

#### Valuation of Hospitals: Technological Environment

Technological advancements have accelerated the shift of healthcare services from inpatient to outpatient settings,<sup>1</sup> creating both opportunities and challenges for hospitals. For instance, minimally invasive procedures often serve as alternatives to traditional, more invasive surgeries. Additionally, the integration of telehealth and artificial intelligence (AI) has the potential to enhance access to and quality of care while reducing expenditures and administrative burdens. This final installment of a five-part series on the valuation of hospitals examines the technological advancements transforming the industry.

#### Health Information Technology (HIT)

The rapid adoption of technological innovations has fundamentally reshaped the U.S. healthcare delivery system.<sup>2</sup> A prime example is healthcare information technology (HIT), encompassing applications such as billing software, staffing models, and electronic health Studies show records (EHR).<sup>3</sup> that HIT implementation can lead to greater efficiency and improved quality management.<sup>4</sup> For example, EHRs have driven cost savings, enhanced care quality, and improved care coordination.<sup>5</sup> Hospitals in particular many benefit from EHRs, which have demonstrated efficiency gains, financial savings, and clinical improvements, ultimately supporting hospital operations.<sup>6</sup>

#### Minimally Invasive Procedures

Minimally invasive surgical techniques enable physicians to perform procedures with less disruption to patients than traditional surgical methods. These techniques require smaller incisions, reducing pain and recovery time.<sup>7</sup> For high-risk patients, such as those with comorbidities, minimally invasive procedures may offer safer alternatives to traditional surgeries.<sup>8</sup> As technology and training have advanced, minimally invasive methods are now used for complex procedures, including knee arthroscopy, spine surgery.<sup>9</sup>

There are two main categories of minimally invasive surgery:

(1) Non-robotic, endoscopic (laparoscopic) surgery, wherein the physician performs the specified procedure through one or more incisions using small surgical instruments and video cameras; and, (2) Robotic surgery, which utilizes small robotic arms equipped with surgical instruments, which the physician controls via console controllers and viewing a high-definition, 3D image on the console.<sup>10</sup>

For certain high-risk (e.g., elderly) patients, minimally invasive procedures may be a safer option than traditional surgery.<sup>11</sup> As the technology and training associated with minimally invasive surgery has advanced, it has been utilized to perform more advanced procedures (e.g., valve repair and coronary artery bypass surgery).<sup>12</sup> Ultimately, the broadening scope of procedures that may be performed using minimally invasive methods may result in nearly all procedures being able to be performed in the outpatient setting,<sup>13</sup> serving as a threat to hospitals that fail to adapt and integrate these advancements into their service offerings.

#### Artificial Intelligence (AI)

AI holds immense promise for revolutionizing the healthcare industry, particularly in hospitals where it can enhance patient care and streamline administrative tasks.<sup>14</sup> Notable applications of AI include:

- (1) Clinical Decision Support: AI can process large datasets to improve diagnostic accuracy and treatment planning.<sup>15</sup>
- (2) Diagnostic Imaging: AI has been instrumental in detecting and diagnosing conditions such as lung nodules and breast cancer through advanced data analysis.<sup>16</sup>
- (3) Patient safety: AI can improve error detection, manage drug delivery, and identify potential complications earlier.<sup>17</sup>

Approximately 97% of the data captured from the 3.6 billion imaging procedures performed by hospitals every year is unused, presenting an opportunity for AI to review and synthesize what humans, with real-world time constraints, cannot.<sup>18</sup>

Despite its potential, AI adoption has been slowed by a lack of regulatory guidelines and the ethical challenges faced by providers. Nevertheless, nearly 50% of hospital CEOs and strategy leaders predict that by 2028, hospitals will have the infrastructure necessary to fully implement AI systems.<sup>19</sup>

