



Insights



State of the industry

# An unseen crisis: hospital closures throughout the U.S. limit access to care

Structural pressures cause increased risk of facility closures, leaving communities with longer ambulance rides and more limited access to care.

*By Kemp Dolliver, CFA*

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### **The healthcare landscape is witnessing**

a concerning trend: the closure of hospitals nationwide, leaving communities vulnerable and increasing reliance on emergency medical transportation. With the wave of closures, patients are experiencing longer ride times, resulting in rising emergency medical transportation costs. According to the American Hospital Association (AHA), there are over 5,100 community hospitals in the United States. Approximately 3,300 (65%) hospitals serve urban/suburban areas, and 35% serve rural communities (Exhibit 1). Emergency rooms (ERs) are critical in hospital operations, serving as the hospital's front door. Nearly 90% of hospitals have ERs, accounting for over 50% of a hospital's admissions (55% for those aged 65+ and 44% for patients aged 64 and younger).<sup>1</sup>

The AHA's data also show that 76% of community hospitals are owned by non-profit organizations or state and local governments.<sup>1</sup> Many community hospitals earn modest profits on patient care and rely on some level of external financial support (tax revenue, government grants, donations, etc.) to survive. In addition, hospitals face several ongoing challenges: a high level of fixed costs, ongoing cost inflation, and incomplete control over reimbursement. As a result, the number of hospitals serving the US has decreased over time and likely will continue to do so. A hospital closing almost certainly means an ER closing, potentially leading to longer ambulance rides and reduced emergency medical system (EMS) capacity.

As shown in Exhibit 2, data from the AHA show that over 100 hospitals have closed over the four years ending in 2021: 30 (net) urban and 75 (net) rural hospitals have closed.<sup>2</sup> Even though the problem spans the country, the impact of these closings is particularly acute in rural communities. The Center for Healthcare Quality and Payment Reform notes, "The majority of the communities they serve are at least a half-hour drive from the nearest alternative hospital, and many communities have no alternate sources of health care."<sup>3</sup>



**With the wave of closures, patients are experiencing longer ride times, resulting in rising emergency medical transportation costs.**

1: American Hospital Association, "Fast Facts on U.S. Hospitals," 2024

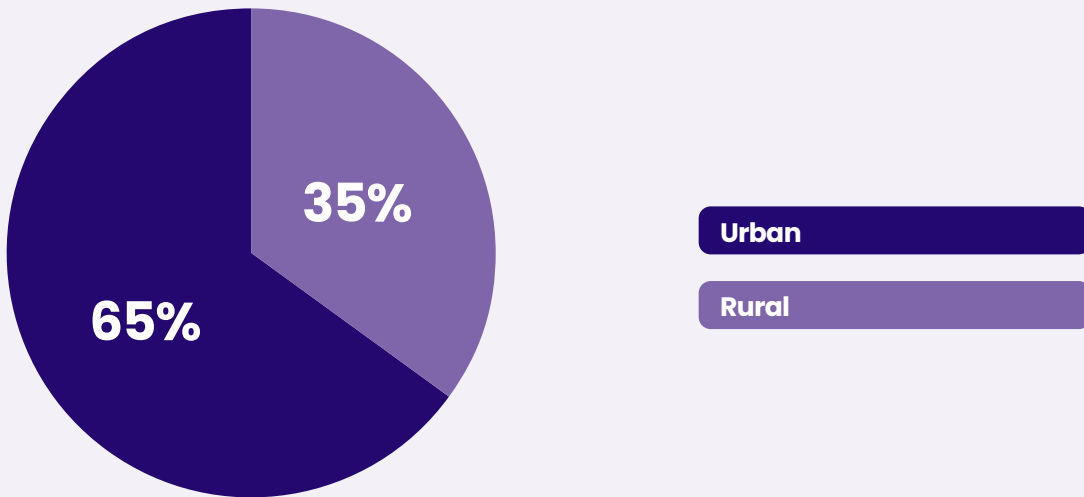
2: American Hospital Association, "Fast Facts on U.S. Hospitals: Infographic," 2023

3: Center for Healthcare Quality and Payment Reform, "Problems and Solutions for Rural Hospitals," 2023

### Exhibit 1

Approximately 65% of community hospitals in the U.S. serve urban/suburban areas and the remaining 35% serving rural communities.

**U.S. community hospitals: urban v. rural (2022)**



Source: American Hospital Association

### Exhibit 2

Over 100 hospitals have closed over the four years ending in 2021: 30 (net) urban and 75 (net) rural.

