DECONSTRUCTING THE TELEHEALTH INDUSTRY: PART III
ENABLING CLINICIANS TO DO MORE GOOD FOR MORE PEOPLE

WINTER 2020 • INDUSTRY WHITE PAPER

Ziegler

CAPITAL :: INVESTMENTS :: ADVICE

| ABOUT THE AUTHORS

GRANT CHAMBERLAIN
MANAGING DIRECTOR

312 596 1550
gchamberlain@ziegler.com

Grant Chamberlain joined Ziegler in 2015 as a managing director in the Corporate Finance Healthcare Practice. With over 20 years of investment banking experience, Grant has advised some of the leading healthcare systems, including Sharp Healthcare, Cedars-Sinai and Baylor Health, along with several of the most innovative virtual care companies, including AirStrip, MDLive, Voalte, IRIS, Forefront Telecare and Regroup.

Prior to Ziegler, Grant led the mHealth sector coverage at Raymond James – which included telehealth, remote monitoring and wireless healthcare solutions – after spending 15 years advising HCIT and tech-enabled outsourced services companies on a broad variety of M&A, joint ventures/partnerships and private financings. Additionally, Grant has completed dozens of transactions in the physician practice management space with a specific concentration in oncology, having closed over 15 deals in that sector in his career.

Prior to Raymond James, Grant was a principal at Shattuck Hammond Partners, which was acquired by Morgan Keegan. He was also a part of the corporate finance group of General Electric Capital Corporation and the financial services division of GE Medical Systems.

In addition, Grant is an elected Director of the American Telemedicine Association (ATA), the leading international advocate for the use of advanced remote medical technologies. He is also on the Board of Directors for the MAVEN Project, which uses virtual care and a network of volunteer physicians affiliated with the nation's foremost medical school alumni associations to improve healthcare access for underserved populations. Grant earned a B.A. in finance and investment banking from the University of Wisconsin-Madison.

JENNY POTH
ASSOCIATE

312 596 1529
jpoth@ziegler.com

Jenny Poth joined Ziegler in 2016. Under Ziegler Proprietary Investments & Fund Management, Jenny works with the firm's portfolio companies and strategic partners to maximize value for all stakeholders. Jenny was previously part of the Corporate Finance Healthcare team, advising healthcare services and healthcare information technology companies on various strategic and financial alternatives.

Jenny graduated magna cum laude from the University of Notre Dame with a Bachelor of Business Administration in finance and theology.

CLAYTON WILSON
RESEARCH ASSISTANT

312 596 1569
cwilson@ziegler.com

Prior to joining Ziegler in 2018, Clayton was a vice president in Raymond James' healthcare investment banking group where he advised healthcare services and technology clients on a variety of transactions including sell-side and buy-side acquisitions, mergers, joint ventures, as well as public and private financing transactions. Earlier in his career, Clayton served as an investment banker at Shattuck Hammond Partners, which was acquired by Morgan Keegan.

Clayton earned a B.A. in economics and management from Albion College.

TABLE OF CONTENTS

INTRODUCTION

"Virtual care has a three-part mission: to deliver care where and when people need it; to assure them that it is safe, effective and appropriate; and to enable clinicians to do more good for more people."

— *Ann Mond Johnson (CEO, The American Telemedicine Association)*

In 2018, we published "Deconstructing the Telehealth Industry: Improving the Access Points of Healthcare Delivery" which emphasized that virtual care "is just healthcare…it is not a sidecar to the delivery of care, but a naturally integrated tool used to streamline the complex healthcare ecosystem." Over the past two years, this principle theme has been confirmed, as numerous parties throughout the healthcare ecosystem have implemented and used virtual care to deliver safe, effective treatment across diverse use cases. The proliferation of virtual care has been driven, in part, by continual advances in technology that allow for unprecedented "one-to-many" opportunities which effectively scale the scarce clinical resources of physicians, nurses, pharmacists and other clinical and non-clinical professionals to address more patients' needs. This dynamic has enabled many patients to access care wherever and whenever they need it, with a high degree of confidence in the quality of their treatment.

