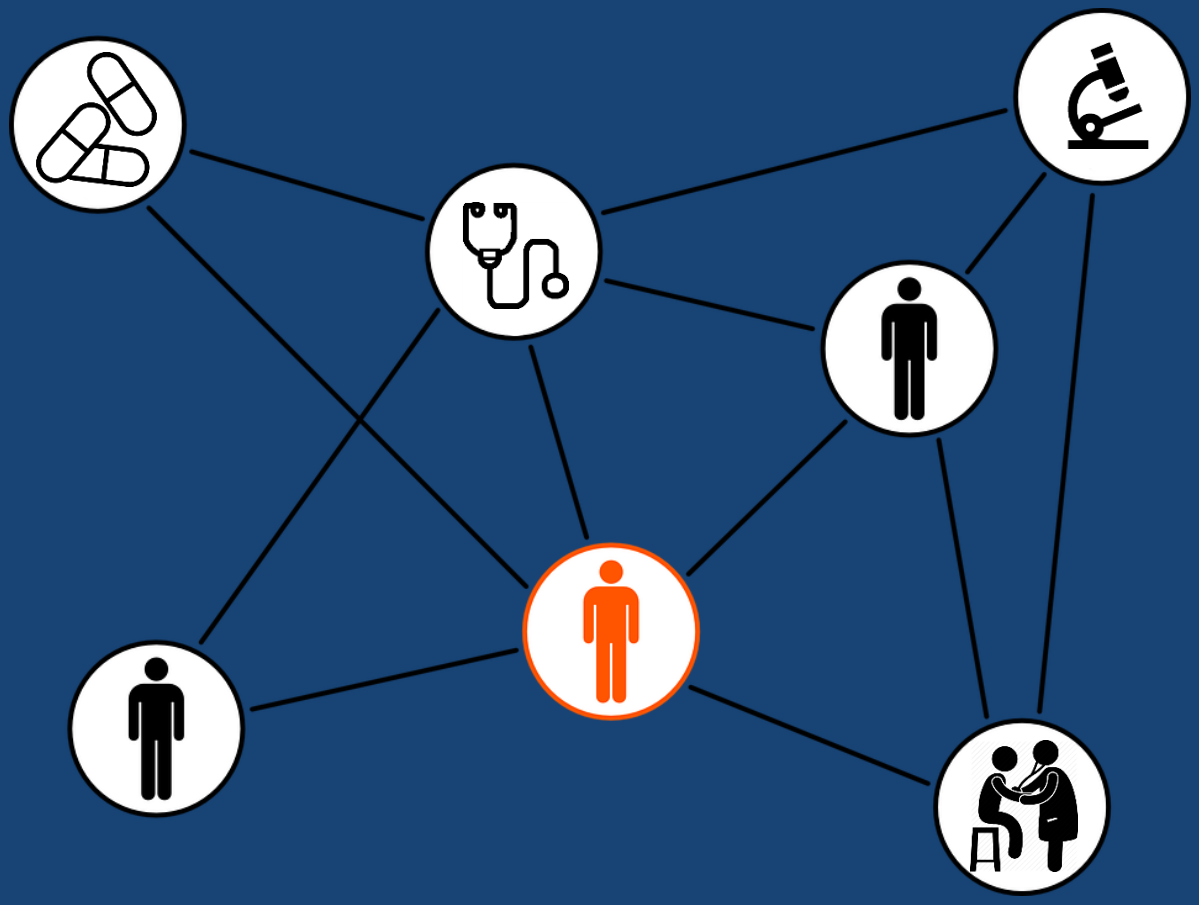
BOURNE PARTNERS



MARKET INSIGHT

Clinical Site Networks & Site Management Organizations (SMOs)

October 2019

www.bourne-partners.com

CLINICAL SERVICES TRENDS & GROWTH DRIVERS

This reports seeks to highlight the key industry trends and growth drivers within the Site Management Organization ("SMO") and Integrated Site Network ("ISN") spaces, as well as provide an overall view of the current clinical site and trial services landscape and beyond.

Clinical Trial Services Historical Snapshot

Since the origination of outsourced pharmaceutical services in the 1970s, the rising costs of drug development have been a catalyst for the creation of partnerships between biotech/pharma companies, CROs, and SMOs. As long as drug development costs remain high and continue to increase, the need for clinical trial services outsourcing from drug sponsors will persist.