**Declining number of hospitals: 2017–2021**

	Urban	Rural
<b>2017</b>	3,387	1,875
<b>2018</b>	▼ 3,377	▼ 1,821
<b>2019</b>	▼ 3,336	▼ 1,805
<b>2020</b>	▲ 3,343	▼ 1,796
<b>2021</b>	▲ 3,357	▲ 1,800

Source: American Hospital Association

# Key factors

**A confluence of factors threatens the sustainability of healthcare facilities, particularly those serving rural and underserved areas.**

## High fixed costs

To be in the game, a hospital must maintain a minimum level of employees, equipment, physical plant, and services. Most of these costs do not flex based on demand. This challenge becomes more daunting as the hospital gets smaller in size. A Journal of the American Medical Association study estimated that 84% of expenses in a large urban teaching hospital were fixed.<sup>4</sup>

## Availability of skilled labor

Hospitals require people with specialized training, whether doctors, nurses, or technicians. The facility must generate enough revenue to cover these costs, which can be more challenging for smaller hospitals.

It's also important to note that the growth rate of the rural population is about ½ that of the total population (Exhibit 3).<sup>5</sup> As a result, rural hospitals face greater difficulty retaining skilled medical staff and offsetting their fixed costs with increased patient activity.

## Reimbursement

Small hospitals typically provide low acuity (basic) services with relatively low reimbursement and little or no margin. The data in Exhibit 4 from Definitive Healthcare illustrates this dynamic. These small hospitals refer their complex patients (heart attacks, trauma, etc.) to larger hospitals (typically urban) that provide those services and receive higher reimbursement. These transfers usually involve a ride in an ambulance or helicopter.<sup>6</sup>

## Structurally low profitability and limited access to capital

Over 75% of hospitals are non-profit or government-owned and do not seek to maximize profitability. As shown in the chart below, the average profit margin on patient services is in the low single digits, which leaves little room for error.<sup>7</sup>

The large, well-known health systems (Mass General Brigham, Johns Hopkins, Mayo Clinic, Cleveland Clinic, etc.) earn modest profits on patient services supplemented with research grants, endowment income, and fundraising. For example, Mass General Brigham reported an operating loss of \$48MM on revenue of \$18.8B while investment gains from its \$22B+ endowment and other income resulted in a profit of \$1.2B for the fiscal year ended September 30, 2023.<sup>8</sup>

## Cost pressures

Hourly wages are increasing by 3.1% annually with little volume growth to mitigate the effects (Exhibit 6).<sup>9</sup> AHA estimates that hospital supply expenses per patient increased by 18.5% between 2019 and 2022.<sup>10</sup>

4: Journal of the American Medical Association, "Hospital cost structures: Distribution of variable vs fixed costs of hospital care," 1999

5: U.S Census Bureau, 2020 and 2010, <https://data.census.gov/>

6: Definitive Healthcare, "A look at hospital operating margins in the United States," 2022

7: Kaufman Hall, "National Hospital Flash Report," 2023

8: Mass General Brigham press release, "Mass General Brigham Reports Fiscal Year 2023 Financial Results," 2023

9: Bureau of Labor Statistics, November 2023

10: American Hospital Association, "Costs of Caring," 2023

### Exhibit 3

The rate of growth in the rural population is approximately half that of the total population, causing rural hospitals greater challenges when it comes to retaining qualified medical professionals.

#### Composition of U.S. population: 2020 v. 2010 (000s)

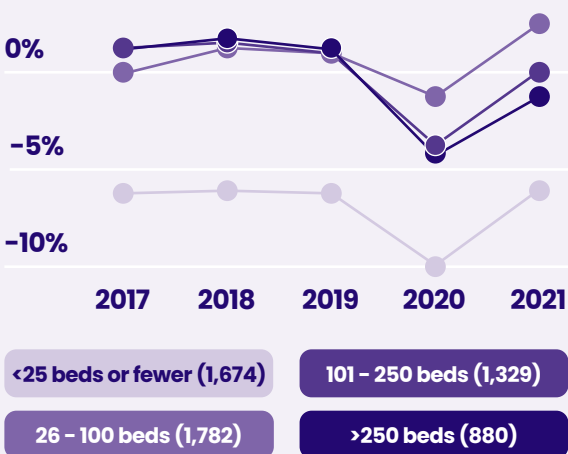
	2020*	2010	Annual % change
<b>U.S. population</b>	331,000	309,300	0.7%
<b>Urban</b>	269,000	249,605	0.8%
<b>Rural</b>	62,000	59,695	0.4%

