An Inside Look at Pennsylvania Hospitals





An Inside Look at Pennsylvania Hospitals

# **HAP Center for Health Policy Research March 2022**





# **Contents**

Introduction	1
Pennsylvania Hospitals by the Numbers	1
Hospitals by Service Type	1
Additional Characteristics of Pennsylvania Hospitals	3
Key Services Provided by Pennsylvania Hospitals	4
Patient Demographics for Pennsylvania Hospitals	4
Financial Facts about Pennsylvania Hospitals	5
Hospital Net Revenue by Payor Source	5
Financial Status of Pennsylvania Hospitals and the Effect of COVID-19	7
Uncompensated Care at Pennsylvania Hospitals	8
Health Care Workforce Profile	8
Gender	9
Race and Ethnicity	9
Age	9
Key Roles for Pennsylvania Hospitals	9
The Role of Hospitals in Rural Areas	9
Community Health Needs Assessments and Community Benefit	10
The Role of Hospitals in Emergency Management in Pennsylvania	10
Trauma Centers in Pennsylvania	11
Providing Safe, High-Quality Care	12
Pennsylvania Hospitals as Leaders in Research and Innovation	13
Achieving Excellence in Nursing	13
Challenges for Hospitals in Ensuring a Healthy Pennsylvania	14
Obstetric and Neonatal Services	14
Complexity and Rapid Changes in Reimbursement Models	14
Staffing Shortages	15
Growing Consumerism Driving Demand for Greater Transparency	16
Regulatory Burdens	17
Challenges in Health Information Sharing/Data Exchange	17
The Rising Cost of Supplies	18

Insufficient Reimbursement	19
Changing Demographics and Health Care Disparities	19
Pennsylvania's Hospitals and Health Systems Rising to Meet Challenges	22
Participating in State Initiative to Address Racial Health Disparities	22
Investigating the Social Determinants of Health in Black Communities	23
Consolidation of Hospital Market Through Mergers and Acquisitions	24
Implementing Innovative Payment Models	25
The Growth of Health Information Exchange	26
Progress in Implementing Health Information Technology	27
Telehealth	28
Conclusion	29
Endnotes	30

## Introduction

Hospitals in the Commonwealth of Pennsylvania provide critical services to their citizens every day, working with and within their communities to serve their diverse and changing needs. This work includes cutting-edge research, population health programs, and delivering safe high-quality care within their walls and out in the community.

Pennsylvania does not have a public hospital system, therefore hospitals throughout the state are open 24 hours a day, seven days a week. They see all patients, regardless of their ability to pay, and often serve as financial assistance partners to help patients pay for care.

While providing these critical services, Pennsylvania hospitals face several challenges and, as a result, are always developing innovative ways to meet the need of their patients. This report tells the story of these hospitals and how they fulfill their mission.

# **Pennsylvania Hospitals by the Numbers**

## **Hospitals by Service Type**

Pennsylvania has 271 hospitals that provide health care services to the commonwealth's residents<sup>1</sup>. Figure 1 shows a map of where these hospitals are located. The state's hospitals provide a range of services to meet the health care needs of patients. The Hospital and Healthsystem Association of Pennsylvania (HAP) represents 235 member hospitals, 87 percent of all hospitals statewide and 92 percent those that are not government-owned. This report examines all Pennsylvania hospitals regardless of HAP membership. The data presented in this report are based on the most current sources available as of March 2022.

As Table 1 illustrates, 60 percent of Pennsylvania's hospitals are general acute care (GAC) hospitals. GAC hospitals provide a wide range of services like 24-hour emergency departments in addition to inpatient and outpatient services. Pennsylvania also has 31 hospitals dedicated to providing psychiatric or substance use treatment.



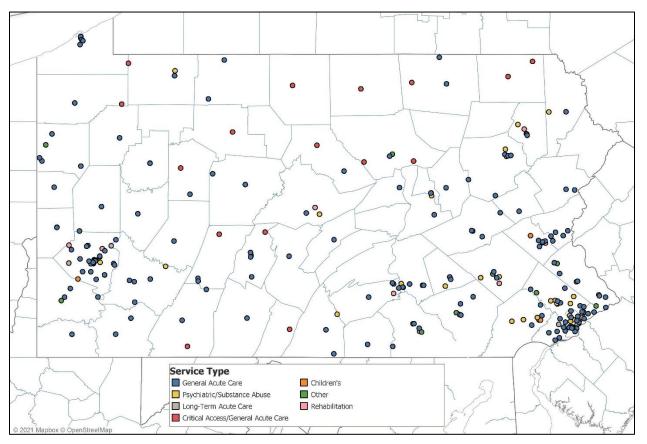


Table 1
Pennsylvania Hospitals by Service Type

Service Type	Count	Percent
General Acute Care	161	60%
Psychiatric/Substance Use	31	11%
Rehabilitation	22	8%
Long-Term Acute Care	17	6%
Critical Access/General Acute Care	16	6%
Children's	10	4%
Other	14	5%
Total	271	100%

Eight percent of the commonwealth's hospitals are dedicated to providing physical rehabilitation services for patients, while 6 percent of hospitals are long-term acute care (LTAC) hospitals. LTACs care for patients with medical problems that require special treatment for an extended period of time and require more resource-intensive care than what is provided in a skilled nursing facility, nursing home, or acute rehabilitation facility.

There are also 16 critical access hospitals (CAH) located in Pennsylvania. The CAH designation is designed to reduce the financial vulnerability of rural GAC hospitals and improve access to health care by keeping essential services in rural communities. To accomplish this goal, CAHs receive certain benefits, such as cost-based reimbursement for Medicare services<sup>2</sup>.

Ten hospitals in Pennsylvania serve the medical, psychiatric, and rehabilitation needs of children. The remaining 5 percent of the commonwealth's hospitals provide care in other specialties such as maternal care, orthopedics, and eye care.

# Additional Characteristics of Pennsylvania Hospitals

As Table 2 shows, Pennsylvania hospitals vary in size, geographic location, governance, and the roles they play in supporting the health of their communities<sup>3</sup>. For hospitals in the state:

- 82 percent are licensed while 18 percent share a license with other hospitals
- 17 percent are located in rural areas<sup>4</sup>
- 52 percent are considered small hospitals with fewer than 100 beds

**Table 2 Fast Stats About Pennsylvania Hospitals** 

Characteristic	Count	Percent
Total Hospitals	271	100%
License Status		
Licensed	222	82%
Shares License	49	18%
Rural		
Yes	47	17%
No	224	83%
Bed Size		
Small (Less Than 100 Beds)	142	52%
Large (100 Beds or More)	129	48%
System or Independent		
System (39 systems)	228	84%
Independent	43	16%
Teaching Status		
Non-Teaching	169	62%
Teaching	102	38%
77 0		
Governance/Tax Status		
Non-profit	189	70%
Investor-owned	67	25%
Federal or State Government	15	5%
HAP Member		
Yes	235	87%
No	36	13%
Services Provided		
Psychiatric	94	35%
Obstetrics	81	30%

- 84 percent are part of a hospital system (there are 39 hospital systems in Pennsylvania)
- 38 percent are teaching hospitals that provide medical training to health professionals
- 70 percent are non-profit, 25 percent are investor-owned, and 5 percent are overseen by federal or state government

- Page 4
  - 87 percent are members of The Hospital and Healthsystem Association of Pennsylvania
  - 35 percent provide psychiatric services and 30 percent provide obstetric services

## **Key Services Provided by Pennsylvania Hospitals**

During 2020, Pennsylvania hospitals provided<sup>5</sup>:

- 1.4 million inpatient discharges
- 4.9 million emergency department (ED) visits
- 37.9 million outpatient visits
- 40,650 staffed beds
- 123,376 births
- 49 trauma centers
- 7 burn centers

## **Patient Demographics for Pennsylvania Hospitals**

An analysis of inpatient discharge data for Pennsylvania hospitals<sup>6</sup> shows that patients that have stayed at Pennsylvania hospitals are typically older than the general population in the state. Table 3 shows that, while 19 percent of the state's population is age 65 or older, 42 percent of inpatient discharges are older than the age of 64.

This analysis also shows hospital inpatient discharges largely reflect the racial make-up of the commonwealth. During fiscal year (FY) 2020, Blacks represent 14 percent of hospital inpatient discharges in Pennsylvania and 12 percent of the state's population overall. In addition, while 5 percent of inpatient stays identify their ethnicity as Latino/Hispanic, 8 percent of the state's population fits this ethnicity profile.

Table 3

Demographics Comparison between Hospital Inpatient Discharges and the Overall Population in Pennsylvania

Demographic	Hospital Inpatient Discharges at Pennsylvania Hosptial, FY 2020 (%)	Overall Population in Pennsylvania, July 2019 Estimate (%)
Age		
Persons under 65 years	12%	20%
Persons 19-64 years	46%	61%
Persons 65 years and over	42%	19%
Race		
White alone	77%	82%
Black or African American alone	14%	12%
Asian alone	1%	4%
American Indian and Alaska Native alone	0.1%	0.4%
Native Hawaiian and Other Pacific Islander alone	0.1%	0.1%
Two or more races/Other	7%	2%
Ethnicity		
Hispanic or Latino	5%	8%

# **Financial Facts about Pennsylvania Hospitals**

# **Hospital Net Revenue by Payor Source**

Hospital net patient revenue is the revenue hospitals receive specifically for patient care. Hospitals in Pennsylvania received \$48 billion in net patient revenue during FY 2020<sup>7</sup>. This revenue comes from three principal payors: Medicare, Medicaid, and commercial insurers. Hospitals also may receive net patient revenue from other sources, such as workers' compensation or out-of-pocket payments by patients. The different types of hospitals in the state receive varying degrees of support from the different payor types<sup>8</sup>, as illustrated in Figure 2.

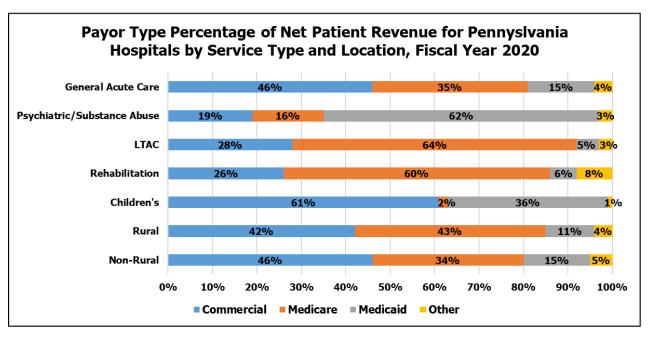


Figure 2

As Figure 2 shows, GAC hospitals in Pennsylvania received more than 80 percent of their net patient revenue from two payor types: commercial insurers (46%) and Medicare (35%). GAC hospitals receive 15 percent of net patient revenue from Medicaid and 4 percent from other payor types. GAC hospitals account for more than 90 percent of net patient revenue generated by Pennsylvania hospitals.

