DUFF & PHELPS

Healthcare Information Technology

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Addressing the Challenges of Patient Receivables

Every year patients become responsible for an increasing percentage of healthcare providers' revenues and accounts receivable. While this trend has negative implications for cash flow, it also presents an opportunity for greater outsourcing of front-end revenue cycle management.

Several factors drive the constant increase in patient-pay accounts receivable. Healthcare costs have consistently increased at rates in excess of inflation — according to the Centers for Medicare and Medicaid Services (CMS), the average annual healthcare cost per person hit $10,348 in 2016, up from $7,700 in 2007. Additionally, patients are increasingly responsible for a greater share of their healthcare costs. While the Affordable Care Act (ACA) reduced the uninsured population in the country, people with insurance are becoming underinsured as a result of the proliferation of high-deductible health plans (HDHPs), higher deductibles within PPOs and higher levels of coinsurance and copays in all plans. For perspective, an America's Health Insurance Plans (AHIP) survey published in February 2017 indicated that 20.1 million people were enrolled in HSA-qualified HDHPs in 2016, double the number of enrollees in such plans in 2010. Even traditional plan deductibles are on the rise. According to Benefitfocus, PPO deductibles rose by nearly 10% in 2016, to the point where they are almost at the minimum deductible levels set by the IRS for HDHPs.

In addition to increases in deductibles, copays and coinsurance, health insurance premiums have increased and employers' subsidies of premiums have decreased. The net result is that the total medical expenditures paid by households have significantly outpaced wage growth. According to data provided by eHealthInsurance, in 2016 the premium for an unsubsidized family plan purchased on an exchange averaged $833 per month, and the average deductible was $7,983, resulting in a total annual cost of $17,979 for a family meeting their deductible.

Making these trends even more problematic for both patients and providers is that medical expenditures are often not foreseeable. Increasing patient responsibility is a large component of the increased consumerization of healthcare. Unfortunately, big-ticket medical expenditures are very different than other big-ticket consumer goods and services. Other than contributing to a health savings account, consumers generally cannot make an informed financial plan for an unforeseen medical expenditure, nor can they delay an emergency medical procedure while saving up to pay for it. Providers cannot collect from patients who may be quite willing to pay their medical bills but who do not have the wherewithal to do so. According to a study by the Consumer Financial Protection Bureau (CFPB), 50% of consumers with medical collections as the only delinquency on their credit report have no other indication of serious past delinquencies. These are otherwise reliable payers who have a particular problem with their medical debt.

> "Consumer out-of-pocket spending on healthcare increased six times greater than the rate of wage increase over the past 16 years."
>
> — Kaiser Family Foundation's 2016 Annual Survey of Employer Health Benefits

The implication for providers is significant. Several years ago, when patient responsibility represented only a small portion of provider accounts receivable, it was easy enough for providers to ignore delinquent accounts and charge them off. Indeed, because providers seek repeat customers, not hassling patients for small amounts of delinquencies was a good business practice. However, times have changed. According to a 2016 Medical Group Management Association (MGMA) survey of 300 providers, 52% of providers reported patient pay was between 11% and 30% of revenues, and 23% reported patient pay was in excess of 30% of total revenue. A 2016 report by TransUnion Healthcare indicated that 51% of patients owe more than $1,000 to their healthcare providers. At these levels, patient account balances cannot be ignored.

Providers and their billing companies are often partially responsible for making patient-pay accounts difficult to collect. Collection of patient-pay receivables is often considered to be a function of the back end of the revenue cycle. But in today's market of patient responsibility, focus on the front end of the revenue cycle is increasingly important to the improvement of collection rates. For example, benefits can be verified pre-encounter, during registration, so the patient can begin to understand the magnitude of his/her responsibility. Preauthorizations can be established to enhance future collections. Point-of-service collections of copays and remaining deductibles results in revenue and collections that never become accounts receivable and can never become delinquent.

> "56% of large employers on the Benefitfocus Platform offered an HDHP in addition to traditional copay-based plans (PPO, HMO, etc.) — up from 52% a year ago."
>
> — Benefitfocus 2017 State of Employee Benefits

Despite efforts such as the HFMA and AHA's Patient Friendly Billing Project, which has been underway for more than 15 years, patients still receive too many paper-based bills that are poorly designed, with confusing, jargon-laden content. In today's consumer-centric healthcare market, consumers want choice in the medium of communication and payment. Older patients may prefer paper statements, but younger patients are used to communicating digitally on mobile devices and want their statements delivered accordingly. The MGMA reports that 77% of surveyed physicians send patients paper bills, yet 52% of patients expressed a preference for electronic bills. Older patients may be content with making payments by check or credit card, but younger consumers want to pay by portal, Apple Pay, or using their bank's mobile app. While Bitcoin is not coming soon to the healthcare payment market, consumers are using many payment modes today that healthcare providers should embrace.