Source: U.S. Census Bureau \*2020 data adjusted to be consistent with 2010 definitions

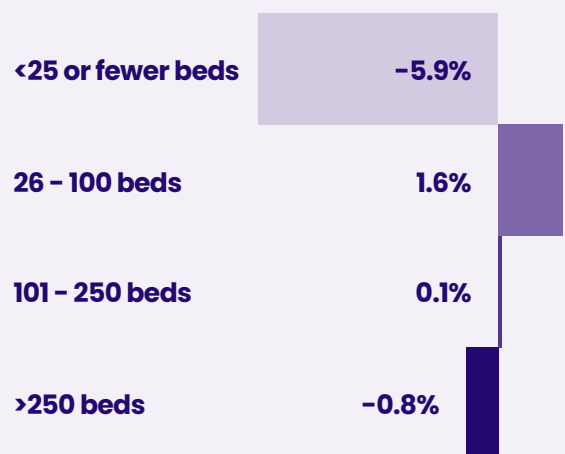
### Exhibit 4

Smaller hospitals typically provide more basic medical services associated with lower reimbursement rates and smaller profit margins.

#### Historical operating margin by bed size



#### 2021 median operating margin by bed size

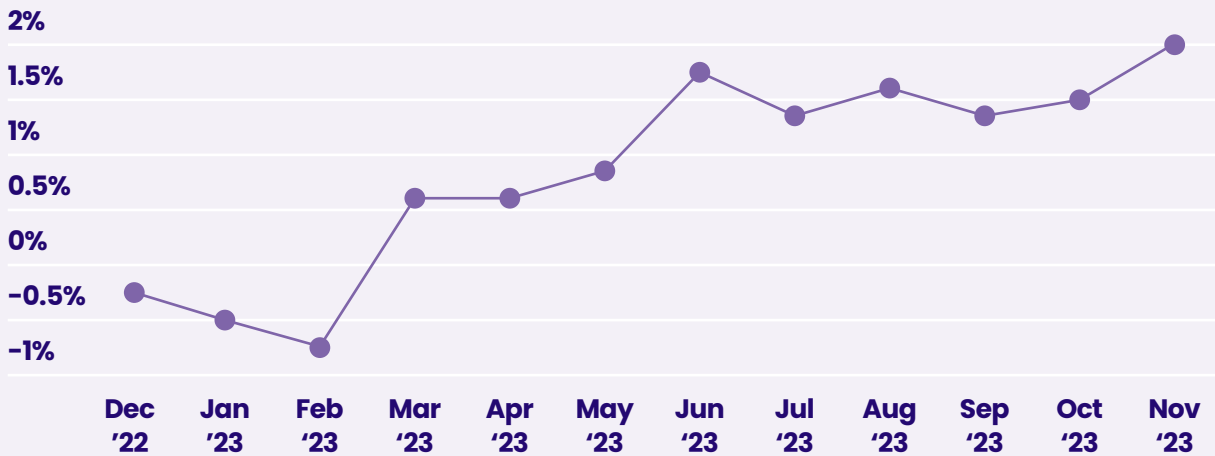


Source: Definitive Healthcare HospitalView product and sourced from the Medicare Cost Report. Current data based on the October 2022 release.

### Exhibit 5

Over 75% of hospitals are non-profit or government-owned and do not seek to maximize profitability.

