perfect monopolies in 2018, and all hospitals were flagged as at least “highly concentrated” in the state, according to the joint Department of Justice and Federal Trade Commission horizontal merger guidelines.<sup>72</sup>

The reality is likely far worse. This measure used by the federal government does not even weigh “virtual mergers,” or arrangements such as the Joint Operating Agreement between Vidant Health and the Brody School of Medicine to create ECU Health.<sup>73 74</sup> Nor does the index capture other arrangements involving executive compensation, such as the management agreement that allowed

Atrium Health to pay the salaries of its competitor Cone Health’s chief executive officer (CEO) and top executives for almost a decade.<sup>75</sup>

Like hospital consolidation, hospital prices are likely higher than the medians shown in this study. Hospitals must disclose their commercial prices under federal law — but the decision to post prices is still influenced by hospital executives’ concerns over the potential negative impact of higher prices on their public image or business volume. Researchers found that hospitals with higher prices could therefore be more likely to flout federal price transparency rules.<sup>76</sup>

For underinsured patients with high deductibles and uninsured patients, such extreme price differences can be crushing. Across many North Carolina hospitals, however, patients cannot even see the price of common services, much less shop for affordable health care.<sup>77</sup>



## North Carolina Hospitals' Disclosure of Commercial, Cash and Medicare Advantage Prices

Description (out of 140 hospitals)	Commercial	Cash	Chargemaster	Medicare Advantage
CT scan, head or brain, w/o contrast	96	95	106	85
CT scan of abdomen and pelvis with contrast	96	93	105	86
Automated urinalysis test	97	91	104	85
Ultrasound of pregnant uterus	93	90	99	78
MRI of leg joint	92	90	97	83
Complete blood test, automated	99	89	101	86
MRI scan of brain before and after contrast	92	89	99	83
Mammography of both breasts	89	84	93	79
Sleep Study	73	74	80	64
Colonoscopy	71	54	63	70
Major joint replacement of lower extremity	84	31	38	78
Gallbladder removal	51	26	31	41
Removal of tonsils, adenoid glands for a patient younger than age 12	32	16	20	28
Electrocardiogram, routine, with interpretation and report	25	12	14	19
Routine obstetric care for vaginal delivery, including pre- and-post delivery care	27	4	8	15
Routine obstetric care for cesarean delivery, including pre- and-post delivery care	26	4	6	8

For a more complete summary of North Carolina hospitals' disclosure of the services and prices, see the Appendix. SOURCE: Researchers' analysis of Turquoise Health data as of June 2023.