For those patients with the willingness to pay, but without the financial ability to pay the full balance of their accounts, providers should explore financing options, automatic payment plans and discounted payments to resolve these accounts. A payment plan enables a willing customer to do what he/she can do to settle his/her obligations. This not only has the benefit of accelerating cash but also improving customer satisfaction.

> "Lack of price transparency and the complex system of insurance coverage and cost sharing means many consumers, including those who have health coverage, receive medical bills that are a source of confusion."
>
> — CFPB study of medical and nonmedical collections

Proactively addressing the phenomenon of ever-increasing patient-pay receivables has many benefits for providers. By acting earlier in the revenue cycle, communicating with patients via paper, online and text and offering multiple payment modes, more of these challenging accounts can be converted to cash, and at a faster pace. This also leads to greater customer satisfaction. Addressing the amount of patient responsibility early in the revenue cycle builds trust. Clearer and simpler communication of the breakdown of charges eliminates confusion and working with the patient to resolve the account by offering a discount or a payment plan engenders loyalty. Unlike accounts that get sent to collection agencies, these accounts belong to patients who are generally repeat customers, who will likely discuss their experience with family, friends and coworkers, building their providers' brand via the most powerful referral source in marketing — word of mouth.

2017 HCIT M&A Overview

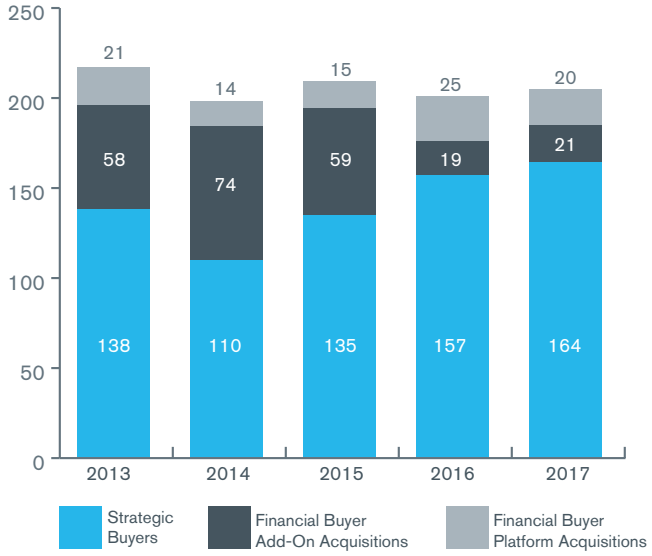
In 2017, 205 HCIT transactions were announced, which is on pace with the 201 transactions announced in 2016, continuing a robust trend of acquisition activity in the HCIT market. Strategic buyers, including portfolio companies of financial investors, represented over 90% of activity, with new platform acquisitions by financial buyers representing the remainder of announced transactions. Deal volume in the sector was largely driven by growing demand from payors, providers and healthcare companies to improve patient care and regulatory compliance while creating operating efficiencies. Additionally, innovation in areas such as data storage and cloud technology, analytics and population health management, EHR interoperability, cybersecurity and HIPAA compliance and interconnected medical devices continues to be an important investment theme as acquirers seek to remain ahead of HCIT trends.

Healthcare consumerization is also driving HCIT acquisitions as providers look for new ways to improve patient interaction during scheduling, treatment and billing. Patients are accustomed to on-demand, technology-enabled experiences in purchasing other goods and services, and healthcare providers are looking for ways to increase patient convenience, provide additional transparency into billing and empower patient decision-making. As the industry becomes more customer-centric, payors and providers are turning to digital health solutions, such as patient-facing portals, online education and smartphone applications, to improve patient engagement and satisfaction.

The largest HCIT transaction in 2017 was the all-cash $3.6 billion acquisition of eviCore Healthcare, LLC, by Express Scripts Holding Company (NASDAQGS:ESRX), which closed on December 15. Other notable transactions in 2017 include the acquisition by Internet Brands, a portfolio company of KKR, of WebMD Health Corporation (NYSE:WBMD); UnitedHealth Group Incorporated's (NYSE:UNH) acquisition of The Advisory Board Company (NASDAQGS:ABCO); McKesson's (NYSE:MCK) acquisition of CoverMyMeds LLC; and Teladoc's (NYSE:TDOC) acquisition of Best Doctors, Inc.