1970s
Need for spill-over services including data management, clinical site monitoring, and biostatistical analysis

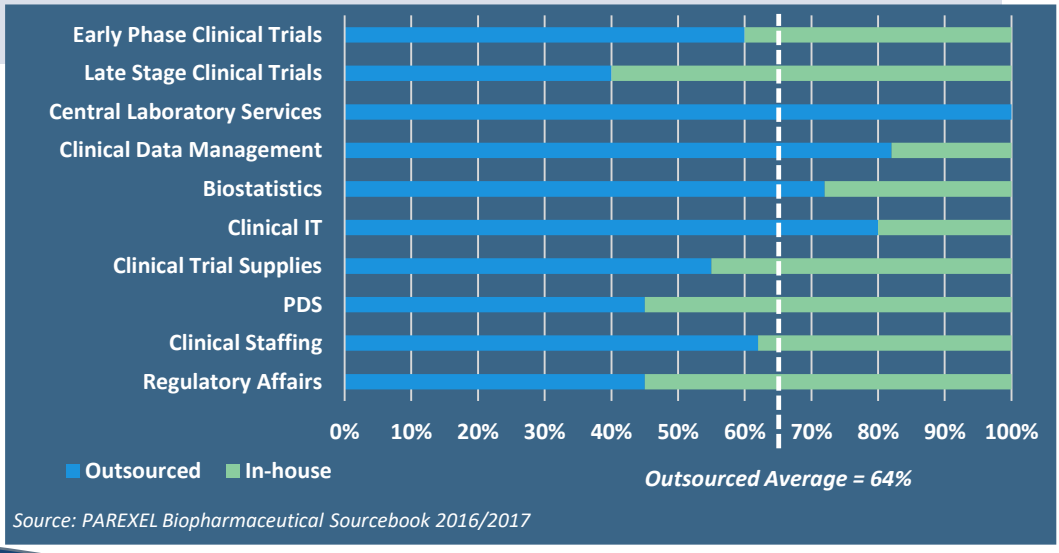
1980s
Rising drug development costs created need for partnerships between pharma companies and CROs

2000s
Consolidation in the industry to further increase profitability and reduce margin pressure

2019 and Beyond
Large pharma companies continue to outsource R&D. Drug development on the rise at small and mid-size pharma companies

Growing Trend of Outsourced Clinical Services

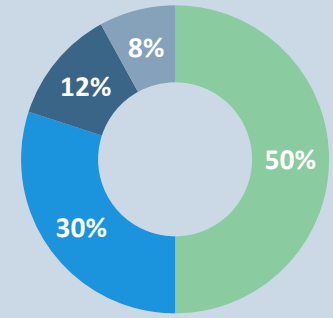
The chart below demonstrates the strong trend in outsourced clinical trial services across the drug development spectrum from early phase trials through regulatory affairs (based on 2017 data).



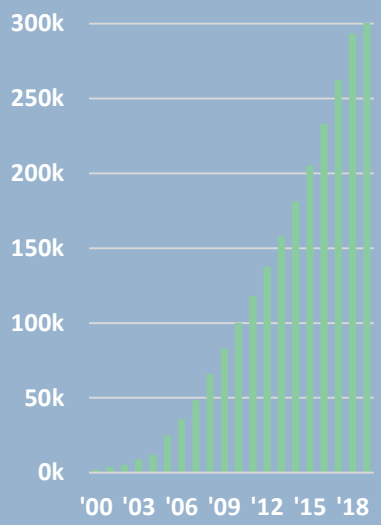
Source: PAREXEL Biopharmaceutical Sourcebook 2016/2017

General Trends in Clinical Trials

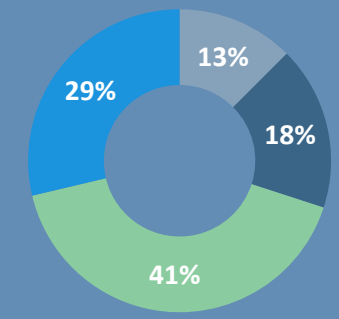
Major Market Segmentation



Registered Studies by Year



Products & Services Segmentation



- Since 2000, the number of registered studies with the FDA has continued to increase YoY with a current total of 306,238 ongoing as of May 20, 2019
- Pharmaceutical companies represent half of the clinical trial services space, with biotechnology comprising the second most at 30%
- The largest demand for outsourced clinical trial services is for Phase I-IV clinical trials, while other services in the development process remain prominent