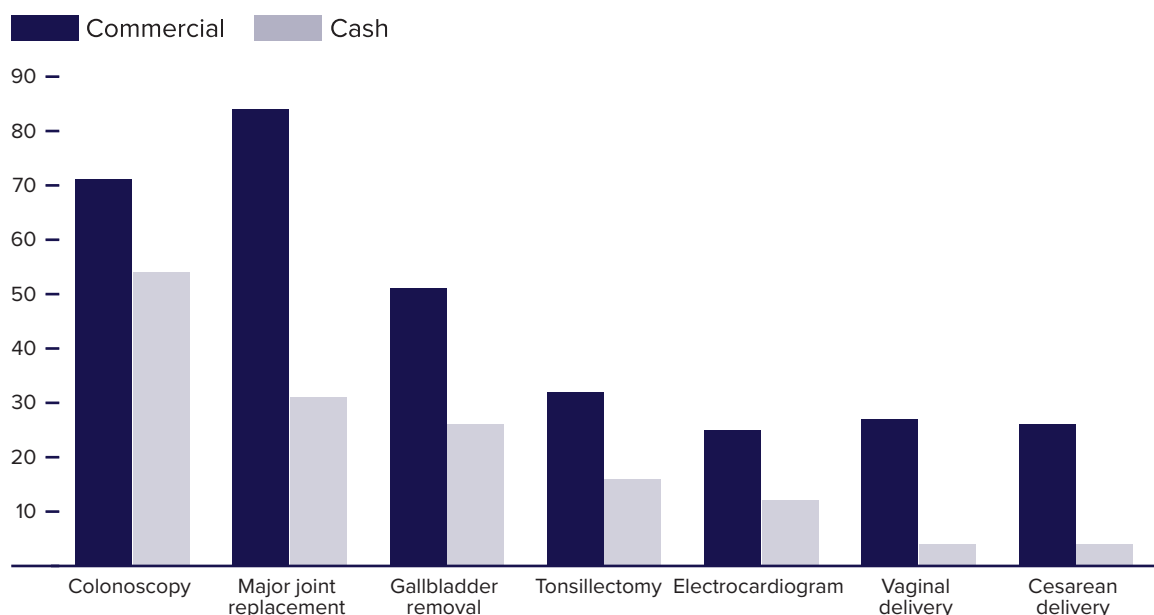
### Failures in Price Transparency

On average, 51% of the 140 North Carolina hospitals disclosed commercial prices across the 16 shoppable services under federal price transparency rules. Compliance was lowest for Medicare rates and cash prices — a concerning phenomenon because uninsured patients are the most vulnerable to price disparities and therefore the most incentivized to shop for af-

fordable care. North Carolina's hospitals had an average disclosure rate of 42% for cash prices across the 16 shoppable services. While 79% of hospitals disclosed commercial rates for at least one of the 16 shoppable services, only five hospitals disclosed prices for all 16 services. Compliance was lower for cash prices, with 74% of hospitals disclosing cash prices for at least one service but only one hospital

## North Carolina Hospitals Hide Their Prices From Patients

The number of hospitals disclosing commercial negotiated rates and cash prices



SOURCE: Researchers' analysis of Turquoise Health data as of June 2023.

**We are missing critical pricing data for Mission HCA Health, which is among the top 16% most expensive hospital systems in the nation.**

disclosing cash prices for all 16 services. Disclosure of commercial prices was lowest for electrocardiograms and routine obstetric care for cesarean or vaginal deliveries, with less than a fifth of hospitals making their commercial prices transparent. Just 27 hospitals published commercial prices for obstetric care during childbirth, denying insured women the opportunity to shop for affordable care when expecting a child.<sup>78</sup>

Hospitals have fought to keep their prices secret since the inception of federal price transparency rules.<sup>79</sup> The American Hospital Association sued in federal court to block the transparency reforms, but a U.S. District Court judge ruled against them, finding that the hospitals were “attacking transparency measures generally” to limit patients’ ability “to make informed decisions.”<sup>80 81</sup>

The more monopolistic the market, the less likely hospitals are to comply with price transparency laws.<sup>82</sup> Mission Health HCA faces an antitrust lawsuit alleging monopolistic practices that increased prices and decreased quality.<sup>83</sup>

Mission Health’s former communications director was recorded describing the system as a “monopoly,” saying that Mission Health was “the 500-pound gorilla in Western North Carolina.”<sup>84</sup>

Unlike the majority of U.S. hospitals, Mission HCA hospitals share only their gross chargemaster prices — an inflated number used to negotiate with insurers that bears little relation to the costs to provide care or to what the patient will pay.<sup>85 86</sup> This blatant noncompliance is widespread across HCA hospitals, earning the system scathing criticism from price transparency watchdog groups.<sup>87</sup>

These findings contrast sharply with a report released by North Carolina Attorney General Josh Stein, who said he was “encouraged with North Carolina hospitals’ widespread compliance,” after declaring 83% of hospitals fully compliant, including Mission HCA hospitals.<sup>88</sup> However, even the most basic overview of many hospitals’ machine-readable files would have exposed obvious failures in compliance, particularly for HCA Mission Health.<sup>89</sup>

## Discussion and State Legislation

Nationally, hospital noncompliance with federal price transparency rules is widespread, especially across the largest health systems, and federal enforcement has been criticized as weak and ineffectual.<sup>90 91 92</sup> CMS has issued more than 730 warning notices and 269 requests for corrective action plans across the United States as of April 2023.<sup>93</sup> But the agency has fined only 11 hospitals to date, and the fines total less than \$4 million.<sup>94</sup> CMS increased the financial penalties on larger hospitals, but compliance remains low.<sup>95 96</sup>