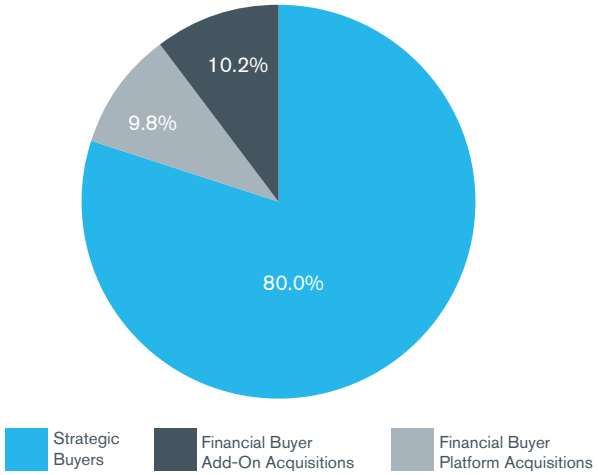
Source: Healthcare IT News, S&P Capital IQ, MergerMarket, company press releases and other news sources

2013 – 2017 Healthcare IT M&A Activity



Source: Healthcare IT News, S&P Capital IQ, MergerMarket, company press releases and other news sources

2017 Transactions by Acquirer Type



Source: Healthcare IT News, S&P Capital IQ, MergerMarket, company press releases and other news sources

M&A Activity – HCIT Trends

eviCore Healthcare is a pharmacy benefits management company that administers medical benefits impacting more than 100 million people through cloud-centric healthcare solutions for managed care organizations. Express Scripts' CEO, Tim Wentworth, noted that this acquisition would allow the company to be "an even more powerful partner in managing costs for patients and payers by bringing us closer to our goal of becoming the nation's leading patient benefit manager." Post-transaction, Express Scripts plans to operate the company as a stand-alone business unit while selling its services to eviCore's client base.

On July 24, 2017, Internet Brands, a KKR portfolio company, announced that it entered into a definitive agreement to acquire WebMD Health Corporation in an all-cash tender offer of $2.8 billion. WebMD is the leading provider of health information services to patients, physicians and healthcare professionals through its public and private online portals, mobile platforms and health-focused publications. The offer of $66.50 per share reflected a premium of approximately 30% to WebMD's share price on February 15, 2017, the day before WebMD announced that it was exploring potential strategic alternatives. "After a thorough review of strategic alternatives, we are pleased to announce this transaction, which provides our stockholders with immediate and significant cash value and a substantial premium," said Martin J. Wygod, chairman of WebMD. "Throughout this process, our board has conducted diligent analysis and thoughtful deliberations. WebMD and its financial advisors had a process that involved outreach to more than 100 strategic and financial parties, and we are confident that this transaction maximizes value for our stockholders." With the acquisition, Internet Brands strengthened its position as the leading SaaS/web hosting player in the healthcare space, with its health vertical market serving millions of consumers and more than 50,000 healthcare practices through its assortment of healthcare platforms. The acquisition closed on September 15, 2017.

On August 29, 2017, OptumInsight, Inc., the healthcare services arm of UnitedHealth Group Inc., announced its $1.3 billion acquisition of the healthcare division of The Advisory Board Company. The Advisory Board's healthcare division offers independent research, data analytics and advisory services to more than 4,400 healthcare organizations. Providers often use The Advisory Board's solutions surrounding revenue cycle management, cost reduction and risk-adjusted reimbursement. Optum's

relationships across the healthcare spectrum, which span more than 300 payers and 115 million consumers, will supplement the combined organization's research capabilities. "For more than 30 years, Advisory Board's strategic insights have been an important part of the national healthcare conversation, and we are thrilled to welcome them to Optum," said Larry Renfro, CEO of Optum. "Together, we will be able to offer deeper and more comprehensive solutions to help all segments of the healthcare industry thrive in this evolving market, while preserving the objectivity and credibility of Advisory Board's industry-leading research." The acquisition closed on November 17, 2017. This is the second major acquisition that Optum completed in 2017, with its January acquisition of Surgical Care Affiliates, the ambulatory surgery center and surgical hospital provider, for $2.3 billion.