Source: IBIS World; FDA.gov

Relevant Industry Events

MAGI's Clinical Research Conference 2019	DIA 2019 Global Annual Meeting	2019 SOCRA Conference	2019 Global Site Solutions Summit	SCOPE Summit for Clinical Ops Executives
Boston, MA May 5 – May 8, 2019	*San Diego, CA Jun 23 – 27, 2019*	*San Antonio, TX Sept 27 – 29, 2019*	*Hollywood, FL Oct 11 – 13, 2019*	*Orlando, FL Feb 18 – 21, 2020*

1) Other includes: CRO services to foundations, research institutions, and government organizations
2) Other includes: trial management, consulting, risk evaluation, mitigation strategy services, reimbursement planning, regulatory consulting

BOURNE PARTNERS

A Shifting Landscape of Site Management and Integration

While the title of the report refers to Site Management Organizations (SMOs), the term has somewhat become outdated as nuanced models have branched out from within SMOs. Now the space includes Integrated Site Networks (ISNs), where the level of site integration can vary, as well as variation in the ownerships models (mainly contrasting wholly owned SMOs). ISNs can be seen as somewhat of a hybrid model with varying levels of centralized services within hospitals, dedicated research sites, or private practices. In dedicated research sites, the PIs and other research staff are solely focused on clinical trials supported by the research center. Both SMOs and ISNs can utilize an *"embedded model,"* where a study coordinator is placed within the Principal Investigator's (PIs) private practice. While many different models exist, each have their own benefits and disadvantages. In some cases, therapeutic area/specialty can dictate which model is most appropriate.

Synergistic Opportunities

Integrated Platform

From an acquirers' perspective, an integrated site network creates cost saving and performance enhancing synergies. Some of the key areas of integration include: a centralized budgets and contracts integration system**,** patient recruitment team, regulatory platform (particularly those using eRegulatory platforms), business development, and quality assurance and compliance. Further, an integrated network building across one CTMS system improves efficiencies and enhances the overall performance of the service offerings**.**

Leveraging eSource and Other Technologies

Another key shift in the space is the development and implementation of technology, which creates additional synergistic opportunities for CROs and sites. CROs are developing/investing (both in-house and through acquisition) technologies to expand and improve their current offerings. An opportunity for synergies occurs when a CRO owns the site/site network, and can subsequently utilize and offer the tech-based service within the owned site. While eSource hasn't been fully adopted, it remains a huge opportunity for potential synergies through a cross-selling business model with CROs and sites.

Full Service Providers

We've seen a recent focus of CROs to expand offerings to become full service providers. This trend has created the demand for acquisition, as a CRO owning a site/site network expands service offerings to be inclusive of investigator sites. In combination with technological implementation, a full service CRO that owns a site/site network can take advantage of synergies and create better access to identified patient data, which ultimately can be leveraged for improved service offerings within the feasibility and recruitment stage of services.

> **"From an acquisition perspective, strategics and Private Equity investors are looking for a network of sites with a diversified geographic presence – allowing for greater access to a more diverse patient population – and multi-specialty sites in order to minimize risk and exposure to one therapeutic area."**
>
> **– C-Level Industry Expert**