Figure 2 illustrates that Psychiatric and Substance Use treatment hospitals in Pennsylvania rely heavily on Medicaid, receiving 62 percent of net patient revenue from this payor type. These hospitals receive 19 percent of their net patient revenue from commercial insurers, 16 percent from Medicare, and 3 percent from other payors.

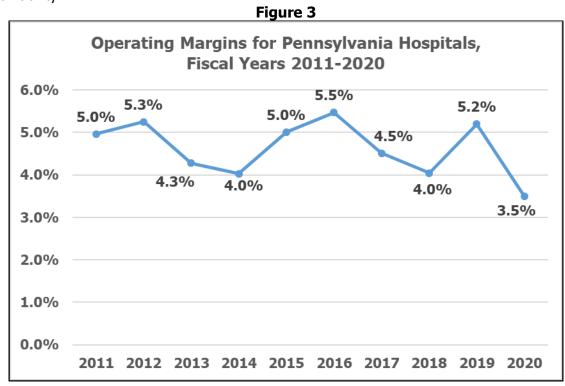
According to Figure 2, the commonwealth's LTACs and Rehabilitation hospitals receive most of their net patient revenue through Medicare (64 percent for LTACs and 60 percent for Rehabilitation hospitals). These two types of hospitals also receive about a quarter of their net patient revenue from commercial insurers (28 percent for LTACs and 26 percent for Rehabilitation hospitals). Rehabilitation hospitals also receive 6 percent of their net patient revenue from Medicaid and 8 percent from other payor types, respectively, while LTACs receive 5 percent of their net patient revenue from Medicaid and 3 percent from other payor types. Figure 2 also shows that Children's hospitals in Pennsylvania see the great majority of their net revenue come through commercial insurers (61%) and Medicaid (36%). Less than 4 percent come from Medicare or other payor types.

Figure 2 illustrates that hospitals located in rural areas of the state rely heavily on Medicare for their net patient revenue. Medicare accounts for 43 percent of net patient revenue for rural

hospitals, while commercial payors make up an additional 42 percent. Rural hospitals receive 11 percent of their net patient revenue from Medicaid and 4 percent from other payor types. In addition, Figure 2 shows that Pennsylvania hospitals in non-rural areas receive 34 percent of their net patient revenue from Medicare, 46 percent from commercial payors, 15 percent from Medicaid, and 5 percent from other payor types.

## Financial Status of Pennsylvania Hospitals and the Effect of COVID-19

Analyzing the last decade of financial data for Pennsylvania hospitals shows a cyclical trend in their financial well-being<sup>9</sup>, but the most recent downturn due to COVID-19 likely will mean a longer road to recovery. As Figure 3 shows, downturns in operating margins for Pennsylvania hospitals during recent years have been followed by increases for this financial indicator soon thereafter. But during FY 2020, operating margins dropped to 3.5 percent, their lowest mark since 2009. In addition, during FY 2020, 38 percent of hospitals posted negative operating margins and nearly one-in-five hospitals (18%) in Pennsylvania experienced margins between 0 and 4 percent, a rate below what is needed to maintain hospital infrastructure and long-term sustainability<sup>10</sup>.



COVID-19 impacted hospitals' revenues substantially due to the suspension of scheduled procedures and a general decrease in utilization. Hospitals' expenses also increased as a result of the unique circumstances brought on by the COVID-19 pandemic.

The Pennsylvania Health Care Cost Containment Council (PHC4) surveyed Pennsylvania hospitals to quantify these financial effects of the COVID-19 disaster<sup>11</sup>. The data hospitals provided shows that between January 2020 and September 2021, the commonwealth's

hospitals experienced total losses of \$6,925,269,148 due to COVID-19-related expenses and lost revenue. The breakdown of this total cost is shown in Table 4 below. These losses due to COVID-19 are underestimated because not all hospitals responded to PHC4's survey. Though Pennsylvania hospitals have received more than \$2.8 billion in federal relief funds, this amount falls short of covering these losses.<sup>12</sup>

Table 4

Breakdown of COVID-19 Related Expenses and Revenue Losses for Pennsylvania
Hospitals, through September 2021

Expense & Revenue Loss	Pennsylvania Total
Staffing Expenses	\$794,993,894
Testing Expenses	\$264,477,008
Supplies & Equipment Expenses	\$524,417,054
Construction Expenses	\$27,631,307
Housing Care Expenses	\$7,980,494
Other Expenses	\$346,105,113
Revenue Loss	\$4,959,664,279
Total	\$6,925,269,148

## **Uncompensated Care at Pennsylvania Hospitals**

Pennsylvania hospitals provide extensive charity care (i.e., care that the facility provides without charge) to their communities. Charity care plus bad debt (i.e., those charges hospitals initially anticipated would be paid but later determined were uncollectible) together comprise the hospital's total uncompensated care costs. According to data from PHC4's financial reports, Pennsylvania hospitals reported a loss of \$826 million in foregone revenue stemming from their uncompensated care contributions during FY 2020.<sup>13</sup>

# **Health Care Workforce Profile**

Hospital employees represent approximately 30 percent of the health care workforce in Pennsylvania. Table 5 illustrates what the diversity of the commonwealth's health care workforce looks like.

Table 5
Demographics for the Heath Care Workforce in Pennsylvania and the United States

	Physicia	ns	Registered	Nurses	Physician As	sistants	Nurse Prac	ctitioners
Demographic	Pennsylvania	US	Pennsylvania	US	Pennsylvania	US	Pennsylvania	US
Gender								
Male	63%	63%	8%	13%	29%	36%	11%	18%
Female	37%	37%	92%	87%	71%	64%	89%	82%
Race								
White	77%	56%	91%	73%	94%	81%	Not Available	Not Available
Black	4%	5%	5%	8%	2%	3%	Not Available	Not Available
Asian	18%	17%	3%	5%	3%	6%	Not Available	Not Available
Other	1%	22%	1%	14%	1%	10%	Not Available	Not Available

March 2022 Page 9

#### Gender

As Table 5 shows, the ratio of males to females for physicians, registered nurses, and other allied health professions in Pennsylvania were comparable to what is represented nationally. As Table 5 shows, physicians in the commonwealth were 63 percent male and 37 percent female which mirrors national figures. <sup>14</sup> In addition, Table 5 illustrates that other health care professionals, such as registered nurses, physician assistants, and nurse practitioners were predominantly female in both the U.S. and Pennsylvania.

## **Race and Ethnicity**

According to Table 5, of physicians practicing direct patient care in Pennsylvania, 77 percent were White, followed by 18 percent who were Asian, 4 percent who were Black, and 3 percent Hispanic or Latino.<sup>15</sup> Among active physicians in the United States, 56 percent identified as white, 17 percent as Asian, and 5 percent as Black.<sup>16</sup>

Pennsylvania was ranked as the state with the third most certified physician assistants, only behind New York and California.<sup>17</sup> Table 5 shows that 94 percent of physician assistants in Pennsylvania were White, 3 percent were Asian, and 2 percent were Black.<sup>18</sup> During 2020, it was reported that 81 percent of certified physician assistants in the United States were White, 6 percent were Asian, and 3.3 percent were Black.<sup>19</sup>

Table 5 illustrates that the registered nurses in Pennsylvania were predominantly White (91%), 5 percent Black, and 3 percent Asian.<sup>20</sup> Nationally, the distribution of registered nurses by race was 73 percent White, 8 percent Black, and 5 percent Asian.<sup>21</sup>

## Age

As shown in Table 5, the average age of physicians in Pennsylvania is four years older than the average age of practicing physicians in the rest of the country, 50 years compared to 46 years. The aging workforce is an issue that will impact the number of providers available as doctors reach retirement age. Difference in the ages of registered nurses also are seen at state and national levels. In Pennsylvania, the average age of registered nurses during 2014 was 48 years, with the largest number (15%) in the 55–59 age group. Comparatively, the median age of registered nurses nationally was 43 years with nearly 68 percent over the age of 35 during 2020. Physician assistants are a young and growing workforce. The average age of physician assistants in Pennsylvania is 37 years, Compared to the median age of 39 years (42 percent between 25 and 34 years) nationally.

# **Key Roles for Pennsylvania Hospitals**

# The Role of Hospitals in Rural Areas<sup>28</sup>

Hospitals play a major role, along with rural health clinics, Federally Qualified Health Centers (FQHC), and various other care providers, to deliver health care services to vulnerable populations in rural areas of Pennsylvania. As noted earlier in the report, there are 47 hospitals located in rural areas of the commonwealth. Local hospitals provide general acute care services close to home for families in rural parts of the state. In addition, primary care providers are

March 2022 Page 10

more likely to be found in areas that have easy access to a hospital. Hospitals in these areas can attract nurses and other health care specialists, who then may contribute additional health and human services outside of the hospital in community-based settings.

Furthermore, as rural hospitals serve as the anchor for access to care across the health care continuum, services can potentially be provided in several ways, including ambulatory care services, rehabilitation, home care, long-term care, behavioral health, hospice, and other services. In many rural counties, these services are available because the local hospital has developed them in response to local needs.

Rural hospitals and the provision of rural health care face several challenges including new and expensive technology, limited opportunities for economies of scale, limited numbers of local primary care physicians, uneven payment schedules, the ever-increasing costs of regulatory compliance and accreditation, and the increasing costs of maintaining a highly educated workforce. But hospitals are integral to the rural health care delivery system, and it is important to ensure that small rural hospitals remain financially viable and can continue to serve the needs of their communities.

## **Community Health Needs Assessments and Community Benefit**

The uncompensated care hospitals provide is just one aspect of the efforts hospitals make to support their communities. Non-profit hospitals are required by law to conduct Community Health Needs Assessments (CHNA) every three years. A CHNA is a systematic process involving the community to identify and analyze community health needs. The process provides a way for communities to prioritize health needs, and to plan and act upon unmet community health needs.

The community health needs that a CHNA focuses on may include issues like:

- Access to care
- Chronic disease prevention and management
- Behavioral health and substance use disorders
- Maternal and child health

CHNAs also require non-profit hospitals to document the community benefit they provide by reporting to the Internal Revenue Service (IRS) using the IRS Form 990 Schedule H. A recent analysis of this IRS data by the American Hospital Association (AHA) estimates that, during FY 2018, 13.1 percent of total expenses at non-profit hospitals in Pennsylvania went towards community benefits, totaling approximately \$5.6 billion.