One of the most notable developments we have seen in this sector over the last several months is the increasing ability of virtual solutions to effectively use data to improve care. Strong data management can enhance engagement, drive proactive care, make administrative tasks (billing, scheduling, documentation) much easier and dramatically improve patient navigation and resource utilization. The "winners" in virtual care are those whose solutions effectively manage and filter data, improve client workflows and provide analytically-driven engagement tools that eliminate friction. These solutions must be easy to implement and use and must work seamlessly with disparate sources of relevant data. Additionally, it will be critical for virtual care solutions to embed within existing provider workflows, as any virtual care solution that creates additional administrative "steps" or burden from current practices will quickly lose traction.

The most important emerging capability of data in virtual care is the effective triage of patients to the right level of care and the correct provider. Intelligently triaging patient populations enables providers to continuously work at the highest levels

possible with their licensure and makes it possible for more patients to receive the correct care. Strong data management and the production of actionable intelligence from big data analytics engines will be key to virtual care's long-term success, especially when paired with the emerging potential of artificial intelligence and machine learning.

One aspect of healthcare that requires particular use of data is the integration of physical, behavioral and social healthcare ("biopsychosocial health") that we foreshadowed in our last white paper. In this 2020 edition of "Deconstructing the Telehealth Industry: Enabling Clinicians to do More Good for More People," you will see a redoubled emphasis on:

• Proliferation of Tele-Behavioral Offerings: Perhaps more than in any other specialty, virtual care workflows built into behavioral health solutions can drive timely, evidence-based, analytically-driven engagement with the appropriate providers, thereby maximizing the likelihood that all providers work to the full extent of their training and licensure and all patients receive the appropriate care. Identifying patients in need at scale, triaging them to the right providers and engaging them in both their behavioral and physical care plans all require proper use of data.

• Analytically-Driven Social Determinant Toolkits: No virtual care program will succeed without being relevant in the social context where it is being deployed. Being conscious of consumers' access to transportation, food, community-based resources, housing, financial assistance and other services, and removing barriers to these resources are two key components of engaging people in their care, ensuring positive outcomes and controlling costs. When used properly, data analysis can drive efficient identification of social risk factors and navigation to appropriate resources.

In this paper we explore these themes in two new full-page diagrams titled, "Behavioral Healthcare For The Digital Era" and "Expanding Medicaid Coverage Of Virtual Care: A Policy Imperative." We have also included a new page highlighting a "High Growth Segment: Tele-Oncology" and an update on the momentum of "Virtual Care In The Smart Aging Continuum."

It is becoming clear that integrated healthcare delivery systems across the country will be one of the biggest winners in the virtual care revolution, as virtual care solutions become standards of care and a growing awareness builds that there is no single right way to deliver healthcare. Provider shortages, increasing consumerism, ubiquitous technology, growing reimbursement pressure and the transition to value-based payments (among other factors) have created a landscape in

which it is more attractive for providers to deliver care virtually in many instances, rather than in a traditional face-to-face setting. Health systems and other provider organizations are actively exploring how virtual care and related technologies can help expand their patient bases, prevent leakage, improve efficiencies, enhance treatments and enable integrated and proactive care throughout the patient lifecycle.

Finally, as an administrative note, we recognize there are multiple terms used to label technology-enabled remote care, including telehealth, telemedicine, eHealth, mHealth and others. Similar to our last white paper, we use the umbrella term "virtual care" in this document as our standard phrase of choice to describe this sector.

The future of virtual care relies on continuously harnessing the favorable tailwinds the industry is currently experiencing and finding innovative solutions to ongoing challenges.

Favorable Industry Tailwinds

- **Expanding Universe of Funding Sources –** Since our last white paper in spring 2018, a number of legislative developments have helped expand insurance coverage for virtual care services. Today, in addition to expanded Medicare coverage, all 50 states and DC offer some reimbursement for certain virtual care offerings and 42 states require commercial health plans to cover services delivered via virtual care. For more detail on recent notable reimbursement-related policies, see our "Policy Momentum" section on page 25.