#### Kaufman Hall CYTD operating margin index

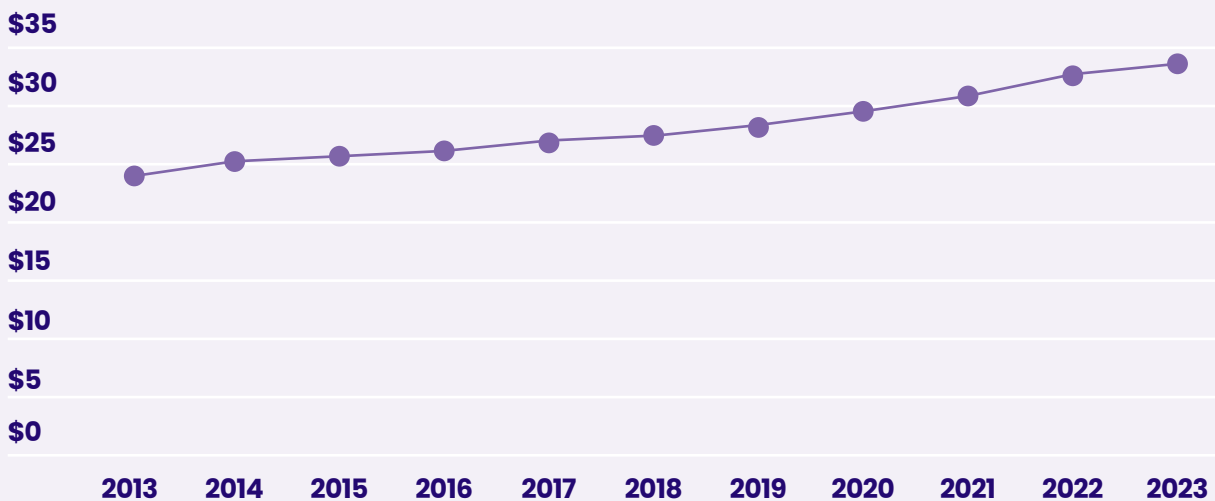


Source: Kaufman Hall, National Hospital Flash Report (December 2023)  
Note: The Kaufman Hall Hospital operating margin and operating EDITDA margin indices are comprised of the national median of our dataset adjusted for allocations to hospitals from corporate, physician, and other entities.

### Exhibit 6

Staffing costs continue to increase with insufficient growth in services volume to mitigate the effects.

#### Average hourly earnings of all employees, health care and social assistance



Source: Bureau of Labor Statistics, November data

# Measuring the risk

According to the Center for Healthcare Quality and Payment Reform, roughly 600 hospitals (1/3 of rural hospitals) are at risk of closing because of these structural factors (Exhibit 7). In particular, these hospitals lose money on patient services and have net assets that can offset losses for up to 6-7 years. A subset of 300 (50%) of these hospitals are at immediate risk of closing because they have even less financial reserves. Hospitals at immediate risk of closing have lost money on patient services for years and only have enough reserves to offset their losses for up to 2-3 years.<sup>11</sup>

## The impact of facility closures

Hospital closures can increase travel distance to the nearest hospital—and an increase in distance means an increase in emergency transportation time overall. Current research indicates that facility closure increases emergency transportation time by 5 minutes and total activation times (time from 9-1-1 call to time EMS will accept the next call) by 10 minutes compared to the year before closure.<sup>12</sup>

Longer transport times could lead to adverse health outcomes. Unfortunately, admissions through EMS tend to be more acute (such as a heart attack) and for trauma (motor vehicle collision), where timely response is a critical determinant in survival. Take a closer look at three studies that demonstrate this relationship:

### Study 1

A 2017 study analyzing the impact of longer Helicopter Emergency Medical Service (HEMS) on-scene and dispatch times found some

association with increased mortality in trauma patients and recommended finding ways to reduce on-site and transport times. According to the authors, “Trauma patients with a dispatch time between 0 and 10 min had a lower mortality rate (0%) than patients with longer dispatch times. Patients with a dispatch time lasting >60 min had the highest mortality rate (20%).”<sup>13</sup>

### Study 2

A study of Utah’s Bureau of Emergency Medical Services data measured the impact of response time on mortality and hospital utilization and found that response times significantly affect mortality and the likelihood of being admitted to the hospital. This paper found a “one-minute increase in EMS response time increases mortality by 8% and 17%.”<sup>14</sup>

### Study 3

A national study of over 2,200 U.S. counties identified an association between longer EMS response times and higher motor vehicle mortality rates. This study noted, “The MVC mortality rate was significantly higher in counties with longer response times. In counties with response times of 12 minutes or greater, the mortality rate was 11.9 per 100,000 person-years; counties with response times of less than 7 minutes had a mortality rate of 4.9 per 100,000 person-years.” Further, “This finding was consistent in both rural/wilderness and urban/suburban settings.”<sup>15</sup>

These studies highlight the impact of facility closures on patients. Longer ride and response times mean increasing emergency transportation costs and the possibility of negative health outcomes due to delayed care.