## The Role of Hospitals in Emergency Management in Pennsylvania

Hospitals and health systems provide subject matter expertise to local and regional discussions on health-related emergencies and crises. This has been most recently exemplified by the pivotal role that hospitals played in the COVID-19 response. In addition, hospitals are core members of Pennsylvania's Healthcare Coalitions (HCC) and provide clinical and operational guidance to their preparedness and response efforts. HCC participation integrates hospitals

directly into the state's health care emergency management system. It's important for hospitals to be connected with their local and regional emergency management agencies, therefore hospital emergency managers typically are involved in planning and mitigation efforts with those agencies regularly.

Pennsylvania hospitals have several requirements to meet their emergency management obligations:

- Hospitals must develop and maintain an Emergency Operations Plan (EOP) that
  addresses how the facility will respond in an emergency. The plan must be "all-hazards"
  based meaning that it must be adaptable to any type of emergency and must be
  updated annually
- Along with the EOP, hospitals must have appropriate policies and procedures that address specific areas such as sheltering and supporting employees, internal and external communications, conducting evacuations, and tracking patients and staff
- The Centers for Medicare & Medicaid Services (CMS) requires hospitals to perform as least one full-scale or functional emergency preparedness exercise each year. Full-scale exercises typically involve multiple agencies along with "boots on the ground" efforts to test operational plans. Functional exercises dig deeper into policies and procedures to validate and evaluate emergency capabilities and functions
- Hospitals also must conduct a second exercise of their choice that can be a "tabletop" or discussion-based exercise. Those exercises can be mock disasters or workshops that can help assess plans, policies, and procedures or practice skills without actually deploying any of the resources
- Hospitals must perform a Hazard Vulnerability Assessment (HVA) on an annual basis.
   HVAs systematically identify the hazards or risks that are most likely to have an impact on a health care facility and the surrounding community. This information is then used to assess and identify potential gaps in the hospital's emergency operations plan
- Training and exercise plan development is a key function for hospital emergency
  management programs. The training and exercises conducted each year, and during
  more than several years, should be based on the HVA to address the most likely
  hazards. Additionally, staff turnover and changes in administration at a hospital require
  ongoing and repetitive training to ensure a baseline level of competence at any given
  time

# **Trauma Centers in Pennsylvania**<sup>29</sup>

Trauma centers are hospitals with resources immediately available to provide optimal care and reduce the likelihood of death or disability to injured patients. Accredited trauma centers must be continuously prepared to treat the most serious life-threatening and disabling injuries.

In Pennsylvania, there are four levels of trauma centers, with some levels serving both adult and pediatric patients, resulting in six different types of trauma centers in the state (see Table 6).

Table 6
Types of Trauma Centers in Pennsylvania

Adult Level I	Pediatric Level I		
15 trauma center locations	4 trauma center locations		
Adult Level II Pediatric Level II			
17 trauma center locations	2 trauma center locations		
Level III	Level IV		
1 trauma center location	13 trauma center locations		

### **Level I trauma centers (Adult and Pediatric)**

These hospitals provide the highest degree of resources with a full spectrum of specialists and must have trauma research and surgical residency programs. In Pennsylvania, there are 15 Adult Level I trauma center locations and four Pediatric Level I trauma Center locations.

#### **Level II trauma centers (Adult and Pediatric)**

Level II trauma centers require the same high level of care as Level I but do not require research and residency programs. There are 17 Adult Level II trauma center locations and two Pediatric Level II trauma center locations.

#### **Level III trauma centers**

Level III trauma centers are smaller community hospitals that do not require neurosurgeons and focus on stabilizing severe trauma patients before being transported to a higher-level trauma center. They may admit patients with mild and moderate injuries. There is one Level III trauma center located in Pennsylvania.

#### **Level IV trauma centers**

Level IV trauma centers provide enhanced care to injured patients within the emergency department and focus on stabilization and quick transfer to a higher-level trauma center. They may admit mildly injured patients. There are 13 Level IV trauma center locations in Pennsylvania.

# **Providing Safe, High-Quality Care**

Hospitals report data on their quality of care to CMS based on a number of programs in which they participate. These programs include:

- Hospital Inpatient Quality Reporting (IQR) Program
- Hospital Outpatient Quality Reporting (OOR) Program
- Hospital Readmission Reduction Program (HRRP)
- Hospital-Acquired Condition (HAC) Reduction Program
- Hospital Value-Based Purchasing (VBP) Program

March 2022 Page 13

CMS then evaluates hospitals based on their available measures across five areas of quality including mortality, the safety of care, readmission, patient experience, and timely & effective care, and summarizes these measures into an Overall Hospital Quality Star Rating, between 1 and 5 stars, for each hospital.

An analysis of the latest Overall Hospital Quality Star Ratings for hospitals published during April 2021 shows Pennsylvania performing at a high level:

- Pennsylvania hospitals have an average star rating of 3.5 stars compared to the national average of 3.2 stars
- More than 80 percent of Pennsylvania hospitals with available ratings received a star rating of 3 or above
- Pennsylvania's average star rating ranks 19 among U.S. states

In addition, Pennsylvania hospitals perform well compared to the rest of the nation on patient safety:

- Pennsylvania's GAC hospitals place eighth in terms of state rankings for hospital safety
- Nearly 46 percent of the state's GAC hospitals received A ratings for Leapfrog Hospital Safety Grades during Fall 2021.<sup>30</sup>

## Pennsylvania Hospitals as Leaders in Research and Innovation<sup>31</sup>

Pennsylvania's hospitals and universities with hospital-affiliated medical schools are helping to pave the way for new evidence-based technology and cutting-edge care delivery. During 2020, they attracted almost \$2 billion in federal research funds. More than 4,000 projects led by more than 2,600 researchers are improving health and health care delivery not just for Pennsylvanians, but for patients across the country and around the world.

These projects span many health care research areas such as:

- Tumor metabolism
- Genetic variation and risk factors
- Pregnancy outcomes
- Cardiovascular risk factors
- Molecular modeling inflammation
- Neural mechanisms and circuits
- Intervention trials
- Embryo development
- Behavioral health

For some examples of the work for which Pennsylvania's hospitals and health systems have been recognized, see Appendix C.

# **Achieving Excellence in Nursing**

Magnet recognition is the highest honor awarded by the American Nurses Credentialing Center and is considered the gold standard in nursing excellence. The program recognizes health care organizations for quality patient care, nursing excellence, and innovations in professional

nursing practice. Magnet status is granted only to hospitals that undergo a rigorous, voluntary evaluation process to demonstrate that they meet certain standards for care and practice.

Hospital with a Magnet designation in nursing are characterized as having:

- Quality patient care
- Team-focused care
- Collaborative professional work environment
- Highly qualified nurses

Thirty-nine hospitals in Pennsylvania currently are recognized with Magnet designation, which represents 18 percent of licensed hospitals in the commonwealth. Comparatively, 9 percent of hospitals in the U.S. are designated Magnet hospitals<sup>32</sup>.

# **Challenges for Hospitals in Ensuring a Healthy Pennsylvania**

#### **Obstetric and Neonatal Services**

The challenges that affect obstetrical services in the commonwealth demonstrate a growing trend of diminished access to obstetrical care for pregnant women. These challenges include:

- The mounting pressure on access to obstetrical services in many areas of Pennsylvania is due in part to the closing of 57 hospital obstetrical units since 2000 and many neonatal intensive care units<sup>33</sup>
- Medicaid funded about 40 percent of all 2020 births in Pennsylvania<sup>34</sup>, and is the most important source of financing for the cost of care provided to infants born prematurely and/or with medical problems
- Medicaid funding has become critical, for example, in financing the care of neonatal abstinence syndrome (NAS), where newborns that were exposed to addictive drugs during pregnancy experience an array of withdrawal symptoms that develop soon after birth<sup>35</sup>
- During fiscal year 2018, Medicaid was the anticipated primary payor in 89 percent of NAS-related hospital stays<sup>36</sup>

The obstetrical and neonatal supplemental Medicaid funding impacts approximately 81 Pennsylvania hospitals (both urban and rural) that ensure access to appropriate prenatal, obstetrics, post-partum, and neonatal services.

# **Complexity and Rapid Changes in Reimbursement Models**

Hospitals and health systems in Pennsylvania face the challenge of navigating different types of payment models. Some examples of these payment models are Medicare's inpatient and outpatient prospective payment systems and the Comprehensive Care for Joint Replacement bundled payment system. As CMS increasingly focuses on getting value for Medicare payments, hospitals are transitioning from fee-for-service payment systems to value-based care and alternative payment models. This transition is confirmed by data from AHA's annual survey (2018)<sup>37</sup> which shows:

- Hospitals with an Accountable Care Organization (ACO) increased from 13 percent during 2012 to 37 percent during 2016
- Hospitals with a medical home increased from 18 percent during 2012 to 28 percent during 2016
- Risk-sharing agreements increased from 7 percent during 2012 to 13 percent during 2016
- Hospitals contracting with quality/safety-tied commercial payors increased from 35 percent during 2012 to 51 percent during 2015.

Historically, changes to payment or delivery policy have created additional challenges for rural hospitals. As a result, innovative approaches to financing like the Rural Health Model, described later in this report, are important to sustaining the financial viability of rural hospitals in the commonwealth.

## **Staffing Shortages**

The health care workforce had already been struggling before COVID-19. Since the pandemic, hiring health care professionals has become an even bigger challenge for hospitals.

Pennsylvania hospitals reported during 2018 that the positions for which they most frequently struggle to hire and retain are nurses in the ED, critical care units, operating room (OR), and medical/surgical units, as well as nursing assistants. A majority of hospitals also reported that the aging workforce was the top institutional barrier to workforce transformation.<sup>38</sup>

Due to COVID-19, the number of workers exiting the workforce early are expected to increase. According to a Kaiser Family Foundation and Washington Post <u>poll</u> conducted during the pandemic, three out of ten health care workers considered leaving the profession and six in ten said stress has harmed their mental health. Another <u>poll</u> shows that 25 percent of U.S. physicians are planning to retire earlier than previously planned due to the pandemic.

#### **COVID-19 Impact on Nursing Shortage**

The pandemic has exacerbated the nursing shortage nationwide and has hit Pennsylvania especially hard. A study during September 2021 projected that, by 2026, Pennsylvania will have a shortfall of more than 20,000 registered nurses, the largest shortfall of any state in the U.S.<sup>39</sup> According to a report by Qualivis, Pennsylvania is one of the states with the highest demand for nursing across all types of units and has higher demand than neighboring states including New York, New Jersey, Ohio, and West Virginia.<sup>40</sup>

#### **Additional Shortages**

Projections show additional areas of staffing need in Pennsylvania.<sup>41</sup> By 2026, Pennsylvania will have a projected shortage in low-wage but essential health care workers (e.g., medical assistants, home health aides, and nursing assistants) of almost 280,000, the third largest projected gap among U.S. states. Pennsylvania also is projected to have the third largest shortfall, of more than 6,000 workers, with regard to mental health.