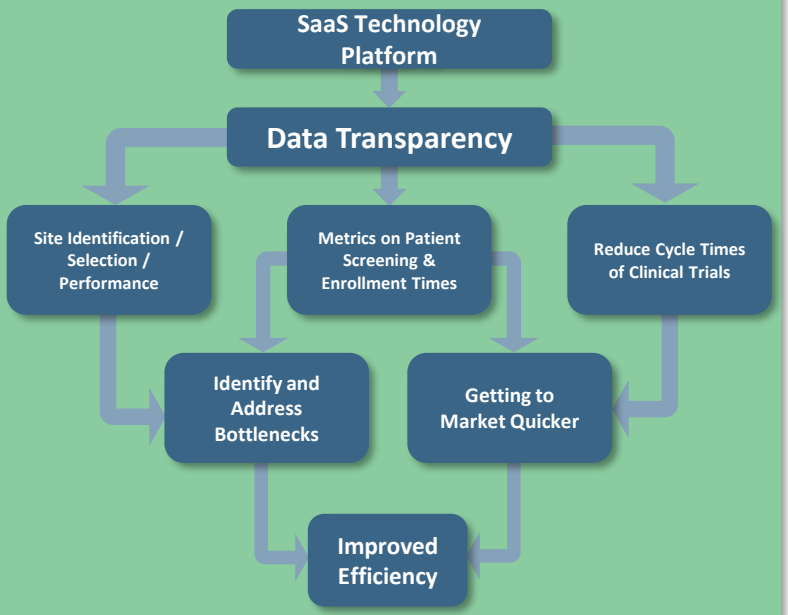
Improved Technological Use in Integrated Site Networks and Clinical Trial Services

Site networks and clinical trial services providers have begun to implement and improve the technological infrastructure that their systems rely on. Technology creates efficiencies at the site level through improved metrics on the identification, selection, and performance of sites, as well as across the patient spectrum through analysis of sites' recruitment, selection, enrollment, retention, and adherence metrics. In addition, technological advancements have given rise to increased analysis of biostatistics and data analytics to understand a drug's feasibility earlier in the development process. Leaders in the space have migrated their data management to the cloud to create more data transparency between the patient, clinical trial site, and trial sponsor/CRO. Previously, technology was outdated and required multiple systems for clinical trial management – driving the need for automation and integration of multiple systems to track milestones more efficiently and provide better process management and overall improvement at the site level.

Case Study on Innovative Technology Improving Site Efficiency: Devana Solutions

DEVANA solutions

Devana Solutions uses three SaaS based platforms (IGNITE, PROPEL, and IQ) to improve data transparency to better select top performing research sites for drug sponsors and CROs to reduce drug development costs and ultimately cure diseases faster. Devana uses cloud-based technology to automate clinical trial workflows at the site-level from inception through trial completion.



"Our Devana technology helps capture and analyze performance metrics at sites, site networks, and academic institutions, allowing site leadership to identify their strengths and uncover weaknesses such as bottlenecks in study start-up. Our companion platform provides clinical trial process and performance transparency across all stakeholders, from site to sponsor and/or CRO, creating true operational-alignment to get trials off the ground quicker, reducing trial cycle times, ultimately meaning pharmaceutical advances get to patients quicker."

– Barry Lake, CEO & Co-Founder, Devana Solutions

Key Trends, Themes, and Market Drivers within the Clinical Trial Site Segment

We spoke with Steve Trevisan, Founder and former-CEO of Accelovance and Optimal Research, to gain an industry expert's view on key trends and themes in the clinical trial site space.

Ownership Conflict?

There is a perception (primarily by drug sponsors) that a conflict exists when a CRO owns a site or site network. However, in most cases, a "Chinese Wall" is created whereby the two businesses are run as separate entities with different management and staff operating each business. Further, there are no legal or FDA/regulatory constraints placed on sponsors or CROs owning sites.

Competitive Landscape – Means of Differentiation

The traditional CRO business is extremely competitive and has seen significant consolidation over the last few years. As such, leading CROs continue to drive success and differentiate by adding specialized capabilities that accelerate and enhance the quality across the clinical development lifecycle. Perhaps the largest opportunity to increase drug sponsor and CROs' effectiveness in terms of drug approvals, commercialization, and improved outcomes is through increasing the access and control of patients. Site ownership also provides the CRO control over execution from patient identification, enrollment and retention, to following defined protocols and maintaining the highest quality throughout. Also, CROs with robust trial backlogs can drive site utilization and throughput to deliver superior margin profiles relative to their traditional CRO service lines.