On January 25, 2017, McKesson Corporation announced its acquisition of CoverMyMeds LLC for up to $1.4 billion. The company paid $1.1 billion in cash at closing with a potential earn-out of $300 million contingent on CoverMyMeds' financial performance through the end of the company's 2019 fiscal year. CoverMyMeds is a leader in electronic prior authorization (ePA) solutions, providing software that automates this process for more than 500 electronic health record systems, 49,000 pharmacies, 700,000 providers and most health plans. The company helps customers avoid administrative waste and unnecessary medical spending caused by prescription abandonment. The acquisition will strengthen McKesson's technology products to pharmaceutical manufacturers, clinicians and payers. The "acquisition of CoverMyMeds supports McKesson's commitment to provide a comprehensive set of services and solutions that drive value across the healthcare continuum and secure patients' access to their prescribed drugs," McKesson's Chairman and CEO, John H. Hammergren said in a statement. "McKesson continues to further enhance its diverse suite of pharmaceutical technology solutions to support the very best in-patient care." The acquisition closed on April 3, 2017.

On June 19, 2017, Teladoc, Inc., announced its $440 million acquisition of Best Doctors Inc. Under the terms of the agreement, the shareholders of Best Doctors received $375 million of cash and $65 million of Teladoc equity at closing. Best Doctors is the world's leading expert medical consultation company, focused on improving health outcomes for the most complex, critical and costly medical issues. The company's network consists of more than 50,000 medical experts who serve millions of members through Best Doctors' analytics and technology solutions to deliver improved health outcomes while reducing costs. The acquisition will permit Teladoc to combine its award-winning technology and scalable platform with Best Doctors' world-renowned network of medical professionals and analytics expertise. "At Teladoc, our vision has always been to provide the central, trusted source for consumers to find resolution to the broadest array of healthcare needs, on their terms," said Teladoc CEO, Jason

Gorevic. “Now with Best Doctors’ network of world-renowned experts in over 450 specialties, global footprint and exceptional analytic capabilities, we are taking a monumental step towards making that vision a reality.” The acquisition closed on July 19.

Building on the major HCIT transactions that occurred in 2017, 2018 could shape up to be a robust year for HCIT M&A, with assets such as Conifer Health Solutions, a subsidiary of Tenet Healthcare Corporation (NYSE:THC), in play. Conifer provides revenue cycle management solutions and software to hospitals and physician groups in areas such as patient registration, insurance authorization and billing and collections. Under new leadership, Tenet announced that it is working to de-lever its balance sheet and improve the margins of its hospital segment by divesting Conifer and cutting $250 million of costs by the end of 2018. Conifer generated $1.6 billion of revenue and $277 million of EBITDA in 2016, accounting for approximately 11% of Tenet’s total EBITDA. Tenet expects to make a firm decision on Conifer’s future during the first half of 2018.

Source: Healthcare IT News, S&P Capital IQ, MergerMarket, company press releases and other news sources

HCIT IPO Activity

HCIT IPO activity dwindled in 2017, with only Medica Group PLC (LSE:MGP) pricing in 2017. The number of HCIT IPOs over the past few years has been slow, with only four IPOs in 2016, including NantHealth (NASDAQ:NH), Cotiviti Holdings, Inc. (NYSE:COTV), OneView Healthcare PLC (ASX:ONE) and Tabula Rasa HealthCare, Inc. (NASDAQ:TRHC).

Medica Group PLC is a provider of teleradiology reporting services, offering routine teleradiology, radiology plain film and colonography reporting services. The company is based in Hastings, United Kingdom, and delivers an excess of 1.3 million reports a year. The company raised $149 million USD in a deal priced on March 21, 2017 at $1.83 per share, and has traded in the range of $2.36 to $1.81 since the offering. It closed at $2.07 on December 29, 2017.

NantHealth is a healthcare cloud-based IT company converging science and technology through a single integrated clinical platform to provide actionable health information at the point of care. NantHealth is a majority-owned subsidiary of NantWorks, which is a subsidiary of California Capital Equity. The three companies were founded and are led by Dr. Patrick Soon-Shiong. The majority of its operations are conducted in the United States, Canada, U.K., Singapore and India. NantHealth raised $91 million USD in a deal priced on June 2, 2016 at $14.00 per share, and has traded in the range of $18.59 to $2.66 since the offering. It closed at $3.05 on December 29, 2017.

Cotiviti Holdings, Inc., is a leading provider of analytics driven payment accuracy solutions, focused primarily on the healthcare sector. Cotiviti works with approximately 40 healthcare organizations. The company is also a leading provider of payment accuracy solutions to approximately 40 retail clients, including eight of the 10 largest retailers in the United States. The company raised $237.5 million USD in a deal priced on May 26, 2016 at $19.00 per share, and has traded in the range of $44.60 to $17.11 since the offering. It closed at $32.21 on December 29, 2017.