March 2022 Page 16

Pennsylvania hospitals face additional challenges in having enough professionals to provide mental/behavioral health services and substance use disorder (SUD) treatment. Psychiatrists are one of the doctors in highest demand, along with primary care<sup>42</sup> and, in Pennsylvania, there are only 2.1 psychiatrists per 10,000 residents,<sup>43,44</sup> and nearly 60 percent of those licensed are more than 55 years old.<sup>45</sup> Anticipating many providers are nearing retirement, the long wait to see a behavioral health care provider may only get worse.

Community-based resources also face difficulties in providing appropriate care. Many times, there is a lack of specific training and challenges in recruiting SUD counselors. Part of this can be attributed to low wages. Compared to other states, Pennsylvania has the lowest-paid addiction counselors at \$39,450 per year, higher only than that of West Virginia. In addition to the inadequate financial support, access to mental health programs in rural areas is scarce, and many hospitals do not have enough psychiatric beds to place patients where they need to be.

A barrier in providing meaningful care to Pennsylvanians is the difficulty in having an adequate number of trained professionals practicing in primary and certain specialty care areas. Sixty-two of 67 counties in the commonwealth have health professional shortage areas (HPSA)<sup>48</sup> in primary care. According to the Health Resources & Services Administration (HRSA), family medicine saw a shortage of 8,440 professionals nationwide during 2018. HRSA estimated that this shortage will increase to 17,210 professionals during 2030.<sup>49</sup> Pennsylvania also is projected to experience a shortage of 18,700 licensed practical/vocational nurses by 2030.<sup>50</sup>

Many rural hospitals have difficulty attracting physicians to staff their EDs. Inconsistent volumes of patients make it difficult for rural hospitals to attract board-certified emergency medicine physicians, resulting in a reliance on primary care physicians to staff the ED. Discontinuing emergency services or closing a hospital ED shifts the burden to other community services.<sup>51</sup>

#### **Provider Burnout**

Provider burnout also plays a significant role in hospitals' ability to provide care. A recent study reported that 58 percent of physicians had feelings of burnout during 2020, compared to 40 percent during 2018 and 44 percent of nurses said they feel like quitting.<sup>52</sup> Managing the demands of the pandemic in addition to dealing with the critical labor shortage only exacerbates the situation.

# **Growing Consumerism Driving Demand for Greater Transparency**

As the information era settles in, more and more patients are assuming the role of purchasers and managers of their health and wellness. This new concept, health care consumerism, has added another item for which the health care system has to account. According to Definitive Health, consumerism is one of the primary forces that will shape the future of medicine, pushing health care organizations to work harder than ever to provide more convenient care options such as neighborhood clinics and health information technology (HIT) tools just to retain their patient populations.<sup>53</sup>

CMS required each hospital in the United States to provide clear, accessible pricing information online about the items and services they provide starting January 1, 2021.<sup>54</sup> The purpose of this

rule is to allow consumers to shop and compare prices across hospitals before receiving any services, but a *Health Affairs* article points out that this rule may do more than that, including:

- Altering the balance of power of provider-payor negotiations towards large purchasers of health care services—such as insurance companies, large self-insured companies, and labor unions
- Requiring hospitals to submit data they do not possess—such as information from payors, supplies, equipment, contracts with entities—will create compliance challenges
- Forcing hospitals to shift the cost to emergent services to bridge the revenue gap created by lower prices for discretionary services
- Causing already disadvantaged hospitals, such as rural and safety net hospitals who pay higher salaries to attract physicians, to struggle more to negotiate sufficient payment rates; some of these hospitals may not be able to survive
- Complicating efforts to advance value-based payments by requiring hospitals to devote more resources to support unit price competition<sup>55</sup>

# **Regulatory Burdens<sup>56</sup>**

Nationwide, providers are dedicating nearly \$39 billion yearly to the administrative activities related to complying with discrete regulatory requirements that are promulgated by agencies such as CMS, the Office of Inspector General, the Office for Civil Rights, and the Office of the National Coordinator for Health Information Technology. An average-sized hospital can spend between \$7.6 and \$9 million and may dedicate up to 59 full-time equivalents to comply with these federal regulations. There are more than 600 regulations that hospitals and post-acute care providers need to manage and they are spread across the following nine domains:

- Quality reporting
- New models of care/value-based payment models
- Meaningful use of electronic health records (EHR)
- Hospital conditions of participation
- Program integrity
- Fraud and abuse
- Privacy and security
- Post-acute care
- Billing and coverage verification requirements

# **Challenges in Health Information Sharing/Data Exchange**

Patients typically receive care from multiple health care organizations. In today's world, providers need to share and exchange medical information with other providers to be able to provide timely treatment and improve patient outcomes. Health information exchange (HIE) serves this purpose and has many benefits for patients, providers, health care organizations, public health agencies, and the community-at-large. Through HIE, physicians, nurses, pharmacists, and other providers can potentially access, exchange, or share patient information in a secure, efficient, and timely manner.

However, establishing this digital and secure infrastructure across multiple clinical settings is challenging. Health care organizations need to address many obstacles such as:

Often inadequate technological infrastructure to support HIE

March 2022 Page 18

- Difficulty in EHR data integration
- Security concerns about breaches
- Inadequate technical support for HIE
- Inadequate training for staff
- The complexity of workflow changes necessitated by HIE
- Legal concerns about sharing health data
- Issues in patient consent to share health data
- Problems in HIE vendor selection and fit<sup>57</sup>

During March 2020, HAP worked with IMPAQ, a research consulting firm, to develop a survey to collect data about how HAP can support member hospitals that participate in the PA Patient & Provider Network, or P3N, which facilitates clinical data exchange among the five health information organizations (HIO) in Pennsylvania. In total, 22 hospitals completed the survey. To obtain further insights, interviews were conducted with five other state hospital associations, the five Pennsylvania HIOs, and HAP member hospitals to assess strategies for participation.

According to state data from the Pennsylvania eHealth Partnership, 41 percent of Pennsylvania hospitals do not participate in the P3N. The non-participating hospitals are statistically more likely to be small (fewer than 100 beds) non-teaching hospitals specializing in psychiatric care, long-term acute care, and rehabilitation. The survey results indicate that the most common reasons cited by hospitals for choosing not to participate in the P3N were related to preferences for data exchange through electronic health records and nationwide HIEs. Additional factors include the concern about incompatible IT infrastructure and cost as well as the perception that data availability through the P3N is limited. P3N non-participants also said that most patients in their hospitals seek care within the system, which reduces the need to exchange information outside the system.

The survey results indicated that there are some challenges to participating in the P3N, most notably the technological limitations and availability of data, including variation in the data provided by HIOs. Some HIOs only offer Continuing Care Documents and Admission/Discharge/Transfer (ADT) alerts for ED admissions, while others offer additional data such as ADT alerts for inpatient admission and discharge, encounter summaries, and direct source messaging. Additional issues result from the inconsistency in data structures among HIOs, where some include discrete fields that will automatically integrate into hospital EHR systems, while others require the use of separate data portals. It is also the case that participating providers in some of the HIOs do not report their full data.

# **The Rising Cost of Supplies**

Pennsylvania's hospitals treat all in need of medical care, regardless of their ability to pay. The services provided are often under-compensated or uncompensated. For example, Medicare and Medicaid pay only 60 percent of the cost of the care hospitals to deliver nationwide.<sup>58</sup>

According to a *Health Affairs* article, spending on prescription drugs will continue to increase at a rate of 5.4 percent from 2021 to 2023, and then will jump to 5.9 percent between 2024 and

2028. This is due to rising prices, slowing growth of rebates, and projected increases in new prescription drug spending.

## **Insufficient Reimbursement**59

During state fiscal year (SFY) 2015–2016, the cost of care Pennsylvania hospitals provided to Medicaid and uninsured patients was more than \$6.3 billion (see Table 7). However, the reimbursement hospitals received only covered 81.1 percent of the cost, and the commonwealth's hospitals sustained losses of approximately \$1.2 billion relative to their incurred costs. This means that Pennsylvania hospitals received only 81 cents for every dollar they spent on Medicaid and uninsured patients. This rate was even smaller for rural acute care hospitals, with a rate of 64.5 percent compared to 82.1 percent for all other hospitals in Pennsylvania.

Table 7
SFY 2015–2016 Medicaid/Uninsured Payments, Costs, Shortfall, and Payment-toCost Ratio for Pennsylvania Hospitals

N	Medicaid/Uninsured
Medicaid/Uninsured Costs	\$6,333,847,397
Medicaid/Uninsured Payments	\$5,135,815,976
Medicaid/Uninsured Payment Shortfall	-\$1,198,031,214
Net Medicaid/Uninsured Payment-to-Cost Ratio	81.1%
Net Medicaid/Uninsured Payment-to-Cost Ratios by Rural Classification	64.5%

The data also show that this difference in cost and reimbursement for the care provided for Medicaid and uninsured patients occurs even though Pennsylvania hospitals are providing care more efficiently compared to the rest of the nation. During SFY 2015–2016, Pennsylvania ranked among the top 15 states with actual costs below the predicted Medicare costs per discharge.

# **Changing Demographics and Health Care Disparities**

Two important demographic trends are occurring in Pennsylvania, as well as in the U.S. overall. First, the percentage of the population that is elderly is increasing. In addition, the percentage of the population that is non-White is growing. Census data shows that between 2010 and 2020, the percentage of the state's population more than 65 years of age increased by 25 percent (see Table 8). This same data shows that the non-White percentage of Pennsylvania's population also grew at a rate of 25 percent. Studies indicate that these trends will continue for the foreseeable future. <sup>60</sup>

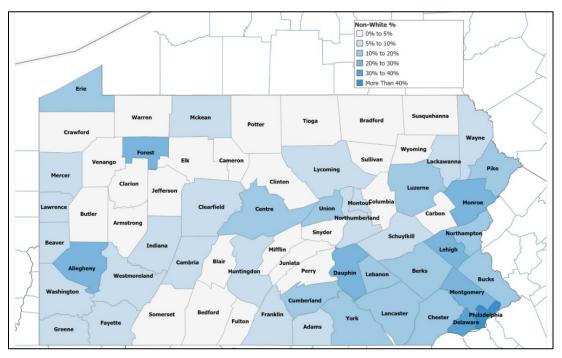
Table 8

Percent Change in Demographic Populations for Pennsylvania, Census Years 2010 and 2020<sup>61,62</sup>

Demographic	Census Year 2010	Census Year 2020	<b>Percent Change</b>
Age			
Persons under 65 years	84%	80%	-5%
Persons 65 years and over	16%	20%	25%
Race			
White	80%	75%	-6%
Non-white	20%	25%	25%

Racial and ethnic minorities in Pennsylvania are largely found in the Southeast region of the state. Figure 4 illustrates how the Southeast counties, particularly Philadelphia (59%) and Delaware counties (31%) have the highest numbers of non-White residents as a percentage of the total population. Figure 5 shows that the Southeast part of the commonwealth also has the largest number of residents who identify their ethnicity as Latino/Hispanic. This figure shows that Lehigh County (25%) and Berks County (21%) are the counties with the highest percentage of Latino/Hispanic residents.

