

The New Kid on the Block: The Technological Environment of Micro-Hospitals

The prior four installments of this *Health Capital Topics* series on micro-hospitals have introduced the micro-hospital concept, and discussed its evolution within the existing regulatory; reimbursement; and, competitive healthcare environments. The fifth and final installment of this series will explore how various healthcare technologies have supported the expansion of micro-hospitals, and how it may contribute to the sustained success of this novel provider.

Technology has a broad meaning when applied to healthcare. It can range from the tangible tools and software that providers use during the provision of clinical services and the management of patient records to the procedures that constitute the standardized course of care. The advancement of healthcare technology (both clinical and information technology) is one of the leading reasons for the growth of micro-hospitals, along with the expansion of other outpatient services and providers, e.g., retail clinics and *ambulatory surgery centers* (ASCs). This general shift from *inpatient* to *outpatient* care has been observed for several years; the number of inpatient stays decreased by 6.6% from 2005 to 2014, with reductions in almost all service types, e.g., surgical (12% decrease), medical (5.3% decrease), and maternal and neonatal (9.1% and 7.8% decrease, respectively).¹ While the number of patient days has decreased, the average cost per stay has increased by an average of 12.7% over the same timeframe.² The increasing costs of inpatient stays, coupled with advances in clinical technology such as minimally invasive surgery, have incentivized hospitals to increasingly shift toward outpatient care models in an effort to stay competitive.³ As a result, many hospitals and health systems have decreased their inpatient bed volume or closed outright.⁴ In essence, micro-hospitals have simply fast-tracked this trend by creating facilities with a much smaller bed capacity, allowing them to capitalize on the revenue generated by technologically-driven outpatient and ambulatory services to support a small number of inpatient beds.

One area in particular upon which some micro-hospitals have capitalized is the decrease in cost (and therefore, the increase in revenue), associated with providing certain minimally invasive surgical procedures, e.g., knee replacements, in an outpatient setting.⁵ While this shift to outpatient care is not new to surgical specialties (the majority of eye and ear surgeries are being performed in outpatient facilities), some specialty procedures, e.g.,

joint replacements, have lagged behind other orthopedic procedures and surgical specialties, with only 4.2% and 4.6% of hip replacements and knee arthroplasty procedures, respectively, being performed in an ambulatory setting in 2014.⁶ However, in the *2018 Outpatient Prospective Payment System Final Rule*, the *Centers for Medicare & Medicaid Services* (CMS) finalized the removal of the *Total Knee Arthroplasty* procedure from the *Inpatient Only* (IPO) list, effectively allowing providers to be reimbursed for performing these procedures for Medicare beneficiaries in the inpatient *or* outpatient setting.⁷ As more clinical evidence is collected indicating that these types of procedures can be safely and effectively performed in outpatient settings at lower costs, it is expected that this trend will continue as reimbursement and regulatory reforms align. Micro-hospitals, like ASCs, will likely benefit from this trend.

The advent of virtual medicine, e.g., remote reading of imaging studies; virtual specialist consultations; remote physician and nursing support for staffing; and, telehealth suites, may also positively impact a micro-hospital's efficiency and patient access.⁸ Telehealth and remote monitoring utilization was predicted to continue expanding in 2017 and 2018,⁹ and the use of remote consultation services and telehealth technology could be used to provide appropriate and convenient outpatient follow-up for micro-hospital patients.¹⁰ In addition, the utilization of remote specialist and consultant services is particularly useful for support of ancillary services, such as radiology and diagnostics, in order to reduce overhead and space.¹¹ Micro-hospitals can also reduce costs associated with staffing by making use of remote patient monitoring and taking advantage of remote specialist consultations (versus in-house staffing) for emergent cases that require stabilization before transport to a tertiary facility, e.g., cardiac or stroke care.¹² The utilization of telehealth in healthcare, while still expanding, is likely to continue garnering support; indicatively, during the *Medicare Payment Advisory Commission* (MedPAC) April 2018 public meeting, one of the commissioners noted that he felt that the government was "*underinvesting*" in telehealth, and that it was an issue that should be discussed further in future meetings.¹³