11: Center for Healthcare Quality and Payment Reform, “Rural Hospitals at Risk of Closing,” 2023

12: Health Services Research, “Impacts of hospital closures: The effect of rural hospital closures on emergency medical service response and transport times,” 2020

13: Trauma Surgery & Acute Care Open, “On-scene times for HEMS and mortality: Faster on-scene times associated with decreased mortality in Helicopter Emergency Medical Services (HEMS) transported trauma patients,” 2017

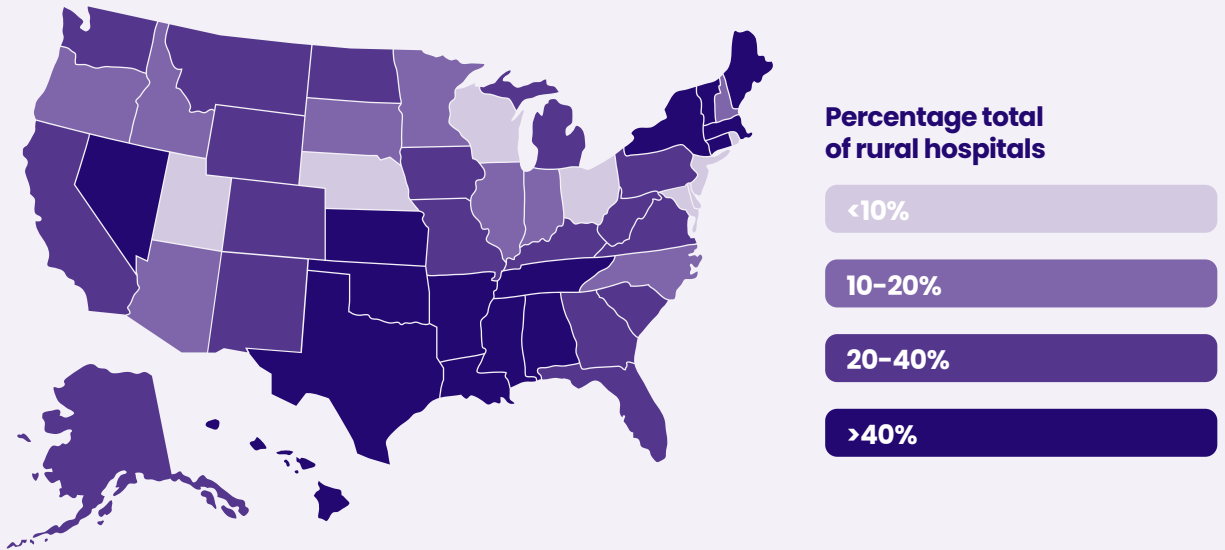
14: Health Economics, “Do emergency medical system response times matter for health outcomes?,” 2012

15: JAMA Surgery, “Association between emergency medical service response time and motor vehicle crash mortality in the United States,” 2019

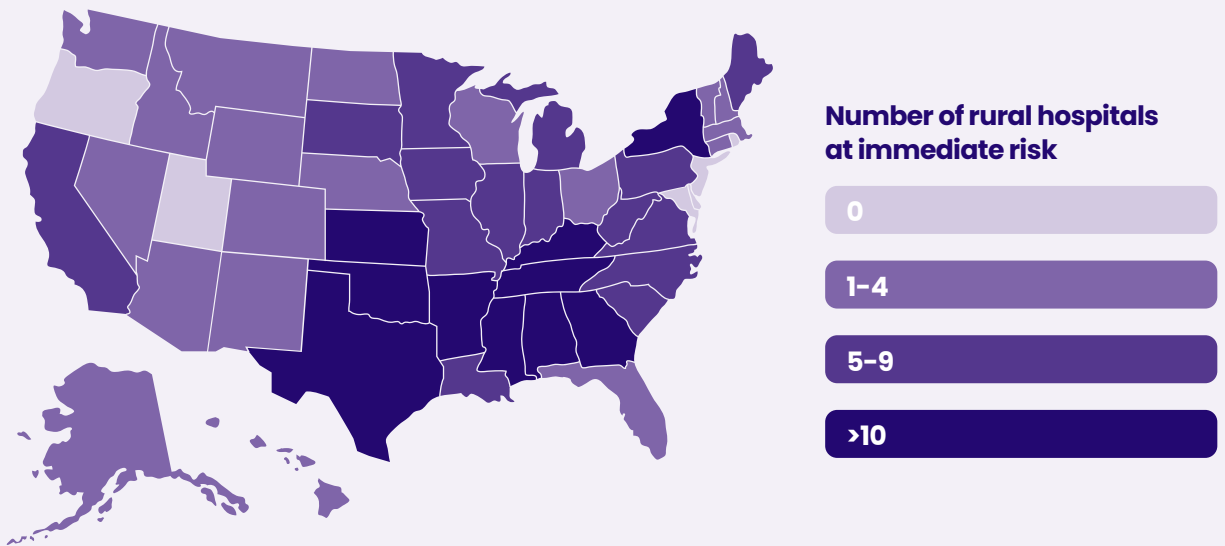
### Exhibit 7

Approximately 600 hospitals in the US are at risk of closure due to structural factors, with around 300 of those at immediate risk of shutting down due to limited financial reserves.