Figure 4
Percent Non-White Population by Pennsylvania County



Source: U.S. Census Bureau, 2015–2019 American Community Survey Five-Year Estimate

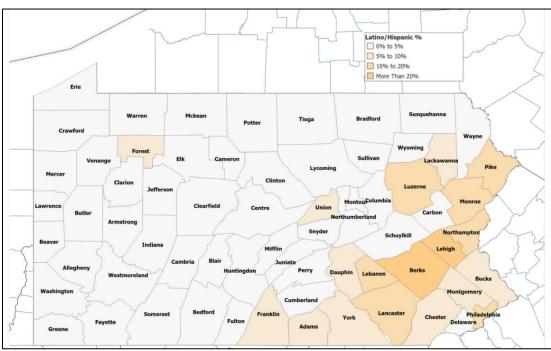


Figure 5

Percent Latino/Hispanic Population by Pennsylvania County

Source: U.S. Census Bureau, 2015-2019 American Community Survey 5-Year Estimates

Studies show that the elderly and racial minorities in Pennsylvania often have worse health outcomes. While the elderly can face expected health issues as a result of advancing age, those 65 or older in Pennsylvania seem to face additional health challenges. According to a report by the United Health Foundation, Pennsylvania lags behind other states on a number of measures for senior health.

Table 9 shows that Pennsylvania falls in the lower half of states when it comes to measures such as obesity, suicide, early death, and having multiple chronic conditions for those 65 and older. Table 10 also shows that Pennsylvania has lower performance on measures related to health outcomes for racial minorities. As this table illustrates, Black people in the commonwealth have markedly worse outcomes when compared to White people on a number of measures including infant mortality, hospital readmissions, and preventable hospitalizations.

Table 9

Performance on Selected Health Outcome Measures for Persons Age 65 or Older in Pennsylvania, United Health Foundation Analysis, 2021			
Measure	State Rank (out of 50)		
Suicide	24		
Early Death Mortality	31		
Mutiple Chronic Conditions (4 or more)	35		
Obesity	33		
Preventable Hospitalizations	30		
Overall Performance on Health Outcome Measures	23		

Table 10

Performance on Selected Health Measures for Black and White People in Pennsylvania, Commonwealth Fund Analysis, 2021				
Measure	Black	White		
Health Outcomes				
Mortality amenable to health care (per 100,000 population)	156	74		
Infant mortality (per 1,000 live births)	11	5		
Breast cancer deaths (per 100,000 female population)	29	20		
Hospital 30-day readmission rate age 65 and older (per 1,000 beneficiaries)	73	40		
Adults who are obese (%)	44	33		
Health Care Quality				
Preventable hospitalizations age 65 and older (per 1,000 beneficiaries)	75	41		
Potentially avoidable emergency department visits age 65 and older (per 1,000 beneficiaries)	278	164		
Health Care Access				
Adults who went without care because of cost (%)	13	8		

# Pennsylvania's Hospitals and Health Systems Rising to Meet Challenges

# **Participating in State Initiative to Address Racial Health Disparities**

During March 2021, Pennsylvania state officials announced an initiative to address social determinants of health, reduce health disparities, and promote equity and value in health care. As part of this initiative, the Department of Human Services (DHS) will amend contracts with the state's Medicaid managed care organizations to require that they work together to create Regional Accountable Health Councils (RAHC). The objective of the RAHCs is to provide opportunities for strategic health planning across the health care landscape and encourage

March 2022 Page 23

better collaboration between health care providers and social service organizations to develop strategies and partnerships addressing health needs and disparities in their communities. RAHCs were established for five regions of the state: Southeast, Northeast, Northwest, Southwest, and the Lehigh/Capitol area.

Each RAHC will include providers in hospitals, health systems, and smaller practices; the payors at the managed care level; and community-based organizations that help communities with food and housing insecurity as well as other social needs.

#### The RAHCs have five primary goals:

- Promoting health equity and eliminating health disparities
- Identifying and mitigating regional social determinants of health needs
- Aligning value-based purchasing initiatives to achieve better care and better health at lower costs
- Supporting and steering population health improvement processes, including regional efforts to advance the integration of physical and behavioral health care
- · Centering health improvement efforts in the communities where needs exist most

RAHCs also will draft Regional Health Transformation Plans for their regions. These plans will build on needs assessments and stakeholder feedback regarding population health deficiencies and opportunities for improving health equity in communities in their region. The plans will establish priorities, continue work already underway, and identify opportunities for further work to promote better health in their regions. These plans also will establish areas with significant health disparities known as health equity zones and identify strategies for addressing these disparities.

# **Investigating the Social Determinants of Health in Black Communities**

During October 2021, researchers at Penn Medicine were awarded a \$10 million grant through the National Institute of Health's Common Fund's Transformative Research to Address Health Disparities and Advance Health Equity initiative. These researchers will be exploring the effects of environmental and financial interventions on reducing health disparities. The study will focus on 60 predominantly Black neighborhoods in Philadelphia to assess the impact of a multi-component intervention addressing both environmental and economic factors on health and well-being.

At the community level, the study includes tree planting, vacant lot greening, trash cleanup, and rehabilitation of dilapidated, abandoned houses. For households, the study will help connect participants to local, state, and federal social and economic benefits, including food, unemployment, and prescription drug assistance, provide financial counseling and tax preparation services, and offer emergency cash assistance.

The study will meet participants where they are via door-to-door recruitment, rather than relying on clinic referrals or responses to flyers, which may exclude the most vulnerable adults. Investigators will use standardized surveys to evaluate the overall health and well-being of participants at multiple times throughout the trial. They also will evaluate the impact on violent

March 2022 Page 24

crime. Researchers are hopeful their interventions will be successful in improving the health not just of participants in the study, but other members of the household and the whole community.

## **Consolidation of Hospital Market Through Mergers and Acquisitions**

The dynamics of the health care industry have been changing rapidly due to the increased demand for information technology, an increasing reliance on shrinking government payments, and expanding competition. In addition, as mentioned earlier, there has been a shift toward value-based reimbursement encouraged by the passage of the Affordable Care Act and the Medicare Access and Children's Health Insurance Program (CHIP) Reauthorization Act. This, in part, has resulted in diminishing hospital margins, record-high health care spending, and the emergence of nontraditional competitors who are launching their retail health clinics such as Google, Amazon, CVS, and Walmart.<sup>63</sup> These changing dynamics have been putting pressure on hospitals to deliver more cost-effective and value-based care.<sup>64</sup>

Mergers and acquisitions have been important in the changing dynamics of the health care industry. Hospital mergers and acquisitions (M&A) can benefit both acquired hospitals and their acquirers substantially. The most prominent benefits that can be gained by M&A are:

- Improved quality of care through standardization of clinical protocols
- Reduced cost through increasing hospitals scale and lower capital cost<sup>65</sup>

Several other studies also point to the benefits of hospital M&A because:

- M&A are particularly important for rural hospitals since they are at a higher risk of closure due to a higher dependence on government payments. Smaller rural hospitals are especially vulnerable due to low profitability and liquidity<sup>66</sup>
- Acquired hospitals experience a decrease in operating expenses within two years following the acquisition<sup>67</sup>
- Acquired hospitals experienced cost savings between 4 and 7 percent on average in the years following the acquisition<sup>68</sup>
- Acquired rural hospitals reduced their labor cost without any decrease in the medical staff<sup>69</sup>
- Hospital mergers lead to increased cost efficiency on average<sup>70</sup>
- Hospital mergers resulted in an increase in job satisfaction scores when compared before and after the merger<sup>71</sup>

For Pennsylvania, Figure 6 shows the increasing number of system-affiliated licensed hospitals and the decreasing number of independent licensed hospitals between 2000 and 2021. During 2020, 65 percent of all Pennsylvania hospitals were independent. That number dropped to 16 percent by 2021.

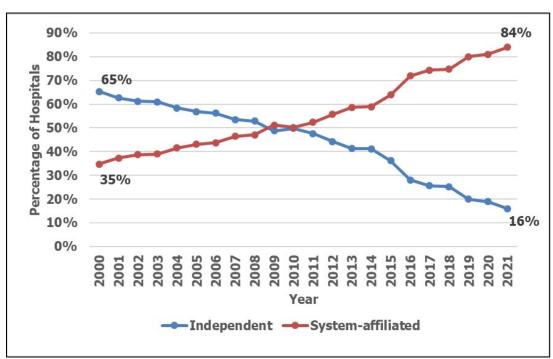


Figure 6
Pennsylvania Hospitals' Consolidation Trends, 1999–2020

# **Implementing Innovative Payment Models**

In order to find new approaches to meet reimbursement needs, Pennsylvania hospitals have worked to implement a number of innovative payment models with both private and governmental payors. Government payor models are often CMS Innovation Models<sup>72</sup>. There are 93 models listed at the CMS website divided into seven categories. These categories include:

- Accountable care
- Episode-based payment initiatives
- Primary care transformation
- Initiatives focused on the Medicaid and CHIP population
- Initiatives focused on the Medicare-Medicaid enrollees
- Initiatives to accelerate the development and testing of new payment and service delivery models
- Initiatives to speed the adoption of best practices

March 2022 Page 26

## **Quality Payment Program<sup>73</sup>**

Prior to the Quality Payment Program, payment increases for Medicare services were set by the Sustainable Growth Rate. This capped spending increases according to the growth in the Medicare population, and a modest allowance for inflation.

Increases in services meant decreases in reimbursement per unit, which was not sustainable; therefore, Congress passed a new law authorizing this fee schedule.