#### Telehealth

Telehealth, defined as the "delivery of health care, health education, and health information services via remote technologies,"<sup>20</sup> has become nearly ubiquitous due to the shift from volume-based to value-based care. While adoption was initially limited, its use surged during the COVID-19 pandemic<sup>21</sup> as technology became more accessible and affordable to providers, and payors, including Medicare, expanded telehealth coverage. The use of telehealth has become increasingly popular among providers as well, with approximately 72% of all U.S. hospitals utilizing some form of telehealth in 2021.<sup>22</sup> Telehealth encompasses three main modalities:

- (1) *Store-and-Forward* or *"asynchronous"* telehealth, where information such as medical histories, reports, or other data are sent to a specialist for diagnosis and treatment;
- (2) *Remote patient monitoring*, where a patient's clinical status is evaluated continuously through video monitoring, images, or remotely reviewing tests; and,
- (3) *Real-time* or "*synchronous*" telehealth, which consists of a live conversation between the patient and provider.<sup>23</sup>

Telehealth has proven especially valuable in rural areas, where 20% of Americans live but only 11% of physicians practice.<sup>24</sup> Telehealth may be particularly useful for patients and providers in these locations, as

5 American Institute of Medical Sciences and Education, June 2, 2019.

it may provide access to various medical specialists without having to travel great distances.<sup>25</sup> Beyond addressing geographic disparities, telehealth offers benefits such as convenience, improved patient engagement, and increased provider efficiency by reducing unnecessary in-person visits.<sup>26</sup>

In the past, the common refusal of payors to reimburse providers for telemedicine services limited the adoption of telemedicine technology.<sup>27</sup> However, as the market for this technology has grown, the availability of health insurance that reimburses providers for telemedicine services has also increased. As of October 2024, 43 states and the District of Columbia have enacted private payor laws.<sup>28</sup> Further, all states have Medicaid programs that include some level of telehealth coverage.<sup>29</sup> Prior to the COVID-19 pandemic, Medicare covered certain telehealth services (e.g., remote radiology, pathology and some cardiology) as physician services, and covers physician services via video conferencing for fee-forservice Medicare beneficiaries living in rural areas.<sup>30</sup> During the public health emergency, Medicare coverage was vastly expanded; however, these expansions are set to end on December 31, 2024 intervention.<sup>31</sup> barring congressional As reimbursement and regulatory frameworks evolve, hospitals are poised to leverage telehealth to improve accessibility, quality, and efficiency in healthcare delivery.

- 10 "Minimally Invasive Surgery" Johns Hopkins Medicine, https://www.hopkinsmedicine.org/surgery/specialtyareas/minimally-invasive (Accessed 10/23/24).
- "Minimally invasive procedures offer hope for elderly patients with heart-valve problems" By Cathy Frisinger, UTSouthwestern Medical Center Newsroom, October 8, 2014, https://www.sciencedaily.com/releases/2014/10/1410081409
- 35.htm (Accessed 6/18/24).
  "Cardiac (heart) conditions" da Vinci Surgery, https://www.davincisurgery.com/procedures/cardiac-surgery
- (Accessed 6/18/24).
   See "Ambulatory Surgery Centers A Positive Trend in Health Care" Ambulatory Surgery Center Association, https://higherlogicdownload.s3.amazonaws.com/ASCACON NECT/fd1693e2-e4a8-43d3-816d-

17ecfc7d55c1/UploadedImages/About%20Us/ASCs%20-%20A%20Positive%20Trend%20in%20Health%20Care.pdf (Accessed 6/18/24).

- "How AI Is Improving Diagnostics, Decision-Making and Care" American Hospital Association, https://www.aha.org/aha-center-health-innovation-marketscan/2023-05-09-how-ai-improving-diagnostics-decisionmaking-andcare#:~:text=Artificial%20intelligence%20(AI)%20holds%2 Ogreat,survey%20of%20health%20care%20leaders. (Accessed 11/12/24).
- 15 "The Role of AI in Hospitals and Clinics: Transforming Healthcare in the 21st Century" By Shiva Maleki Varnosfaderani and Mohamad Forouzanfar, Bioengineering, Vol. 11, NO. 4 (March 2024), https://pmc.ncbi.nlm.nih.gov/articles/PMC11047988/ (Accessed 11/12/24).
- 16 "How AI Is Improving Diagnostics, Decision-Making and Care" American Hospital Association.
- 17 Ibid.