#### Rural hospitals at risk of closing



#### Rural hospitals at risk of *immediate* closing





## An increase in “maternal care deserts”

In a related development, the availability of obstetric services (OB) is under pressure. According to an article in the January 2023 edition of JAMA Health Forum, “more than 400 maternity services closed between 2006 and 2020. Between March and June 2022 alone, 11 health systems announced they were closing their obstetric services, citing low birth volumes and staffing challenges.”<sup>16</sup> A separate analysis by consulting firm Chartis found, “Between 2011 and 2021, 267 rural hospitals closed OB services, representing 25% of all rural OB units in the U.S.” and “Nearly 25% of hospitals that eliminated OB services since 2011 were considered “vulnerable to closure.” This study found increased driving times for expecting mothers in communities that lost OB services of 15-30 minutes in 115 and 30-45 minutes in 95 communities.<sup>17</sup> The shrinking availability of this critical medical service in both urban and rural areas could lead to longer transport times in emergency situations.

## Medicare payment reform = more closures?

The weakening financial position of the Medicare Hospital Insurance trust fund, the industry's largest payer at 26% of revenue, suggests that significant Medicare legislation is likely in the next few years. The 2023 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds reports that the estimated depletion date for the Hospital Insurance trust fund is 2031 (seven years).<sup>18</sup>

In the past, insolvency projections of less than ten years in the future have led Congress to enact significant legislation (TEFRA '83, BBA '97)<sup>19</sup> that included reductions in Medicare payments to hospitals, forcing increased efficiency and some hospital closures. In fact, AHA data show that the number of hospitals declined during the four years following the enactment of the Balanced Budget Act of 1997.<sup>20</sup> While the specifics of any future legislation are unknown, the goals of this legislation (slow growth in Medicare spending) are well-defined.

These budget pressures likely will continue, particularly as the population aged 65+ increases. The Centers for Medicare and Medicaid Services projects that the Medicare population will grow from 63.6MM in 2022 to 76.4MM in 2031), with this increased demand straining facilities, hospital staff, and budgets.<sup>21</sup>

## Conclusions

The declining number of hospitals is one of the key factors behind rising emergency medical transportation costs. Hospital (and ER) closures result from industry (structural, market) and hospital-specific pressures. The hospital industry operates with a narrow margin for error (low profitability) and significant adverse changes in the operating environment (pandemic, severe economic downturn), which can push a facility over the edge. Further, the nature of hospital operations (high fixed costs, multiple service lines) favors more extensive facilities that address the needs of larger service areas. Finally, the Medicare program's declining solvency will force Congress to enact legislation to slow the program's spending growth in the next few years. This combination of pressures will lead to further hospital closures.

16: JAMA Health Forum, “Maternity Care Deserts in the US,” 2023

17: The Chartis Group, LLC, “Rural America's OB Deserts Widen in Fallout from Pandemic,” 2023

18: Medicare Hospital Insurance trust fund data: 2023 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and Federal Supplementary Medical Insurance Trust Funds and Congressional Research Service; Medicare: Insolvency Projections.