Therapeutic Specialization and the Impact on Sites' Business Models

With the advent of more complex diseases and demand for more personalized treatments, an increasing number of clinical trials require therapeutic specialization and access to unique patient populations. The difference between generalist and more specialized studies often dictates whether a drug sponsor and CRO would be better served by a dedicated/integrated research site model versus an affiliate/partnership site model. For example, specialized therapeutic areas such as oncology have much more stringent inclusion/exclusion study criteria, and many oncology-focused sites are owned by larger institutions and are tougher to control. Therefore, it would be extremely challenging to enroll the needed patients through a dedicated site model, and a more open, affiliate network of sites would allow research coordinators access to patients across a broader base of specialized sites. Whereas in more general, healthy patient studies, a dedicated site network might provide superior efficiency and sufficient quality with more than ample access to a smaller patient population.

> **"One key piece of what made Accelovance/Optimal Research especially attractive to the eventual acquirer, Synexus/PPD, was that they wanted something to differentiate themselves from other providers, so owning the site provided that…Looking ahead, what's going to drive value is if site networks (dedicated or non-dedicated) can deliver in more complex, specialized, therapeutic areas that they can execute around – that's a challenging, yet very opportunistic area."**
>
> **– Steve Trevisan, CEO of Exosis, Inc., an Immunotherapy-focused Biotech Company, and former Founder and CEO of Accelovance and Optimal Research**

CRO INDUSTRY – TRADING & TRANSACTION COMPS

Bourne Partners covers a broad network of CROs and related clinical trial services providers. Highlighted below are publicly traded CROs that have a significant footprint in the healthcare and pharmaceuticals industry. CRO comps are trading at median multiples of 3.0x sales and 16.1x EBITDA.

CRO Trading Comps

USD in millions

			LTM			Margin Analysis			Enterprise Value/			Debt/		
Company	Ticker	Enterprise Value	Sales	EBITDA	EBIT	Gross Profit	EBITDA	EBIT	Sales	EBITDA	EBIT	Enterprise Value	Equity Value	EBITDA
Charles River Laboratories International, Inc.	NYSE:CRL	$8,461.2	$2,449.0	$541.2	$361.5	36.6%	22.1%	14.8%	3.5x	15.6x	23.4x	26.0%	34.1%	4.1x
ICON Public Limited Company	NasdaqGS:ICLR	7,994.7	2,704.0	470.4	407.8	29.6%	17.4%	15.1%	3.0x	17.0x	19.6x	5.7%	5.7%	1.0x
IQVIA Holdings Inc.	NYSE:IQV	40,253.7	10,706.0	1,857.0	870.0	34.9%	17.3%	8.1%	3.8x	21.7x	46.3x	29.8%	41.0%	6.5x
Linical Co., Ltd.	TSE:2183	214.0	104.2	16.4	11.7	32.9%	15.7%	11.2%	2.1x	13.1x	18.4x	22.6%	23.4%	3.0x
Medpace Holdings, Inc.	NasdaqGS:MEDP	3,033.7	786.2	151.0	118.7	63.8%	19.2%	15.1%	3.9x	20.1x	25.5x	1.8%	1.8%	0.4x
PRA Health Sciences, Inc.	NasdaqGS:PRAH	7,416.9	2,932.6	461.8	349.2	48.8%	15.7%	11.9%	2.5x	16.1x	21.2x	17.9%	21.3%	2.9x
Syneos Health, Inc.	Nasdaq:SYNH	8,459.7	4,546.2	565.0	304.9	21.9%	12.4%	6.7%	1.9x	15.0x	27.7x	36.2%	55.6%	5.4x
Median						34.9%	17.3%	11.9%	**3.0x**	**16.1x**	**23.4x**	22.6%	23.4%	3.0x
Mean						38.4%	17.1%	11.8%	2.9x	16.9x	26.0x	20.0%	26.1%	3.3x

Highlighted below are 11 of the most recent M&A deals in the CRO space. M&A transaction comps for CROs show median multiples of 2.9x revenue and 15.0x EBITDA.