Tabula Rasa HealthCare, Inc., provides patient-specific, data-driven technology and solutions that enable healthcare organizations to “optimize medication regimens to improve patient outcomes, reduce hospitalizations, lower healthcare costs and manage risk.” Tabula Rasa currently serves approximately 100 healthcare organizations that focus on populations with complex healthcare needs and extensive medication requirements in the United States. The company raised $51.6 million USD in a deal priced on September 29, 2016 at $12.00 per share and has traded in the range of $36.43 to $10.74 since the offering. It closed at $28.05 on December 29, 2017.

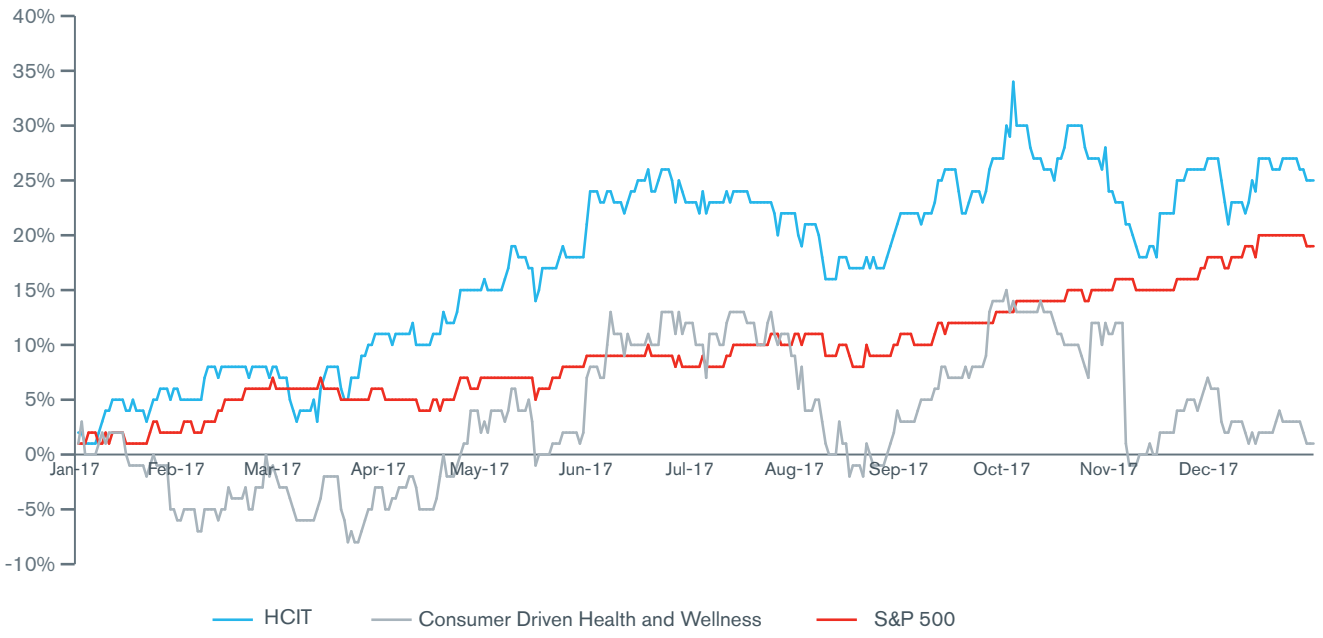
Source: Healthcare IT News, S&P Capital IQ, MergerMarket, company press releases and other news sources

Public Market Valuation Multiples

The HCIT Index outperformed the S&P 500, and the Consumer Driven Health and Wellness (CDHW) Index underperformed the S&P 500 in 2017.
In 2017, the HCIT index outperformed the S&P 500 by 4.9%, while the CDHW index underperformed the S&P 500 by 15.4%. In the HCIT index, Teladoc, Inc., was the top performer, gaining 111.2%, followed closely by R1 RCM Inc. (NASDAQCM:RCM), with a gain of 92.6% and Tabula Rasa Healthcare, Inc., with a gain of 88.1%. In the CDHW index, Tivity Health, Inc. (NASDAQGS:TVTY), was up 62.4% for the year, followed by HealthEquity, Inc., at 16.1%. NantHealth, Inc., was the poorest performer in the HCIT index, declining by 69.0%, while Fitbit, Inc. (NYSE:FIT), was the poorest performer in the CDHW index, declining by 28.1%. Nonetheless, 2017 proved to be a strong year in the HCIT equity market, with a majority of companies showing positive performances through 2017.