- 1. Merit-based Incentive Payment System (MIPS)
- 2. Advanced Alternative Payment Models

### Pennsylvania Rural Health Model<sup>74,75</sup>

For this innovation model, CMS and other participating payors pay rural hospitals on a global budget—a fixed amount of revenue, set in advance, to cover all inpatient and hospital-based outpatient services. This model is a transition from fee-for-service whose intent is to improve quality, predict hospital finances, prevent hospital closures, and avoid the loss of hospital services and jobs. This is done by rewarding hospitals financially for improving the health of communities. Pennsylvania is the first state in the country to design and implement a model that is focused entirely on rural hospitals.

Participating hospitals are evaluated on "performance years;"

- Year 0 (2017–2018): pre-implementation to establish participation and operations, create model plans submitted to the Pennsylvania DOH and CMS for approval
- Years 1–6 (2019–2024): all participants must meet targets (e.g., health outcomes, financial targets, participation, access, and quality measures)

Pennsylvania has committed to \$35 million in Medicare hospital savings using the Rural Health Model. The program launched during January 2019 with five rural hospitals and five participating payors. Eight additional hospitals joined during January 2020, along with Aetna as a commercial payor. During January 2021, five new hospitals joined the program.

# **The Growth of Health Information Exchange**

A public HIO is an independent, community organization that facilitates the exchange of patient health information among disparate health care organizations and providers. Federal investment through the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act promoted the implementation of health information organizations, which offer third-party approaches to enable electronic HIE across various EHR technologies.

Only a few HIOs were in operation prior to the HITECH Act; the number of operational HIOs has grown during the years. At the same time, medical institutions' participation in HIE has also grown. HIE can help health care organizations improve health care quality and patient outcomes by reducing medication and medical errors; support community health, and; coordinate with and support public health officials to address health disparities.

March 2022 Page 27

#### Pennsylvania's HIOs include:

- ClinicalConnect
- Central Pennsylvania Connect
- HealthShare Exchange
- Keystone Health Information Exchange
- Lehigh Valley Health Network
- Mount Nittany Exchange

According to the previously mentioned March 2020 survey conducted by IMPAQ for HAP, the 59 percent of hospitals in Pennsylvania that do participate in the state's HIOs indicated that their top reasons to do so were enhanced care coordination, increased access to information to support point-of-care clinical decision-making, and to support quality or public reporting. Most of the participating hospitals have been in the P3N for more than three years and have high satisfaction rates. Of the survey respondents that participated in the P3N, 53 percent rated their experience with the P3N positively, while 77 percent rated their experience with their own HIO positively, specifically with regard to their experience with customer service and other services offered.

## **Progress in Implementing Health Information Technology**

The AHA periodically performs a survey to assess the progress in HIT at U.S. hospitals. The intent is to provide insight into the utilization and functionality of e-health as well as the challenges faced by providers in accessing information electronically and meeting federal requirements for meaningful use. Below are some of the key findings the survey results revealed about HIT implementation at Pennsylvania hospitals.

During 2018, the use of computerized systems expanded to include physician notes (92% of surveyed hospitals) and nursing notes (93%) on all patient care units. Electronic clinical documentation of problem lists (95%), medication lists (96%), and discharge summaries (90%) also increased in use among hospitals across the state.

More providers continue to utilize computerized systems for order entry including lab tests (92%), medications (96%), and consultation requests (91%) providing increased accessibility and driving quality of care.

Since the survey was performed during 2016, there has been a notable increase in the use of computerized systems for other functionalities to improve patient care. The use of barcoding and radio frequency identification for medications is up from 51 percent to 90 percent, fully implemented telehealth coverage is up from 24 percent to 69 percent, and remote patient monitoring is up from 22 percent to 50 percent in the 2018 survey results. The survey results also show that hospitals in Pennsylvania utilize the EHR/electronic medical records system to support a continuous quality improvement process (82%) with an emphasis on monitoring organizational performance (77%) and patient safety (75%).

The 2018 survey results also show that a number of challenges remain with HIT implementation at Pennsylvania hospital. During 2018, 45 percent of those surveyed identify providers not

having EHRs as being the biggest hurdle in obtaining patient data from other organizations. In addition, the survey results show that 54 percent of Pennsylvania hospitals feel the exchange of information across different vendor platforms is their most difficult challenge; however, it appears that rather than making a major change in vendor (21%), hospitals and health systems are choosing to optimize the functionalities of new releases for their platform (59%).

#### **Telehealth**

Pennsylvania Governor Tom Wolf issued an emergency order on March 18, 2020, allowing the use of telehealth during the COVID-19 pandemic, which caused a sharp increase in the use of this technology. For example, 56 percent of in fee-for-service Medicare primary care visits in Pennsylvania were performed through telehealth during April 2020 compared to less than 1 percent during February 2020.

A December 2021 report released from by U.S. Department of Health and Human Services (HHS)<sup>76</sup> highlights the growth nationally of telehealth during the COVID-19 pandemic. The report indicated that the share of Medicare visits conducted through telehealth increased 63-fold, from about 840,000 visits during 2019 to 52.7 million during 2020. The growth in behavioral health was especially significant, growing 32-fold during 2020.

The new HHS report also provides an overview of patient volume, geographic trends, and the specialties that benefited the most from increased access to telehealth during the pandemic.

Among the key points from the report:

- Telehealth visits increased to 16.6 million for specialists (38-fold), 10.1 million for behavioral health specialists (32-fold), and 26 million for primary care (24-fold)
- About 92 percent of telehealth visits were from beneficiaries' homes. This benefit was one of the regulatory flexibilities extended during the public health emergency
- Even with unprecedented telehealth growth, utilization of all Medicare fee-for-service Part B clinician visits declined about 11 percent during 2020 Pennsylvania's total Medicare Part B visits declined 12 percent during 2020
- Rural beneficiaries had a lower share of telehealth use (4.3%) compared with urban beneficiaries (5.7%)
- A lower share of Black beneficiaries had a visit via telehealth (4.7%) compared to White beneficiaries (5.3%). A higher share of Hispanic (6.2%) and Asian (6.4%) beneficiaries had a visit via telehealth compared to White beneficiaries
- Primary care telehealth visits peaked at about a million per week during April 2020, before declining to about 440,000 per week by September 2020

The report notes that throughout the public health emergency, regulatory flexibilities have enabled more Medicare beneficiaries to access primary and specialty care through telehealth. While increased use of telehealth has expanded access to health care, challenges still remain, like limited access to broadband Internet in rural areas of the state.

March 2022 Page 29

HAP supports policies and legislation that would extend the regulatory flexibilities that have ensured patient access to telehealth services during the pandemic and beyond. Pennsylvania does not currently have a law to authorize, regulate, or prohibit the use of telehealth which would enable licensed providers to continue virtual care. Senate Bill 705 was presented on October 27, 2021, to authorize telehealth by professional licensing boards and to provide insurance coverage.

## **Conclusion**

As this report details, Pennsylvania hospitals are making good on their promise to deliver high-quality care to their patients while working to ensure the overall health care needs of their communities are being met. But during this time when hospitals are facing unprecedented challenges, continuing to receive the necessary support from federal, state, and local government while looking to build partnerships with other stakeholders in the health care industry will be critical in allowing hospitals in the commonwealth to continue to meet the needs of Pennsylvanians.

# **Endnotes**

<sup>1</sup> The reported number of 271 hospitals in Pennsylvania includes hospitals that are licensed by the state and hospitals that share a license with an affiliated hospital. This number also includes 8 Veterans Affairs hospitals and 7 state psychiatric hospitals.

gender/?currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc% 22%7D. Last accessed: 9/20/2021.

<sup>&</sup>lt;sup>2</sup> Rural Health Information Hub. "<u>Critical Access Hospitals (CAH)</u>." List updated by the Flex Monitoring Team on 07/19/2021. Last accessed 02/22/2022.

<sup>&</sup>lt;sup>3</sup> Data is from HAP's internal Research Department Data Warehouse which combines data from the Pennsylvania Department of Health (PADOH), the Pennsylvania Health Care Cost Containment Council (PHC4) and other CMS data files.

<sup>&</sup>lt;sup>4</sup> Rural is defined using the methodology utilized by the Heath Resources & Services Administration (HRSA): <a href="https://www.hrsa.gov/rural-health/about-us/definition/index.html">https://www.hrsa.gov/rural-health/about-us/definition/index.html</a>.

<sup>&</sup>lt;sup>5</sup> Data is from HAP's internal Research Department Data Warehouse which combines data from the Pennsylvania Department of Health (PADOH), the Pennsylvania Health Care Cost Containment Council (PHC4) and other CMS data files.

<sup>&</sup>lt;sup>6</sup> Based on HAP's February 2021 analysis of Pennsylvania Health Care Cost Containment Council (PHC4) 2020 Inpatient Discharge Data.

Based on HAP's December 2021 analysis of Pennsylvania Health Care Cost Containment Council (PHC4)
 2020 hospital financial data files for general acute care and non-general acute care hospitals.
 Ibid.

<sup>&</sup>lt;sup>9</sup> Ibid.

<sup>&</sup>lt;sup>10</sup> Pennsylvania Health Care Cost Containment Council. <u>Financial Analysis 2020, PA General Acute Care Hospitals – News Release</u>. June 3, 2021. Retrieved from: https://www.phc4.org/reports/fin/20/nr060321.htm. Last accessed: 12/8/2021

<sup>&</sup>lt;sup>11</sup> Pennsylvania Health Care Cost Containment Council (PHC4). <u>COVID-19 Disaster Emergency Report</u>. January 2022. Retrieved from: <a href="https://www.phc4.org/reports/finreport/012022/docs/finreport012022.pdf">https://www.phc4.org/reports/finreport/012022/docs/finreport012022.pdf</a>. Last accessed: 12/08/2021.

<sup>&</sup>lt;sup>12</sup> Health Management Associates (HMA). <u>Analysis of the Impacts of COVID-19 on Pennsylvania Hospitals</u>. September 4, 2020. Retrieved from: <a href="https://haponlinecontent.azureedge.net/resourcelibrary/covid-impact-analysis-final-090420.pdf">https://haponlinecontent.azureedge.net/resourcelibrary/covid-impact-analysis-final-090420.pdf</a>. Last accessed: 12/3/2021.

<sup>&</sup>lt;sup>13</sup> See PHC4's <u>Financial Analysis</u>, <u>Fiscal Year 2020</u> press releases for uncompensated care data for general acute care and non-general acute hospitals. Retrieved from: <a href="http://www.phc4.org/reports/fin/20/">http://www.phc4.org/reports/fin/20/</a>. Last accessed: 03/24/2022.