CRO Transaction Comps

USD in millions

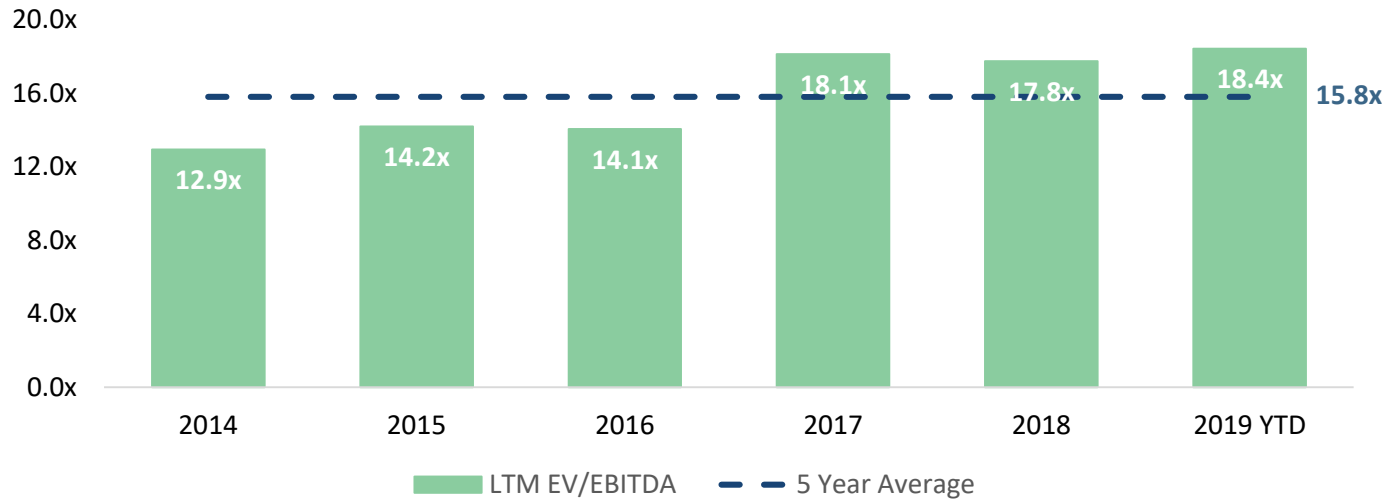
Announced Date	Target	Buyer	Geographic Location	Enterprise Value	LTM Revenue	LTM EBITDA	EV / LTM Revenue	EV / LTM EBITDA
Oct-19	Clinical Trial Centers Alliance	Apex Innovation Sciences	USA	NA	NA	NA	NA	NA
Feb-19	Citoxlab	Charles River Laboratories International	France	$510.0	NA	$36.7	NA	13.8x
Mar-18	Accelovance	Linical USA	USA	32.9	$26.8	NA	1.2x	NA
Feb-18	MPI Research	Charles River Laboratories International	USA	800.0	240.0	68.4	3.3x	11.7x
Sep-17	Optimal Research	Synexus	USA	NA	NA	NA	NA	NA
Jul-17	MAPI Development	ICON	France	139.5	NA	NA	NA	NA
Jul-17	Chiltern International	Covance	UK	1,200.0	NA	NA	NA	NA
Jun-17	PAREXEL International	Pamplona Capital Management	USA	5,007.4	2,097.0	342.8	2.4x	14.6x
May-17	inVentiv Health	INC Research Holdings	USA	4,513.7	2,177.4	292.7	2.1	15.4
Sep-16	ExecuPharm	PAREXEL International	USA	155.0	NA	NA	NA	NA
May-16	IMS Health Holdings	Quintiles Transnational Holdings	USA	13,266.8	3,063.0	743.0	4.3	17.9
May-16	Synexus	Pharmaceutical Product Development	UK	257.8	68.8	15.9	3.7x	16.2x
Median				$655.0	$1,168.5	$180.5	**2.9x**	**15.0x**
Mean				2,588.3	1,278.8	249.9	2.9x	14.9x