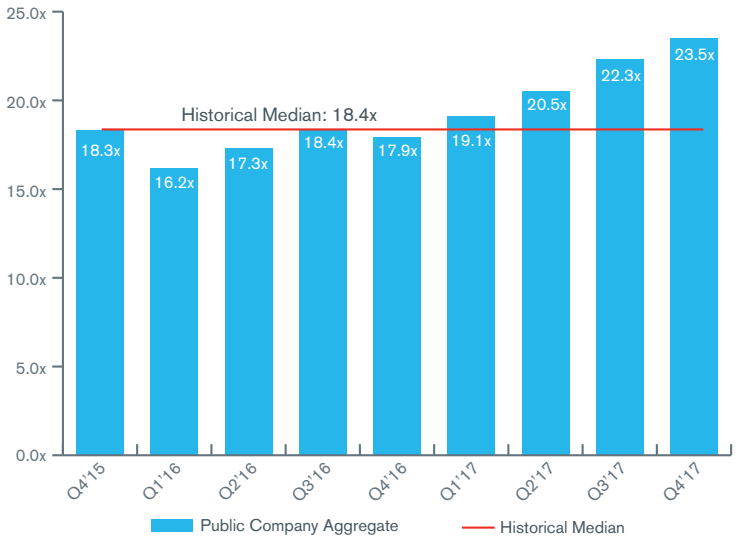
HCIT company valuations rose in 2017 while CDHW valuations declined sharply.
The median LTM EV/EBITDA multiple for HCIT companies rose by 23.0%, from 19.1 times in Q1 of 2017 to 23.5 times in Q4 of 2017. The median LTM EV/EBITDA multiple for CDHW companies contracted by 46.7%, from 40.7 times in Q1 of 2017 to 21.7 times in Q4 of 2017.

Stock Price Index
(January 3, 2017 – December 29, 2017)



Source: S&P Capital IQ

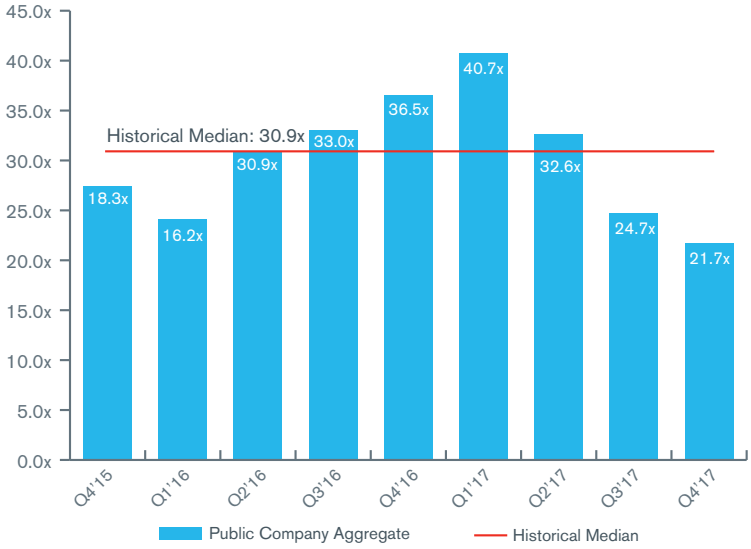
HCIT Index
Quarterly LTM EBITDA Multiples
(Q4 2015 – Q4 2017)



(1) EBITDA multiples greater than 100x are deemed not meaningful
(2) Multiples calculated based on the average daily LTM EBITDA multiple for the preceding fiscal quarter. As such, the multiples presented herein differ from the multiples presented elsewhere in this report.

Source: S&P Capital IQ

Consumer Driven Health and Wellness Index
Quarterly LTM EBITDA Multiples
(Q4 2015 – Q4 2017)