<sup>&</sup>lt;sup>14</sup> Kaiser Family Foundation (KFF). <u>Professionally Active Physicians by Gender</u>. June 2021. Retrieved from: <a href="https://www.kff.org/other/state-indicator/physicians-by-">https://www.kff.org/other/state-indicator/physicians-by-</a>

<sup>&</sup>lt;sup>15</sup> Pennsylvania Department of Health, Bureau of Health Planning. <u>2012 Pulse of Pennsylvania's Physician and Physician Assistant Workforce</u>, Volume 6, p 14. August 2017. Retrieved from: <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2">https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2\_00f%20Pennsylvania%27s%20Physician%20and%20Physician%20Assistant%20Workforce.pdf. Last accessed: 9/29/2021.

<sup>&</sup>lt;sup>16</sup> American Association of Medical Colleges (AAMC). <u>Diversity in Medicine: Facts and Figures 2019</u>. Retrieved from: <a href="https://www.aamc.org/data-reports/workforce/interactive-data/figure-18-percentage-all-active-physicians-race/ethnicity-2018">https://www.aamc.org/data-reports/workforce/interactive-data/figure-18-percentage-all-active-physicians-race/ethnicity-2018</a>. Last accessed: 10/27/2021.

- <sup>21</sup> U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. <u>2018 National Sample Survey of Registered Nurses Brief Summary of Results</u>. Published: 2019. Retrieved from: <a href="https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-summary-report.pdf">https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nssrn-summary-report.pdf</a>. Last accessed: 10/27/2021.
- Pennsylvania Department of Health, Bureau of Health Planning. 2012 Pulse of Pennsylvania's Physician and Physician Assistant Workforce, Volume 6, pgs. 13, 48. August 2017. Retrieved from: <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2">https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2@20Pennsylvania%27s%20Physician%20and%20Physician%20Assistant%20Workforce.pdf.</a> Last accessed: 9/29/2021.
- <sup>23</sup> U.S. Bureau of Labor Statistics. Employed Persons by Detailed Occupation and Age. Last modified: January 22, 2021. Retrieved from: <a href="https://www.bls.gov/cps/cpsaat11b.htm">https://www.bls.gov/cps/cpsaat11b.htm</a>. Last accessed: 9/29/2021.
  <sup>24</sup> Pennsylvania Department of Health, Bureau of Health Planning. <a href="2012/2013 Pulse of Pennsylvania's Registered Nurse Workforce">2012/2013 Pulse of Pennsylvania's Registered Nurse Workforce</a>, Volume 6, page 2. March 2016. Retrieved from. <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/2012-2013%20Pulse%20of%20PA%20Registered%20Nurse%20Workforce%20Report%20Final.pdf">2012/2013/20Pulse%20of%20PA%20Registered%20Nurse%20Workforce%20Report%20Final.pdf</a>. Last accessed: 9/29/2021.
- <sup>25</sup> U.S. Bureau of Labor Statistics. Employed Persons by Detailed Occupation and Age. Last modified: January 22, 2021. Retrieved from: <a href="https://www.bls.gov/cps/cpsaat11b.htm">https://www.bls.gov/cps/cpsaat11b.htm</a>. Last accessed: 9/28/2021.
  <sup>26</sup> Pennsylvania Department of Health, Bureau of Health Planning. 2012 Pulse of Pennsylvania's Physician and Physician Assistant Workforce, Volume 6, pgs. 13, 48. August 2017. Retrieved from: <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL">https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL</a> 2014%20Pulse%2
  Oof%20Pennsylvania%27s%20Physician%20and%20Physician%20Assistant%20Workforce.pdf. Last accessed: 9/29/2021.
- U.S. Bureau of Labor Statistics. Employed Persons by Detailed Occupation and Age. Last modified: January 22, 2021. Retrieved from: <a href="https://www.bls.gov/cps/cpsaat11b.htm">https://www.bls.gov/cps/cpsaat11b.htm</a>. Last accessed: 9/29/2021.
   Pennsylvania Rural Health Association. Pennsylvania Rural Health Care: Status Check VI. November 2016. Retrieved from: <a href="https://status-Check-VI.Final.pdf">Status-Check-VI.Final.pdf</a> (paruralhealth.org). Last accessed: 11/8/2021.
   Pennsylvania Trauma Systems Foundation (PTSF). <a href="https://srauma Center Accreditation">Pennsylvania</a>. Issued 09/20/2021. Retrieved from: <a href="https://www.ptsf.org/wp-content/uploads/2021/09/PTSF-Press-Release-09.17.2021.pdf">https://www.ptsf.org/wp-content/uploads/2021/09/PTSF-Press-Release-09.17.2021.pdf</a>. Last Accessed: 12/3/2021.

<sup>&</sup>lt;sup>17</sup> National Commission on Certification of PAs. <u>Statistical Profile of Certified PAs Annual Report</u>. 2020. Retrieved from: <a href="https://www.nccpa.net/wp-content/uploads/2021/07/Statistical-Profile-of-Certified-PAs-2020.pdf">https://www.nccpa.net/wp-content/uploads/2021/07/Statistical-Profile-of-Certified-PAs-2020.pdf</a>. Last accessed: 10/27/2021.

<sup>&</sup>lt;sup>18</sup> Pennsylvania Department of Health, Bureau of Health Planning. <u>2012 Pulse of Pennsylvania's Physician and Physician Assistant Workforce</u>, Volume 6, p 49. August 2017. Retrieved from: <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2">https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/FINAL\_2014%20Pulse%2\_0of%20Pennsylvania%27s%20Physician%20and%20Physician%20Assistant%20Workforce.pdf. Last accessed: 10/27/2021.

<sup>&</sup>lt;sup>19</sup> National Commission on Certification of PAs. <u>Statistical Profile of Certified PAs Annual Report</u>. 2020. Retrieved from: <a href="https://www.nccpa.net/wp-content/uploads/2021/07/Statistical-Profile-of-Certified-PAs-2020.pdf">https://www.nccpa.net/wp-content/uploads/2021/07/Statistical-Profile-of-Certified-PAs-2020.pdf</a>. Last accessed: 10/27/2021.

<sup>&</sup>lt;sup>20</sup> Pennsylvania Department of Health, Bureau of Health Planning. <u>2012/2013 Pulse of Pennsylvania's Registered Nurse Workforce</u>, Volume 6, pg. 2. March 2016. Retrieved from: <a href="https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/2012-2013%20Pulse%20of%20PA%20Registered%20Nurse%20Workforce%20Report%20Final.pdf">https://www.health.pa.gov/topics/Documents/Programs/Workforce%20Reports/2012-2013%20Pulse%20of%20PA%20Registered%20Nurse%20Workforce%20Report%20Final.pdf</a>. Last accessed: 10/27/2021.

- <sup>31</sup> National Institutes of Health. <u>NIH Reporter</u>, Quick Search. Retrieved from: <u>https://reporter.nih.gov/.</u> Data downloaded on 6/23/2021 with filters: State: PA, FY: 2020. Last access: 6/23/2021.
- <sup>32</sup> American Nurses Credentialing Center. <u>Find a Magnet Organization</u>. Last updated: May 2021. Retrieved from: <a href="https://www.nursingworld.org/organizational-programs/magnet/find-a-magnet-organization/">https://www.nursingworld.org/organizational-programs/magnet/find-a-magnet-organization/</a>. Last access: 11/1/2021.
- <sup>33</sup> Based on HAP's February 2022 analysis of Pennsylvania Department of Health's Hospital Report dataset from 2000 and 2020.
- <sup>34</sup> Based on HAP's February 2021 analysis of Pennsylvania Health Care Cost Containment Council (PHC4) 2020 Inpatient Discharge Data.
- <sup>35</sup> Pennsylvania Health Care Cost Council. <u>Hospitalizations for Newborns with Neonatal Abstinence Syndrome</u>-2018. PHC4 Research Brief, June 2019. Retrieved from: <a href="https://www.phc4.org/reports/researchbriefs/neonatal/18/docs/researchbrief neonatal18.pdf">https://www.phc4.org/reports/researchbriefs/neonatal/18/docs/researchbrief neonatal18.pdf</a>. Last accessed: 2/9/2021.
- <sup>36</sup> Ibid.
- American Hospital Association. <u>Current & Emerging Payment Models</u>. Retrieved from: <a href="https://www.aha.org/advocacy/current-and-emerging-payment-models">https://www.aha.org/advocacy/current-and-emerging-payment-models</a>. Last accessed: 10/20/2021.
   The Hospital and Healthsystem Association of Pennsylvania. Report: Workforce Survey. Revised:
- 10/1/2018. Retrieved from: <a href="https://www.haponline.org/Resource-Center?resourceid=123">https://www.haponline.org/Resource-Center?resourceid=123</a>. Last accessed: 10/22/2021.
- <sup>39</sup> Mercer. <u>US Healthcare Labor Market</u>. September 20, 2021. Retrieved from: <u>https://www.mercer.us/content/dam/mercer/assets/content-images/north-america/united-states/us-healthcare-news/us-2021-healthcare-labor-market-whitepaper.pdf</u>. Last accessed: 03/07/2022.
- <sup>40</sup> Qualivis.com. Reports: "Market Demand OH, PA, WV" and "Market Demand NY, PA, & NJ. " October 25, 2021.
- <sup>41</sup> Mercer. <u>US Healthcare Labor Market</u>. September 20, 2021. Retrieved from: https://www.mercer.us/content/dam/mercer/assets/content-images/north-america/united-states/us-healthcare-news/us-2021-healthcare-labor-market-whitepaper.pdf. Last accessed: 03/07/2022.
- <sup>42</sup> Miller, Phillip. Merritt Hawkins AMN Healthcare. *Report: Family Physicians, Psychiatrist, Top of Most in Demand Doctors*. Published: 6/5/2017. Retrieved from:
- https://www.merritthawkins.com/uploadedFiles/MerrittHawkins/Pdf/mha2017incentivererelease.pdf. Last Accessed: 8/26/2021.
- <sup>43</sup> Kaiser Family Foundation. Professionally Active Specialist Physicians by Field. Timeframe: June 2021. Retrieved from: <a href="https://www.kff.org/other/state-indicator/physicians-by-specialty-area/?dataView=0&currentTimeframe=0&sortModel=%7B%22colId%22:%22Location%22,%22sort%22:%22asc%22%7D. Last Accessed: 8/11/2021.
- <sup>44</sup> World Population Review. <u>Pennsylvania Population 2021</u>. Updated: 8/12/2021. Retrieved from: <u>https://worldpopulationreview.com/states/pennsylvania-population</u>. Last Accessed: 8/26/2021.
- <sup>45</sup> Weiner, S. Addressing the Escalating Psychiatrist Shortage. AAMCNews, 13 Feb. 2018. Retrieved from: <a href="https://www.aamc.org/news-insights/addressing-escalating-psychiatrist-shortage">https://www.aamc.org/news-insights/addressing-escalating-psychiatrist-shortage</a>. Last accessed: 8/11/2021.
- <sup>46</sup> Joint State Government Commission. General Assembly of the Commonwealth of Pennsylvania. *Behavioral Health Care System Capacity in Pennsylvania and its Impact on Hospital Emergency Departments and Patient Health.* July 2020. Retrieved from:
- http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2020-07-30%20ER-BH%20REPORT%20%20web%207.30.20.pdf. Last Accessed: 8/26/2021.