While the growth in clinical technology has fueled the movement toward outpatient care, the adoption and growth of healthcare information technology such as

electronic health records (EHR) and associated information sharing and cooperation among providers support the development of “*hub and spoke*” style micro-hospital operation in concert with larger hospitals and health systems.¹⁴ In addition, on April 24, 2018, CMS announced an initiative to “*improve patients’ access to their electronic health records*” by updating the *meaningful use* program to “*promote interoperability*” between patients and providers.¹⁵ EHRs, information systems, and associated technology advances, e.g., app-enabled patient portals and alternative avenues for communication with patients (such as text messaging and social media) are poised to become more ubiquitous and, consequently, more intuitive and accessible for patients.¹⁶

The continuing growth and innovation related to healthcare technology appear to be beneficial to the sustained progress of micro-hospitals. By taking

advantage of small inpatient bed size and resultant limited overhead costs; capitalizing on the ability to create revenue from outpatient procedures; and, efficiently utilizing telehealth and virtual technologies to support these aims, micro-hospitals could continue to flourish so long as regulatory and reimbursement barriers do not impede their projected progress. Micro-hospitals have rapidly evolved in the U.S. healthcare industry based on a combination of factors from the regulatory; reimbursement; competitive; and, technological environments. It is not yet certain, however, whether the current micro-hospital prototype will be able to continue making effectual use of technological advancements to solidify their niche market spot and withstand the unceasing changes under healthcare reform and expected downward reimbursement pressures and regulatory hurdles. As the Greek philosopher Heraclitus noted, and as the healthcare industry has seen time and time again, “*The only thing that is constant is change.*”¹⁷

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Todd A. Zigrang, MBA, MHA, ASA, FACHE, 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 20 years of experience providing valuation, financial, transaction and strategic advisory services nationwide in over 1,000 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](#)" [2015 – AICPA], numerous chapters in legal treatises and anthologies, and peer-reviewed and industry articles such as: *The Accountant's Business Manual* (AICPA); *Valuing Professional Practices and Licenses* (Aspen Publishers); *Valuation Strategies*; *Business Appraisal Practice*; and, *NACVA QuickRead*. In addition to his contributions as an author, Mr. Zigrang has served as faculty before professional and trade associations such as the American Society of Appraisers (ASA); American Health Lawyers Associate (AHLA); the American Bar Association (ABA); the National Association of Certified Valuators and Analysts (NACVA); 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 Accredited Senior Appraiser (ASA) designation from the American Society of Appraisers, where he has served as President of the St. Louis Chapter, and is current Chair of the ASA Healthcare Special Interest Group (HSIG).



John R. Chwarzinski, MSF, MAE, is Senior Vice President of **HEALTH CAPITAL CONSULTANTS (HCC)**. Mr. Chwarzinski's areas of expertise include advanced statistical analysis, econometric modeling, as well as, economic and financial analysis. Mr. Chwarzinski is the co-author of peer-reviewed and industry articles published in *Business Valuation Review* and *NACVA QuickRead*, and he has spoken before the Virginia Medical Group Management Association (VMGMA) and the Midwest Accountable Care Organization Expo. Mr. Chwarzinski holds a Master's Degree in Economics from the University of Missouri – St. Louis, as well as, a Master's Degree in Finance from the John M. Olin School of Business at Washington University in St. Louis. He is a member of the St. Louis Chapter of the American Society of Appraisers, as well as a candidate for the Accredited Senior Appraiser designation from the American Society of Appraisers.



Jessica L. Bailey-Wheaton, Esq., is Vice President and General Counsel of **HEALTH CAPITAL CONSULTANTS (HCC)**, where she conducts project management and consulting services related to the impact of both federal and state regulations on healthcare exempt organization transactions and 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. Ms. Bailey-Wheaton is a member of the Missouri and Illinois Bars and holds a J.D., with a concentration in Health Law, from Saint Louis University School of Law, where she served as Fall Managing Editor for the *Journal of Health Law & Policy*.



Daniel J. Chen, MSF, is a Senior Financial Analyst at **HEALTH CAPITAL CONSULTANTS (HCC)**, where he develops fair market value and commercial reasonableness opinions related to healthcare enterprises, assets, and services. In addition, Mr. Chen 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, as well as ancillary services and technical component (ASTC) revenue streams. Mr. Chen has a Master of Science in Finance from Washington University St. Louis.