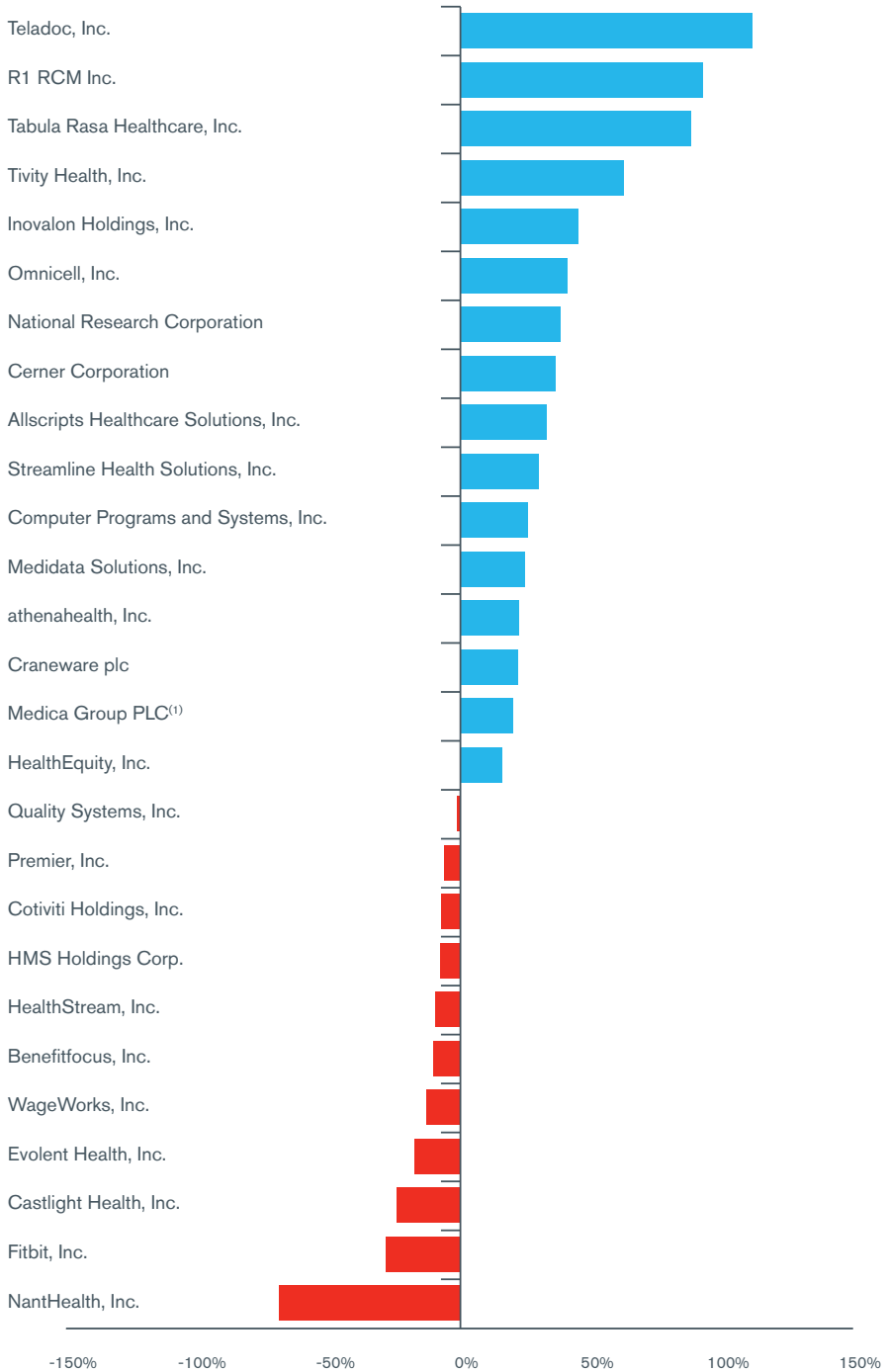


(1) EBITDA multiples greater than 100x are deemed not meaningful
(2) Multiples calculated based on the average daily LTM EBITDA multiple for the preceding fiscal quarter. As such, the multiples presented herein differ from the multiples presented elsewhere in this report.

Source: S&P Capital IQ

Selected Publicly Traded Companies

Stock Price Change
(January 3, 2017 – December 29, 2017)



(1) Medica Group PLC's stock price change was calculated from March 21, 2017 until December 29, 2017 due to its IPO in 2017