<sup>&</sup>lt;sup>30</sup> Leapfrog Hospital Safety Grade. <u>State Rankings</u>. Updated November 10, 2021. Retrieved from: <u>https://www.hospitalsafetygrade.org/your-hospitals-safety-grade/state-rankings</u>. Last accessed: 11/11/2021.

```
<sup>47</sup> Joint State Government Commission. General Assembly of the Commonwealth of Pennsylvania. 
Behavioral Health Care System Capacity in Pennsylvania and its Impact on Hospital Emergency Departments and Patient Health. July 2020. Retrieved from:
```

http://jsg.legis.state.pa.us/resources/documents/ftp/publications/2020-07-30%20ER-BH%20REPORT%20%20web%207.30.20.pdf. Last Accessed: 8/26/2021.

- <sup>48</sup> Rural Health Information Hub. <u>HPSA: Primary Care, by County, 2021 Pennsylvania</u>. Retrieved from: <u>https://www.ruralhealthinfo.org/charts/5?state=PA</u>. Last updated: July 2021. Last accessed: 8/24/2021.
- <sup>49</sup> HAP's analysis of data downloaded from Health Resources and Services Administration (HRSA), <u>Workforce Projections</u>. Retrieved from: <u>https://data.hrsa.gov/topics/health-workforce/workforce-projections</u>. Last accessed: 10/22/2021.
- <sup>50</sup> Health Resources and Services Administration. <u>Supply and Demand Projections of the Nursing Workforce</u>: 2014-2030. July 21, 2017. Retrieved from: <a href="https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nchwa-hrsa-nursing-report.pdf">https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/nchwa-hrsa-nursing-report.pdf</a>. Last accessed: 10/22/2021.
- <sup>51</sup> Pennsylvania Rural Health Association. <u>Pennsylvania Rural Health Care: Status Check VI</u>. November 2016. Retrieved from: <u>Status-Check-VI.Final.pdf</u> (<u>paruralhealth.org</u>). <u>Last accessed: 11/8/2021.</u>
- <sup>52</sup> AMN Healthcare. <u>2021 Healthcare Trends Survey Report</u>. Retrieved from: <u>https://www.amnhealthcare.com/uploadedFiles/MainSite/Pages/Campaigns/Healthcare Trends WhitePaper 2021.pdf</u>. Last accessed: 8/26/2021.
- <sup>53</sup> Definitive Healthcare. <u>Definitive Healthcare Releases Results of 2019 Annual Healthcare Trends Survey</u>. Retrieved from: <a href="https://www.definitivehc.com/about/press/healthcare-trends-survey-2019">https://www.definitivehc.com/about/press/healthcare-trends-survey-2019</a>. Last accessed: 10/20/2021.
- <sup>54</sup> Centers for Medicare & Medicaid Services. <u>Hospital Price Transparency</u>. Retrieved from: <u>https://www.cms.gov/hospital-price-transparency</u>. Last accessed: 10/20/2021.
- <sup>55</sup> "10 Things to Expect from the New Hospital Price Transparency Rule." Health Affairs Blog, March 6, 2020. Last accessed: 03/07/2022.
- <sup>56</sup> American Hospital Association. <u>Regulatory Overload</u>. October 2017. Retrieved from: <a href="https://www.aha.org/system/files/2018-02/regulatory-overload-report.pdf">https://www.aha.org/system/files/2018-02/regulatory-overload-report.pdf</a>. Last accessed: 10/26/2021.
- <sup>57</sup> Chandrasekaran, R., Sankaranarayanan, B., Pendergrass, P. "<u>Unfulfilled promises of health information exchange: What inhibits ambulatory clinics from electronically sharing health information?</u>." *International Journal of Medical Informatics*, Volume 149, 2021, 104418, ISSN 1386-5056
- <sup>58</sup> American Hospital Association. <u>PhRMA report misleads on drug costs</u>. February 11, 2021. Retrieved from: <a href="https://www.aha.org/news/blog/2021-02-11-phrma-report-misleads-drug-costs">https://www.aha.org/news/blog/2021-02-11-phrma-report-misleads-drug-costs</a>. Last accessed: 10/14/2021.
- <sup>59</sup> Dobson DaVanzo & Associates, LLC. <u>The Adequacy of Medicaid Program Payments to Hospitals in the Commonwealth of Pennsylvania</u>. April 2019. Retrieved from: https://haponlinecontent.azureedge.net/resourcelibrary/Medicaid-Program-Adequacy-Final-Report-

Dobson-DaVanzo-April2019.pdf. Last Accessed: 8/18/2021.

- <sup>60</sup> The Center for Rural Pennsylvania. <u>Pennsylvania Population Projections 2010-2040</u>. March 2014. Retrieved from: <a href="https://www.rural.palegislature.us/publications/research-reports.cfm">https://www.rural.palegislature.us/publications/research-reports.cfm</a>. Last accessed: 08/18/2021.
- <sup>61</sup> Data based on HAP analysis of Pennsylvania Population Data Center. State and County Detailed Population Estimates: Research Brief, June 2021. Retrieved from:
- https://pasdc.hbg.psu.edu/sdc/pasdc\_files/researchbriefs/June\_2021.pdf. Last accessed: 12/01/2021.
- <sup>62</sup> Calculation of Non-white for this table excludes Hispanic Non-white while the calculation for Table 3 does not. This was done in order to match the comparison statistic in the respective tables.
- <sup>63</sup> Sofer, Dalia. "The Cult of the Colossus: A Dramatic Rise in Hospital Mergers and Acquisitions," AJN, *American Journal of Nursing*: May 2020 Volume 120 Issue 5 p 19-20.
- <sup>64</sup> Monica Noether and Sean May. "<u>Hospital Merger Benefits: Views from Hospital Leaders and Econometric Analysis</u>." January 2017. Retrieved from: <a href="http://www.crai.com/publication/hospital-merger-benefits-views-hospital-leaders-and-econometric-analysis">http://www.crai.com/publication/hospital-merger-benefits-views-hospital-leaders-and-econometric-analysis</a>.

- <sup>66</sup> Holmes, Mark. "<u>Financially fragile rural hospitals: mergers and closures</u>." (2015). *North Carolina Medical Journal*. 76. 37-40. Retrieved from: <a href="https://www.ncbi.nlm.nih.gov/pubmed/25621479">https://www.ncbi.nlm.nih.gov/pubmed/25621479</a>.
- <sup>67</sup> Deloitte Center for Health Solutions and the Healthcare Financial Management Association. <u>Hospital M&A: When done well, M&A can achieve valuable outcomes</u>. (2017). Retrieved from: <a href="https://www.hfma.org/content/dam/hfma/document/research\_reports/PDF/56348.pdf">https://www.hfma.org/content/dam/hfma/document/research\_reports/PDF/56348.pdf</a>. Last accessed: 11/08/2021.
- <sup>68</sup> Matt Schmitt. "<u>Do hospital mergers reduce costs?"</u> (2017) *Journal of Health Economics*, Volume 52, Pages 74-94. Retrieved from:

https://www.sciencedirect.com/science/article/abs/pii/S0167629617300930.

- <sup>69</sup> Noles, M. J., Reiter, K. L., PhD., Boortz-Marx, J., Pink, G., PhD., & Halligan, M. A., F.A.C.H.E. (2015). "Rural hospital mergers and acquisitions: Which hospitals are being acquired and how are they performing afterward?" PRACTITIONER APPLICATION. *Journal of Healthcare Management, 60*(6), 395-408. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/26720983.
- <sup>70</sup> Brekke, K.R., Siciliani, L. and Straume, O.R., "<u>Hospital Mergers with Regulated Prices</u>." (2017) *Scand. J. of Economics*, 119: 597-627. Retrieved from:

https://papers.ssrn.com/sol3/papers.cfm?abstract\_id=2460709.

- <sup>71</sup> Lim, K.K. "Impact of hospital mergers on staff job satisfaction: a quantitative study." (2014) *Human Resources for Health* 12, 70. Retrieved from: <a href="https://human-resources-health.biomedcentral.com/articles/10.1186/1478-4491-12-70">https://human-resources-health.biomedcentral.com/articles/10.1186/1478-4491-12-70</a>.
- <sup>72</sup> Centers for Medicare & Medicaid Services. <u>Innovation Models | CMS Innovation Center.</u> <u>Innovation Models Categories.</u> Retrieved from: <u>https://innovation.cms.gov/innovation-models#views=models.</u> Last accessed: 11/8/2021.
- <sup>73</sup> Centers for Medicare & Medicaid Services. <u>Quality Payment Program</u>. 1/1/2017. Retrieved from: https://gpp.cms.gov/about/gpp-overview. Last accessed: 11/8/2021.
- <sup>74</sup> Centers for Medicare & Medicaid Services. <u>Pennsylvania Rural Health Model.</u> Published: 9/18/2020. Updated: 1/21/2021. Retrieved from: <a href="https://www.cms.gov/newsroom/fact-sheets/pennsylvania-rural-health-model">https://www.cms.gov/newsroom/fact-sheets/pennsylvania-rural-health-model</a>. Last accessed: 11/8/2021.
- Pennsylvania Department of Health. Pennsylvania Rural Health Model. 1/2020. Retrieved from: <a href="https://www.health.pa.gov/topics/Health-Innovation/Pages/Rural-Health.aspx">https://www.health.pa.gov/topics/Health-Innovation/Pages/Rural-Health.aspx</a>. Last accessed: 11/8/2021. Tarazi, W., Turrini, G., Sheingold, S. Medicare Beneficiaries' Use of Telehealth Services in 2020 Trends by Beneficiary Characteristics and Location (Issue Brief No. HP-2021- 27). Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services. December 2021. Retrieved from: <a href="https://aspe.hhs.gov/reports/medicare-beneficiaries-use-telehealth-2020">https://aspe.hhs.gov/reports/medicare-beneficiaries-use-telehealth-2020</a>. Last accessed: 03/07/2022.

<sup>65</sup> Ibid.