- **Increasing Provider Adoption –** Per a 2019 AHA report, 76% of US hospitals connected with patients and consulting practitioners at a distance through video and other technology in 2017 vs. 35% in 2010[1] and a recent Definitive Healthcare survey found that adoption of virtual care services or solutions in inpatient settings increased from 54% in 2014 to 85% in 2019[2]. Physicians have also increased their adoption, as American Well's 2019 Physician Survey found that 22% of physicians used video visits to see patients in 2019 vs. 5% in 2015[3].

- **Proven Results –** A number of well-known health systems such as Intermountain Healthcare, Mayo Clinic, Jefferson

Health and others have documented cost savings driven by virtual care. In particular, Avera Health has noted significant findings across multiple areas of care, as described on its website www.averaecare.org/ecare/why-avera-ecare/by-the-numbers/. Using its eCARE platform, Avera has saved +187,000 hospital and ICU days with its eCARE ICU solution, avoided potential emergency-related transfers for 5,500 patients and improved recruitment and retention of providers by ~82% using its eCARE Emergency solution, avoided 61,000 potentially adverse drug events with eCARE Pharmacy and saved Medicare costs by ~$342 per beneficiary per month through eCARE Senior Care.

- **Disruptive Players are Finding Unique Ways to Deliver Care to Populations in Need –** A handful of organizations are finding innovative ways to deliver virtual care to populations that have historically been overlooked or underserved. For example, as part of Best Buy's acquisition of GreatCall, GreatCall's customer base of aging adults and senior care communities now has access to Best Buy's Geek Squad technology support team which will provide critical, convenient assistance with device implementation and ongoing support – a practice that will likely help seniors increase their comfort with smart aging solutions. Another player uniquely delivering care to populations in need is the MAVEN Project, a non-profit organization that uses virtual care technology to remotely connect experienced, volunteer, retired physicians with nurse practitioners, physician assistants and physicians at underserved clinics across the country. MAVEN specifically helps patients access high quality specialists that may not otherwise be available due to cost and distance.

- **Expansion of 5G Networks Can Improve Access to Care –** A 2019 Ericsson Mobility Report predicts that by the end of 2024, ~270 million people in North America will have a 5G subscription[4]. 5G expansion, particularly to rural areas, may be aided by government-driven initiatives, including the Rural Digital Opportunity Fund, which could inject $20.4 billion into high-speed broadband networks in rural America[5], and The LIFT America Act, which could provide $40 billion over five years to deploy secure and resilient broadband, with three quarters of the funding proposed to deploy broadband in unserved areas of the country[6]. This access will make virtual care solutions even more reliable and high-quality.

- Other tailwinds include a general increasing consumerism in healthcare, continuous development of affordable health-centric technologies and the growing acceptance of, and familiarity with, technology amongst nearly all age groups.

Remaining Challenges

- **Reimbursement Uncertainty & Complexity –** As noted earlier, insurance coverage for virtual care has certainly improved, but confusion and uncertainty around reimbursement remain key hurdles to widespread use (particularly the lack of guidelines/rules surrounding CCM codes). In fact, American Well's 2019 Physician Survey found that 77% of providers said uncertainty over reimbursement is a key barrier to virtual care adoption[3]. A March 2019 University of Michigan report further describes the dilemma: "At the state level, there are many different policies on coverage, which makes the entire reimbursement space very difficult to navigate for the people who are implementing telehealth. From the patient standpoint, this is also very confusing, because one insurance company may pay for a service while another may not."[7] Momentum is clearly moving in the right direction, but resolving reimbursement uncertainty and confusion is likely to be an ongoing, evolutionary process.

- **Awareness & Accessibility of Virtual Care Solutions –** While the general public's knowledge of virtual care has increased over the last several years, a number of Americans remain unaware of, or are unable to access, virtual care. A recent J.D. Power survey found that nearly 75% of respondents either do not have access to or are unaware of virtual care options. A lack of awareness is especially pronounced in rural areas, where 72% of respondents did not know if virtual care services were available[8].