Source: S&P Capital IQ

				LTM Multiples					
		Price	% Change	(as of 1/3/2017)		(as of 12/29/2017)		Change in Multiples	
Company Name	Ticker	12/29/2017	1/3/2017	Rev	EBITDA	Rev	EBITDA	Rev	EBITDA
HCIT									
Allscripts Healthcare Solutions, Inc.	MDRX	$14.55	33.1%	2.4x	29.0x	2.6x	25.2x	5.0%	(12.9%)
athenahealth, Inc.	ATHN	133.04	22.6%	4.2x	50.0x	4.6x	42.1x	10.0%	(15.8%)
Cerner Corporation	CERN	67.39	36.4%	3.6x	12.9x	4.4x	15.9x	23.2%	23.7%
Computer Programs and Systems, Inc.	CPSI	30.05	25.7%	1.9x	12.9x	2.1x	19.9x	9.0%	54.0%
Cotiviti Holdings, Inc.	COTV	32.21	(7.0%)	NA	NA	5.4x	15.1x	NA	NA
Craneware plc	CRW	19.80	22.0%	8.5x	28.1x	7.9x	26.3x	(7.9%)	(6.3%)
Evolent Health, Inc.	EVH	12.30	(17.4%)	3.9x	NM	1.9x	NM	(50.2%)	NA
HealthStream, Inc.	HSTM	23.16	(9.4%)	3.2x	30.2x	2.5x	22.6x	(20.7%)	(25.1%)
HMS Holdings Corp.	HMSY	16.95	(7.7%)	3.2x	17.1x	3.2x	16.7x	(0.1%)	(2.5%)
Inovalon Holdings, Inc.	INOV	15.00	44.9%	2.4x	11.4x	4.4x	26.0x	85.4%	127.7%
Medica Group PLC	LSE:MGP	2.79	NA	NA	NA	7.7x	26.0x	NA	NA
Medidata Solutions, Inc.	MDSO	63.37	24.6%	6.5x	50.9x	6.8x	43.6x	3.7%	(14.3%)
NantHealth, Inc.	NH	3.05	(69.0%)	NA	NA	4.4x	NM	NA	NA
National Research Corporation	NRCIB	56.06	38.3%	4.8x	15.0x	8.2x	24.3x	71.1%	62.8%
Omnicell, Inc.	OMCL	48.50	41.0%	2.2x	19.6x	2.9x	49.4x	33.3%	152.5%
Premier, Inc.	PINC	29.19	(6.1%)	3.9x	12.9x	3.2x	11.0x	(17.1%)	(14.6%)
Quality Systems, Inc.	QSII	13.58	(1.2%)	1.8x	15.5x	1.7x	15.1x	(3.7%)	(2.9%)
R1 RCM Inc.	RCM	4.41	92.6%	0.4x	0.7x	1.2x	25.7x	219.6%	3,666.4%
Streamline Health Solutions, Inc.	STRM	1.69	30.0%	1.4x	NM	1.8x	NM	28.5%	NA
Tabula Rasa Healthcare, Inc.	TRHC	28.05	88.1%	3.7x	33.7x	4.8x	NM	32.0%	NA
Teladoc, Inc.	TDOC	34.85	111.2%	6.7x	NM	NM	NM	NA	NA
	Mean		24.6%	3.6x	22.7x	4.1x	25.3x	13.8%	11.7%
	Median		25.2%	3.4x	17.1x	3.8x	24.8x	12.0%	45.1%
	Market Capitalization Weighted		23.9%	3.4x	19.3x	4.2x	21.7x	24.7%	12.5%
Consumer Driven Health and Wellness									
Benefitfocus, Inc.	BNFT	$27.00	(10.0%)	4.0x	NM	3.6x	NM	(10.7%)	NA
Castlight Health, Inc.	CSLT	3.75	(24.2%)	4.3x	NM	3.4x	NM	(20.8%)	NA
Fitbit, Inc.	FIT	5.71	(28.1%)	0.5x	5.2x	0.4x	NM	(10.6%)	NA
HealthEquity, Inc.	HQY	46.66	16.1%	NM	42.9x	NM	38.9x	NA	(9.2%)
Tivity Health, Inc.	TVTY	36.55	62.4%	1.4x	81.1x	2.9x	12.7x	111.7%	(84.3%)
WageWorks, Inc.	WAGE	62.00	(12.8%)	5.8x	31.3x	3.9x	19.7x	(32.6%)	(36.8%)
	Mean		0.6%	3.2x	40.1x	2.9x	23.8x	(10.8%)	(40.7%)
	Median		(11.4%)	4.0x	37.1x	3.4x	19.7x	(16.2%)	(46.7%)
	Market Capitalization Weighted		(1.3%)	2.5x	29.2x	2.0x	18.8x	(20.0%)	(35.6%)

Source: S&P Capital IQ
Note: Revenue multiples greater than 11.0x and EBITDA multiples greater than 100.0x are deemed not meaningful (NM).

DUFF & PHELPS

CONTACT US

Brooks Dexter
Managing Director
Head of Healthcare M&A
Los Angeles
+1 424 249 1646
brooks.dexter@duffandphelps.com

Eric Coburn
Managing Director
New York
+1 212 450 2839
eric.coburn@duffandphelps.com

Phil Smith
Managing Director
Minneapolis
+1 651 393 4052
philip.smith@duffandphelps.com

Laca Wong-Hammond
Managing Director
New York
+1 212 871 3915
laca.wong-hammond@duffandphelps.com

Jordan Lampos
Director
Los Angeles
+1 424 249 1668
jordan.lampos@duffandphelps.com

Adam Stormoen
Director
Minneapolis
+1 612 720 8136
adam.stormoen@duffandphelps.com

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