States have stepped into this vacuum and taken up enforcement themselves. Colorado prohibits hospitals from collecting on medical debt if the hospital is in violation of the federal price transparency rules.<sup>97</sup> Texas codified the federal price transparency rule into state law and strengthened enforcement mechanisms, allowing the state to fine noncompliant hospitals that collect more than \$10 million in annual gross revenue.<sup>98</sup>

North Carolina policymakers are considering similar legislation. The Medical Debt De-Weaponization Act would require large providers to post price information and would give enforcement powers to the North Carolina Attorney General, as well as strengthening consumer protections against medical debt.<sup>99</sup> The bill unanimously passed in the Senate and is awaiting action in the House.<sup>100</sup>

State lawmakers are also considering legislation to protect the future of the State Health Plan. With a \$24 billion unfunded liability, the State Health Plan has one of the worst unfunded liabilities in the nation due to high costs and the lack of legislative appropriations over decades. Its reserves are at risk of falling below the required threshold in less than two years, according to recent projections provided to members of the State Health Plan's Board of Trustees.

A **knee replacement** might cost...

**\$17,499**

at affordable hospitals.

**\$35,044**

at expensive hospitals.

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The North Carolina Senate's proposed budget would require the state's hospitals to cut costs for the State Health Plan by \$125 million beginning in 2024, creating critical savings that would account for nearly 8% of State Health Plan's projected \$1.56 billion spending on hospital expenditures in 2025. If hospitals refuse to help find these savings, the budget plan would revoke noncompliant urban hospitals' licenses to operate.<sup>101</sup>

The Senate budget plan also takes ambitious steps to reform Certificate of Need laws, loosening the restrictions on freestanding kidney dialysis centers, MRI scanning facilities, cancer radiation facilities and ambulatory surgical facilities in certain counties.<sup>102</sup>

North Carolina stands at a crossroads for public health and fiscal responsibility. Experts warn that double-digit health care price inflation is imminent, painting a bleak future for families already struggling with higher costs.<sup>103 104</sup> Hospital collection lawsuits are fueling intergenerational poverty and targeting families' main source of equity in their homes.

Patients can no longer afford to wait for reform. The General Assembly has already enacted historic CON reforms to strengthen competition and improve patients' access to affordable medical care.<sup>105</sup> The future of health care price transparency in North Carolina now rests with the House, which has not yet heard the Medical Debt De-Weaponization Act.

# Methodology and Limitations

The analysis used the Turquoise Health Database, which collects and compiles current hospital facility price data disclosed by United States hospitals under the federal Hospital Price Transparency Rule. Researchers obtained the commercially negotiated rates, cash prices, chargemaster prices and Medicare Advantage (MA) prices disclosed by 140 hospitals in North Carolina for a list of 16 common shoppable services in June 2023, identified by Current Procedural Terminology (CPT) or Diagnosis-related Group (DRG) codes. For each service, researchers calculated median prices for each hospital in each of the five market segments, aggregated across different insurers, plans, and service settings. Average hospital compliance with federal price transparency rules was calculated as a simple average because the price data does not include utilization data.

The analysis faced important limitations associated with failures in hospital compliance with federal price transparency laws. The hospital price transparency data is based on administrative records and might be subject to potential data inaccuracies. The availability of price data is contingent on hospitals' disclosure. Federal enforcement of price transparency rules has been widely criticized as weak, and, as a result, non-compliance is widespread.<sup>106</sup> As a result, this study likely underestimates hospital prices, especially for the common medical services that have the lowest compliance rates, such as childbirth or electrocardiograms. This underestimate likely extends across all services, however, as compliance rates are worst in highly

concentrated or monopolistic markets — where hospitals charge the most expensive prices. We are missing critical pricing data for Mission HCA Health, which is among the 16% most expensive hospital systems in the nation, with a rank of 49 out of 311 systems.<sup>107</sup> Without including one of the state's most expensive systems in our analysis, the results are at risk of critically understating hospital markups.

Price transparency is critical for uninsured patients because they are vulnerable to high prices and medical debt. Yet the patients most in need of protection are the least protected. The federal rules left a problematic loophole for “cash prices,” or the discounted price available to patients who pay cash themselves rather than relying on health insurance. CMS dictates that if hospitals have not yet “determined a discounted cash price for self-pay consumers... the hospitals' cash price would simply be the gross charges.”<sup>108</sup> Hospitals can therefore refuse to offer a discounted cash price and instead list the gross charge, which is highly inflated to maximize revenue. They can also conceal information about lower cash prices from patients and still appear compliant.