- **Provider Licensing & Credentialing –** Virtual care has the capability to expand provider access far beyond state lines, but many providers' reach is limited by licensure laws. Existing licensure procedures were developed when clinicians were limited to practicing in relatively confined geographic regions for practical reasons, but it will be important that these regulations adapt at the federal and state levels to suit today's environment in which technology enables providers to practice remotely across far wider areas.

- Other challenges include upfront costs associated with some virtual care offerings, struggles to facilitate physician or leadership team "buy-in," overcoming patients' potential negative perceptions of virtual care and lack of published ROI studies.

Next-Generation Growth Segments

We believe that virtual care shows great promise and near-term growth potential in the following four healthcare subsectors.

1   Behavioral Health

The majority of Americans with behavioral health challenges struggle to receive adequate care. While this dilemma has existed for years, it seems a confluence of factors is finally helping participants across the healthcare industry understand the critical role that behavioral health plays in wellbeing, including:

- Behavioral health awareness in the US is rapidly improving thanks in part to campaigns led by organizations such as the National Alliance on Mental Illness;

- The escalation of the opioid crisis is placing heightened attention on substance use disorders ("SUDs") and their relation to mental health; and

- There is growing understanding and acceptance of the impact that environmental stressors, trauma and mental health disorders can have on employees, students and loved ones.

As people become more familiar with the spectrum of behavioral health challenges and the diversity of those affected, many may turn to the offerings of virtual behavioral health that can meet people where they are and help address patients' unique situations. Because behavioral health providers usually do not need to physically touch patients, and because patients may prefer to access behavioral health services discretely, using virtual care technologies to deliver behavioral health services is one of the best and most impactful use cases within the sector.

2   Post-Acute/"Smart Aging"

Until recently, virtual care was primarily viewed as a promising yet experimental tool for seniors in need of fairly basic services related to monitoring and/or long-term care; however, as the virtual care industry has diversified, its capabilities to serve a larger segment of the population have expanded. Today, the

industry offers an array of solutions ranging from wearables and clinical sensors to technologies that reduce unnecessary hospital visits, provide around-the-clock access to high-quality care and monitor those who are chronically ill. The need for intuitive, effective technology solutions for this population is evident.

- The aging population is rapidly expanding. By 2030, every baby boomer will be age 65 or older, which means that one out of every five US citizens will be of retirement age[9].

- The older population is at a disproportionate risk for multiple chronic and behavioral health conditions. When combined with expected provider shortages and an increased desire to "age in place," it is clear that virtual care can offer significant value to both patients and caregivers.

The potential for growth in this subsector is significant and has been validated, in part, by large retail and technology organizations who recently completed initiatives to enter segments that touch the smart aging market, including Amazon, Best Buy, Google and others.

3   Services for Medicaid Recipients

As of September 2019, over 70 million Americans were enrolled in Medicaid and CHIP[10]. This rapidly growing population subset faces unique challenges which virtual care can help address.

- Medicaid recipients, in general, are more vulnerable to both chronic conditions and behavioral health challenges than those who are commercially insured. Additionally, Medicaid beneficiaries, on average, face disproportionate health challenges related to maternal and fetal health and more frequently use tobacco and emergency rooms.

- Many physical health conditions can be exacerbated by economic and social challenges disproportionally faced by Medicaid recipients, including transportation challenges, lack of reliable or safe housing, lack of access to healthy food, inflexible work schedules and difficulties finding providers who accept Medicaid.

Virtual care has the ability to alleviate some of these challenges by increasing beneficiaries' abilities to conveniently access care and by helping providers optimize usage and increase efficiency. Deploying virtual care solutions to Medicaid recipients can be transformative, but insurance coverage will be a key determinant of whether virtual care tools are successful in meeting the needs of this population. Patients using Medicaid are much less likely than other populations to be able to afford any out-of-pocket services and may simply go without the benefits of virtual care if services are not covered by insurance.