 <sup>&</sup>quot;Chapter 5: Ambulatory Surgical Center Services" in "Report to the Congress" Medicare Payment Advisory Commission, March 2022, https://www.medpac.gov/wpcontent/uploads/2022/03/Mar22\_MedPAC\_ReportToCongre ss\_Ch5\_SEC.pdf (Accessed 6/18/24), p. 172.

<sup>2 &</sup>quot;The Impact of Technology on Healthcare" American Institute of Medical Sciences and Education, June 2, 2019, https://www.aimseducation.edu/blog/the-impact-oftechnology-on-healthcare/ (Accessed 3/28/24).

<sup>3 &</sup>quot;Understanding the Costs and Benefits of Health Information Technology in Nursing Homes and Home Health Agencies: Case Study Findings" By Andrew Kramer MD, et al., U.S. Department of Health and Human Services, June 2009, https://aspe.hhs.gov/system/files/pdf/75876/HITcsf.pdf (Accessed 3/28/24), p. 1.

<sup>4</sup> *Ibid*, p. iv-v.

<sup>6 &</sup>quot;Improved Diagnostics and Patient Outcomes" HealthIT, June 4, 2019, https://www.healthit.gov/providersprofessionals/improved-diagnostics-patient-outcomes (Accessed 3/28/24); "Medical Practice Efficiencies and Cost Savings" HealthIT, August 13, 2018, https://www.healthit.gov/providers-professionals/medicalpractice-efficiencies-cost-savings (Accessed 3/28/24).

<sup>7 &</sup>quot;Minimally invasive surgery" Mayo Clinic, December 30, 2017, https://www.mayoclinic.org/testsprocedures/minimally-invasive-surgery/about/pac-20384771 (Accessed 10/23/24).

<sup>8</sup> Ibid.

<sup>9 &</sup>quot;Latest Minimally Invasive Surgery Options In Orthopedics" NY Orthopedics, https://www.newyorkorthopedics.com/2015/12/16/latest-

minimally-invasive-surgery-options-in-orthopedics-ny/ (Accessed 10/23/24).

- 18 Shiva Maleki Varnosfaderani and Mohamad Forouzanfar, Bioengineering, Vol. 11, NO. 4, March 2024.
- 19 "How AI Is Improving Diagnostics, Decision-Making and Care" American Hospital Association.
- 20 Note that "The terms *telehealth* and *telemedicine* are often used interchangeably, but *telehealth* has evolved to encapsulate a broader array of digital healthcare activities and services." "What Is Telehealth?" NEJM Catalyst, https://catalyst.nejm.org/doi/full/10.1056/CAT.18.0268 (Accessed 6/18/24).
- 21 "New HHS Study Shows 63-Fold Increase in Medicare Telehealth Utilization During the Pandemic" U.S. Department of Health and Human Services, December 3, 2021, https://www.hhs.gov/about/news/2021/12/03/new-hhsstudy-shows-63-fold-increase-in-medicare-telehealthutilization-during-pandemic.html (Accessed 6/18/24).
- 22 "Study Finds Rapid Rise Of Telehealth Use In U.S. Hospitals" By Victoria Forster, Forbes, July 12, 2024, https://www.forbes.com/sites/victoriaforster/2024/07/12/rapi d-rise-of-telehealth-use-in-us-hospitals/ (Accessed 11/12/24).
- 23 "Telehealth Systems" By Oren Mechanic, Yudy Persaud, and Alexa Kimball, StatPearls, September 12, 2022, https://www.ncbi.nlm.nih.gov/books/NBK459384/ (Accessed 6/18/24).
- 24 "Attracting the next generation of physicians to rural medicine" By Peter Jaret, Association of American Medical Colleges, February 3, 2020, https://www.aamc.org/newsinsights/attracting-next-generation-physicians-rural-medicine (Accessed 6/18/24).
- 25 "Telehealth Use in Rural Healthcare" Rural Health Information Hub, July 1, 2021, https://www.ruralhealthinfo.org/topics/telehealth (Accessed 6/18/24).
- 26 "Why Telemedicine's Time Has Finally Come" By Zina Moukheiber, Forbes, January 13, 2015,