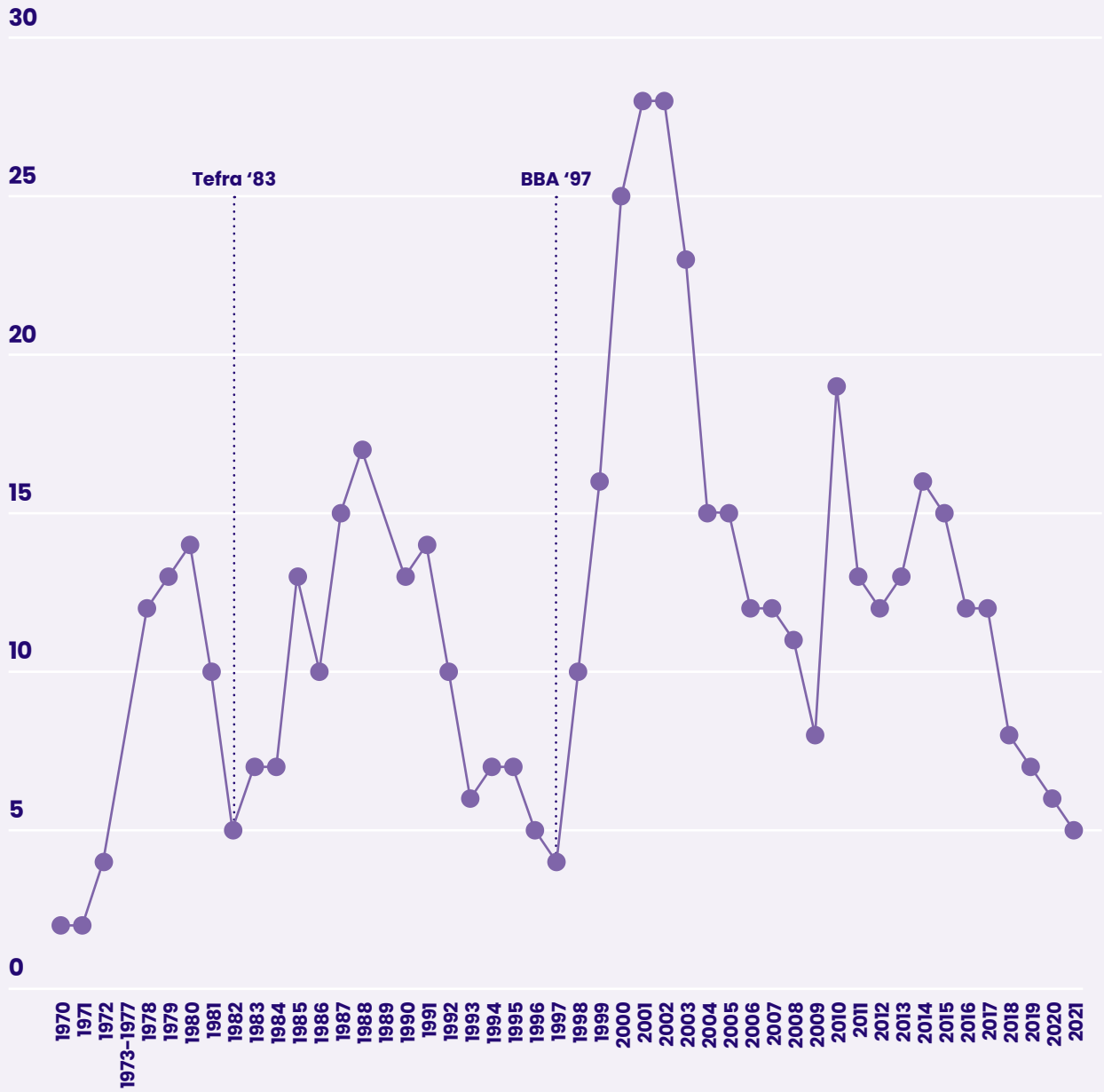
19: United States Congressional Statute 96.324

20: American Hospital Association, “Trendwatch Chartbook 2018,” 2018

21: Health Management Associates, “CMS releases national healthcare expenditure and enrollment projections through 2031,” 2023

### Exhibit 8

In response to insolvency projections, Congress has historically enacted legislation to reduce Medicare payments to hospitals, resulting in increased efficiency and hospital closures.



Source: Intermediate projections of various Medicare Trustees Reports, 1970-2021  
Note: No specific estimates were provided by the Medicare trustees for years 1973-1977 and 1989.  
Source: Congressional Research Service; Medicare: Insolvency Projections (prior legislation added by the author)

## About the author

Kemp Dolliver, CFA, is the owner of Cherrystone Hill Consulting. He has over 35 years of experience as a healthcare analyst and investor in the public markets in both the U.S. and Asia. MASA Global has commissioned this white paper. The views, thoughts, and opinions expressed in this white paper belong solely to the author based on sources deemed to be reliable. Kemp Dolliver and Cherrystone Hill Consulting assume no responsibility or liability for any errors or omissions in the content of this white paper. The information contained in this document is provided on an “as is” basis with no guarantees of completeness, accuracy, usefulness, or timeliness.



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