Source: CapIQ as of October 1, 2019

CRO INDUSTRY – TRADING & TRANSACTION COMPS

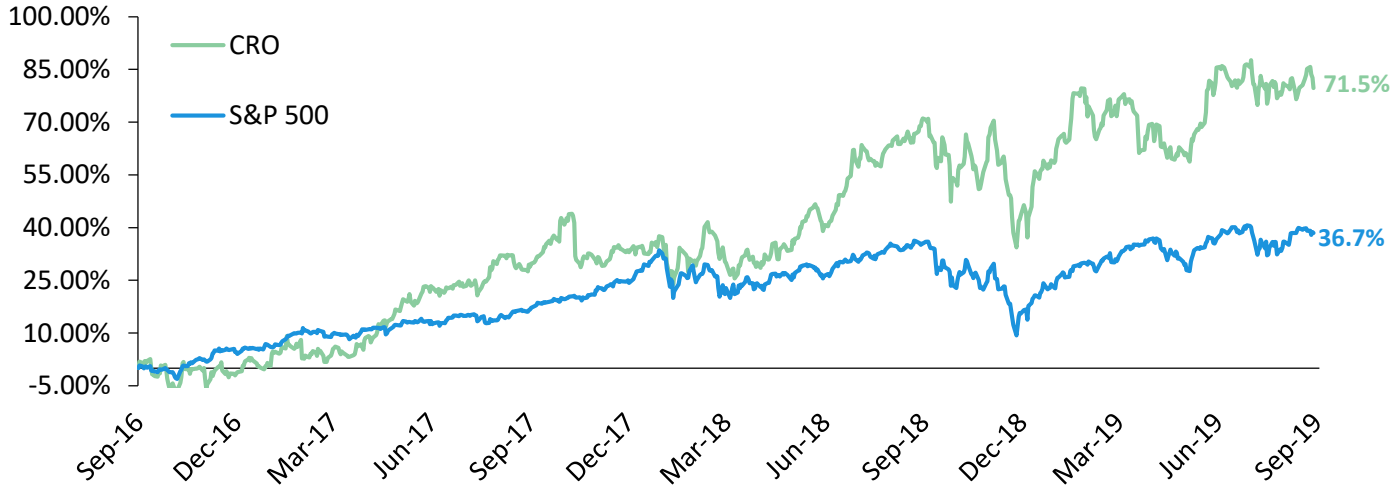
Since 2017, there has been a strong trend of consolidation in the CRO space. Strategic acquirers and Private Equity investors continue to show robust interest in the space. This trend has continued through 2019, with a YTD average EV/EBITDA multiple of 18.4x – a new high within the last 5 years

CRO LTM Average EV/EBITDA Multiples[1]



Over the last 3 years, the CRO industry has **outpaced the S&P 500 by 34.8%** in terms of equity performance. On an EV/EBITDA basis, CROs are **trading at a premium of 43.4%**. Strong clinical trial services demand, industry specialization, and improved client offerings through implementing technologies has led the sector to a substantial premium over the S&P 500.

CRO Equity Value Performance – Last 3 Years



CRO basket constituents: *Charles River (NYSE:CRL), ICON (NasdaqGS:ICLR), IQVIA (NYSE:IQV), Medpace (NasdaqGS:MEDP), PRA Health Sciences (NasdaqGS:PRAH), Syneos Health, Inc. (NasdawGS:SYNH)*

Source: CapIQ as of October 1, 2019; Equity Performance weighted by Market Capitalization
1) EV/EBITDA multiples are averages for each respective year

CLINICAL SITES M&A DISCUSSION

Recent Site Network Transactions

Announced Date	Target	Target Description	Buyer	Geographic Location
Sep-19	Site Business of BioClinica	AES, a subsidiary of PPD, acquired the clinical site business from BioClinica.	Accelerated Enrollment Solutions (AES)	USA
Feb-19	Clinical Research Institute of Southern Oregon/New Horizons Clinical Research	CRI Southern Oregon and New Horizons combined operations under the sale to VCR Holdings.	VCR Holdings	USA
Feb-19	Protenium Clinical Research	Protenium conducts pharmaceutical studies and is headquartered in Hurst, Texas.	Elligo Health Research	USA
Dec-18	MD Clinical	MD Clinical operates as a private clinical drug trials facility.	VCR Holdings	USA
Dec-18	SNBL USA	SNBL conducts studies specializing in safety assessment of biologics, reproductive toxicology, cardiovascular, respiratory and CNS pharmacology, among others.	Altasciences Company	USA
Aug-18	Jean Brown Associates	Jean Brown Associates conducts research in the areas of H1N1 Swine Flu, wisdom teeth removal/extraction, pediatric meningitis, and women's issues.	Webster Capital	USA
May-18	Evolution Research Group	Evolution Research Group provides medical and scientific clinical research site services in the neurosciences area.	Linden Capital Partners	USA
Apr-18	Meridien Research	Meridien Research offers medical research services in Florida.	Avego Healthcare Capital	USA
Feb-18	Wake Research Holdings	Wake Research Holdings operates a clinical trial support business in the United States.	M3	USA
Sep-17	Optimal Research	Optimal Research was Accelovance's site network business that was carved out in the transaction to Synexus.	Synexus	USA
Sep-17	Upstate Pharmaceutical Research	Upstate Pharmaceutical Research Inc. provides phase II – IV clinical trials services for respiratory therapeutics.	VitaLink Research	USA
Jun-17	Altasciences Company	Altasciences operates as an early phase CRO which provides early phase clinical research and development services to biopharmaceutical and generic companies.	Audax Group	Canada
Mar-17	Radiant Research	Radiant Research was comprised of over 75 research sites across the US.	Synexus/PPD	USA
Sep-16	VitaLink Research	VitaLink Research operates a network of clinical research centers in the United States. VitaLink Research was formerly known as Alliance Biomedical Research.	Great Point Partners	USA
Jul-16	Compass Research	Compass Research provides clinical research and trial services.	BioClinica	USA
Dec-15	PMG Research	PMG offers clinical trials in the areas of asthma, COPD, IBS, type 2 diabetes, cardiovascular diseases, gout, endometriosis, and migraines.	ICON Clinical Research	USA