http://www.forbes.com/sites/zinamoukheiber/2015/01/13/wh y-telemedicines-time-has-finally-come/ (Accessed 6/18/24).

- 27 "Virtual reality: More Insurers are Embracing Telehealth" By Bob Herman, Modern Healthcare, February 20, 2016, https://www.modernhealthcare.com/article/20160220/MAGA ZINE/302209980/virtual-reality-more-insurers-areembracing-telehealth (Accessed 6/18/24).
- 28 "Telehealth Private Insurance Laws" National Conference of State Legislatures, October 24, 2024, https://www.ncsl.org/health/the-telehealth-explainerseries/telehealth-private-insurancelaws#:~:text=Forty%2Dthree%20states%20and%20the,to%2 0as%20%E2%80%9Cpayment%20parity.%E2%80%9D (Accessed 11/12/24).
- 29 "State Medicaid Telehealth Policies Before and During the COVID-19 Public Health Emergency" Assistant Secretary for Planning and Evaluation, Office of Health Policy, Issue Brief HP-2021-17, National Conference of State Legislatures, July 2021, https://aspe.hhs.gov/sites/default/files/2021-07/medicaid-

https://aspe.hhs.gov/sites/default/files/2021-07/medicaidtelehealth-brief.pdf (Accessed 6/18/24).

- 30 "Telehealth Services" Centers for Medicare & Medicaid Services, Medicare Learning Network, MLN Fact Sheet MLN901705, June 2021, https://www.cms.gov/Outreachand-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/TelehealthSrvcsfctsht.pdf (Accessed 6/18/24).
- 31 "Additional Background: Sweeping Regulatory Changes to Help U.S. Healthcare System Address COVID-19 Patient Surge" Centers for Medicare and Medicaid Services, March 30, 2020, https://www.cms.gov/newsroom/factsheets/additional-backgroundsweeping-regulatory-changeshelp-us-healthcare-system-address-covid-19-patient (Accessed 6/18/24).

HEALTH CAPITAL



# Free eBook Download

Download Here



### (800) FYI -VALU

**Providing Solutions in an Era of Healthcare Reform** 

- Firm Profile
- HCC Services
- HCC Leadership
- Clients & Projects
- HCC News
- Upcoming Events
- Contact Us
- Email Us
- Valuation Consulting
- Commercial Reasonableness Opinions
- Commercial Payor Reimbursement Benchmarking
- Litigation Support & Expert Witness
- Financial Feasibility Analysis & Modeling
- Intermediary Services
- Certificate of Need
- ACO Value Metrics & Capital Formation
- Strategic Planning
- Industry Research

## LEADERSHIP



Todd A. Zigrang, MBA, MHA, FACHE, CVA, ASA, ABV, is the President of **HEALTH CAPITAL CONSULTANTS** (HCC), where he focuses on the areas of valuation and financial analysis for hospitals, physician practices, and other healthcare enterprises. Mr. Zigrang has over 28 years of experience providing valuation, financial, transaction and strategic advisory services nationwide in over 2,000 transactions and joint ventures. Mr. Zigrang is also considered an expert in the field of healthcare compensation for physicians, executives and other professionals.