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## Appendix: The Number of North Carolina's 140 Hospitals That Disclosed Prices Across 16 Services

Code	Description	Commercial	Cash	Chargemaster	Medicare Advantage
81003	Automated urinalysis test	97	91	104	85
45378	Colonoscopy	71	54	63	70
85027	Complete blood test, automated	99	89	101	86
74177	CT scan of abdomen and pelvis with contrast	96	93	105	86
70450	CT scan, head or brain, without contrast	96	95	106	85
93000	Electrocardiogram, routine, with interpretation and report	25	12	14	19
47562	Gallbladder removal	51	26	31	41
470	Major joint replacement or reattachment of lower extremity	84	31	38	78
77066	Mammography of both breasts	89	84	93	79
73721	MRI of leg joint	92	90	97	83
70553	MRI scan of brain before and after contrast	92	89	99	83
42820	Removal of tonsils and adenoid glands for a patient younger than age 12	32	16	20	28
59510	Routine obstetric care for cesarean delivery, including pre-and-post delivery care	26	4	6	8
59400	Routine obstetric care for vaginal delivery, including pre-and-post delivery care	27	4	8	15
95810	Sleep Study	73	74	80	64
76805	Ultrasound of pregnant uterus	93	90	99	78

## Appendix: North Carolina Hospitals' Commercial, Cash and Medicare Advantage Prices Across 16 Services

Code	Description	Median Commercial	Median Cash	Median Chargemaster	Median Medicare Advantage	10th Percentile Commercial	90th Percentile Commercial
81003	Automated urinalysis test	\$28.80	\$31.20	\$52.00	\$2.36	\$5.00	\$58.65
45378	Colonoscopy	\$1,693.20	\$1,520.17	\$2,851.43	\$759.94	\$509.41	\$3,269.00
85027	Complete blood test, automated	\$58.30	\$55.38	\$104.00	\$6.79	\$12.05	\$88.40
74177	CT scan of abdomen and pelvis with contrast	\$2,857.17	\$2,788.75	\$5,213.00	\$370.93	\$810.00	\$4,433.25
70450	CT scan, head or brain, without contrast	\$1,167.23	\$1,067.88	\$2,019.00	\$108.44	\$298.89	\$1,620.00
93000	Electrocardiogram, routine, with interpretation and report	\$40.31	\$36.76	\$69.75	\$74.34	\$24.55	\$171.50
47562	Gallbladder removal	\$2,550.00	\$6,583.71	\$10,655.75	\$3,138.34	\$1,418.04	\$13,469.00
470	Major joint replacement or reattachment of lower extremity	\$26,305.00	\$28,837.67	\$57,150.32	\$13,869.44	\$17,498.62	\$35,043.92
77066	Mammography of both breasts	\$315.98	\$288.72	\$486.50	\$112.24	\$144.44	\$532.31
73721	MRI of leg joint	\$1,897.12	\$1,655.75	\$3,306.25	\$228.90	\$541.56	\$3,132.68
70553	MRI scan of brain before and after contrast	\$2,522.47	\$2,304.50	\$4,552.00	\$368.76	\$837.36	\$3,964.42
42820	Removal of tonsils and adenoid glands for a patient younger than age 12	\$2,888.49	\$4,616.36	\$5,960.07	\$5,028.10	\$697.95	\$12,370.00
59510	Routine obstetric care for cesarean delivery, including pre-and-post delivery care	\$3,850.31	\$3,470.10	\$8,070.00	\$2,629.86	\$2,550.00	\$6,456.00
59400	Routine obstetric care for vaginal delivery, including pre-and-post delivery care	\$3,769.48	\$3,041.83	\$6,704.25	\$4,540.99	\$2,550.00	\$5,255.38
95810	Sleep Study	\$2,679.57	\$2,307.60	\$3,905.00	\$894.68	\$1,118.00	\$3,345.40
76805	Ultrasound of pregnant uterus	\$466.16	\$414.56	\$760.00	\$106.88	\$180.84	\$724.08