Key Trends Impacting and Driving M&A

Industry Ripe for Consolidation

- Highly fragmented space with a large number of smaller players
- Sites can be consolidated into larger, more scalable organizations or a larger integrated network of sites

Growing Clinical Trial Backlogs

- Sites have access to patients, so by owning/operating sites, CROs can drive increased site throughput and capacity utilization, and ultimately ROI, by plugging robust trial backlogs into their sites

Operational Synergies through Scale

- Scale and capabilities expansion through M&A can eliminate some operational redundancies while creating commercial synergies/efficiencies

Strong Private Equity Demand

- Strong “buy-and-build” interest by Private Equity, coupled with robust consolidation activity and demand for sites to expand patient, geographical, and therapeutic reach

Pharma Services Remain Hot

- Consolidation to continue across CROs and related pharma services sectors with similar trend expected for site networks/SMOs
- EBITDA multiples in pharma services continue to outperform the S&P

Source: CapIQ as of October 1, 2019

Bourne Partners is a healthcare-focused investment banking and private equity firm focused exclusively in the healthcare space, covering pharma, pharma services, and consumer health. We help companies execute both sell-side and buy-side M&A in addition to facilitating capital raises to finance growth or a recapitalization, with some examples below.

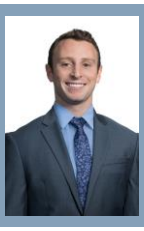
Objective: Bourne Partners worked to advise Accelovance on the carve out of Optimal Research, Accelovance's site network business.
Result: As advisors to Accelovance, Inc., Bourne Partners assisted with the carve out of its wholly-owned, independently operated subsidiary Optimal Research, to Synexus Limited.

Objective: Accelovance engaged Bourne Partners to identify an acquirer for the remaining clinical CRO business after the successful carve-out of Accelovance's SMO segment, Optimal Research, in late 2017.
Result: With the advice of Bourne Partners, Accelovance signed a merger agreement with the Japanese CRO, Linical, to sell all remaining assets for $32mm. The combined companies will now boast a strong international CRO presence reaching through North America, Europe, and Asia Pacific.

Objective: Avista, a CDMO that offers differentiated services ranging from API and drug product development to analytical testing, engaged Bourne Partners to serve as its exclusive advisor in the sale of the company.
Result: Avista was acquired by Cambrex at a value of $252 million.

OTHER RELATED EXPERIENCE

Since 2001, Bourne Partners has been a thought leader in the healthcare investment banking space. Our team is a trusted resource for clients and our track record of success includes raising over $2 billion in equity and debt capital and executing more than $6 billion in M&A transactions.



Brian Perry-Carrera,
Analyst

Clinical Trial Services Coverage
Direct: 704-714-8352
bperrycarrera@bourne-partners.com

Bourne Partners
550 S Caldwell St, Suite 900
Charlotte, NC 28282

704-552-8407
www.bourne-partners.com

BOURNE PARTNERS