Mr. Zigrang is the co-author of "The Adviser's Guide to Healthcare - 2nd Edition" [AICPA - 2015], numerous chapters in legal treatises and anthologies, and peer-reviewed and industry articles such as: The Guide to Valuing Physician Compensation and Healthcare Service Arrangements (BVR/AHLA); The Accountant's Business Manual (AICPA); Valuing Professional Practices and Licenses (Aspen Publishers); Valuation Strategies; Business Appraisal Practice;

and, *NACVA QuickRead*. Additionally, Mr. Zigrang has served as faculty before professional and trade associations such as the American Society of Appraisers (ASA); the National Association of Certified Valuators and Analysts (NACVA); the American Health Lawyers Association (AHLA); the American Bar Association (ABA); the Association of International Certified Professional Accountants (AICPA); the Physician Hospitals of America (PHA); the Institute of Business Appraisers (IBA); the Healthcare Financial Management Association (HFMA); and, the CPA Leadership Institute.

Mr. Zigrang holds a Master of Science in Health Administration (MHA) and a Master of Business Administration (MBA) from the University of Missouri at Columbia. He is a Fellow of the American College of Healthcare Executives (FACHE) and holds the Certified Valuation Analyst (CVA) designation from NACVA. Mr. Zigrang also holds the Accredited Senior Appraiser (ASA) designation from the American Society of Appraisers, where he has served as President of the St. Louis Chapter. He is also a member of the America Association of Provider Compensation Professionals (AAPCP), AHLA, AICPA, NACVA, NSCHBC, and, the Society of OMS Administrators (SOMSA).



Jessica L. Bailey-Wheaton, Esq., is Senior Vice President and General Counsel of HCC. Her work focuses on the areas of Certificate of Need (CON) preparation and consulting, as well as project management and consulting services related to the impact of both federal and state regulations on healthcare transactions. In that role, Ms. Bailey-Wheaton provides research services necessary to support certified opinions of value related to the Fair Market Value and Commercial Reasonableness of transactions related to healthcare enterprises, assets, and services.

Additionally, Ms. Bailey-Wheaton heads HCC's CON and regulatory consulting service line. In this role, she prepares CON applications, including providing services such as: health planning; researching, developing, documenting, and reporting the market utilization demand and "need" for the proposed services in the subject market service area(s); researching and assisting legal counsel in meeting regulatory requirements relating to licensing and CON application development; and, providing any requested support services required in litigation challenging

rules or decisions promulgated by a state agency. Ms. Bailey-Wheaton has also been engaged by both state government agencies and CON applicants to conduct an independent review of one or more CON applications and provide opinions on a variety of areas related to healthcare planning. She has been certified as an expert in healthcare planning in the State of Alabama.

Ms. Bailey-Wheaton is the co-author of numerous peer-reviewed and industry articles in publications such as: The Health Lawyer (American Bar Association); Physician Leadership Journal (American Association for Physician Leadership); The Journal of Vascular Surgery; St. Louis Metropolitan Medicine; Chicago Medicine; The Value Examiner (NACVA); and QuickRead (NACVA). She has previously presented before the American Bar Association (ABA), the American Health Law Association (AHLA), the National Association of Certified Valuators & Analysts (NACVA), the National Society of Certified Healthcare Business Consultants (NSCHBC), and the American College of Surgeons (ACS).



in

Janvi R. Shah, MBA, MSF, CVA, serves as Senior Financial Analyst of HCC. Mrs. Shah holds a M.S. in Finance from Washington University Saint Louis and the Certified Valuation Analyst (CVA) designation from NACVA. She develops fair market value and commercial reasonableness opinions related to healthcare enterprises, assets, and services. In addition she prepares, reviews and analyzes forecasted and pro forma financial statements to determine the most probable future net economic benefit related to healthcare enterprises, assets, and services and applies utilization demand and reimbursement trends to project professional medical revenue streams and ancillary services and technical component (ASTC) revenue streams.

For more information please visit: www.healthcapital.com