4   Oncology & Clinical Trials

Tele-oncology is one of the most attractive growth segments for virtual care given the need for greater access to specialists, improved patient experiences and easier, more efficient clinical trials management.

- Tele-oncology solutions can certainly help increase access to a growing shortage of oncologists, but the primary benefit of tele-oncology may be its ability to dramatically improve patient comfort and convenience, as it allows patients to compassionately receive numerous aspects of cancer care from the comfort of their homes rather than physically traveling to see providers – a task which may be uncomfortable, inconvenient and dangerous.

- The constant monitoring and care support available with virtual care solutions also enables early detection and rapid intervention. Additionally, the industry is now seeing "survival benefits." A 2017 study conducted at Memorial Sloan Kettering showed that patients who received tele-home monitoring of cancer symptoms had a five-month increase in survival, an improved quality of life and fewer visits to urgent care when compared to a group of patients receiving in-person care[11].

- Tele-oncology also offers unique advantages to clinical trials providers by expanding catchment areas, improving patient adherence and compliance, boosting participant retention and reducing trial costs, among other benefits.

Overview of White Paper

Similar to our prior white papers, this document is structured around thematic diagrams which, in aggregate, help illustrate the ubiquity of virtual care applications in the healthcare industry. While all pages that remain from the prior paper have been updated to reflect recent activity, we have developed a number of new pages which are distinguished below in purple font. The goal of this document remains to present our view of the virtual care industry in a concise format that will help various stakeholders envision the potential that the virtual care industry has in their business sectors.

The pages are summarized below:

- **Driving Forces For Virtual Care (p. 10-11)**

This page once again highlights the key characteristics of successful virtual care programs. It also provides a discussion of the historical barriers to virtual care adoption, recent favorable tailwinds that encourage wider usage of virtual care (including reimbursement trends) and the rapidly evolving future of the virtual care sector.

- **Virtual Care Programs Gaining Traction Across A Broad Universe Of Stakeholders (p. 12-13)**

We believe there are eight key stakeholder groups that exist in today's healthcare environment: (i) consumers/patients; (ii) providers; (iii) hospitals/health systems/the V.A.; (iv) payors & employers/brokers; (v) senior living/post-acute/hospice organizations; (vi) pharmacies/health retailers; (vii) clinical trials providers; and (viii) special uses, including schools, American Indian and Alaska Native tribes, jails/prisons and others. In addition to describing the overall advantages of virtual care, this page reviews in detail how the propagation of virtual care can uniquely benefit each stakeholder mentioned above.

- **Virtual Care Ecosystem (p. 14-15)**

We have developed a slightly restructured view of the virtual care ecosystem which presents various delivery mechanisms, clients and channels, and payors and funding sources, all of which are supported by analytical and other data management/assimilation tools. With the right combination of ecosystem participants, we believe users can effectively leverage data management capabilities and AI tools to create actionable intelligence that helps maximize provider efficiency, ensure that care takes place in the most appropriate setting and drive engagement with thoughtful awareness of an individual's social determinants of health.

- **Behavioral Healthcare For The Digital Era (p. 16-17)**

The United States is currently facing a behavioral health crisis in which millions of individuals are suffering from mental illness yet many are not receiving the care they need. The consequences of this dilemma are meaningful and are unlikely to be solved by "traditional" care delivery methods alone. This page, in addition to contextualizing the mental health crises mentioned above, explains how virtual care's flexibility, delivery models, interoperability and digital triage tools make it an attractive solution for delivering and/or enabling access to behavioral healthcare.

- **Virtual Care Examples In The Behavioral Health Sector (p. 18-19)**

Since our last white paper, few virtual care sectors have grown as rapidly as behavioral health. As such, we created this page which provides our view of the virtual behavioral health ecosystem as broken into numerous unique subsectors (i.e. our Virtual Behavioral Health Sector Map). This page also highlights three niches within the virtual behavioral health market that are rapidly gaining traction: (i) mood and anxiety disorder management; (ii) substance use disorders and medication assisted treatment; and (iii) population-specific solutions.

- **Virtual Care In The Smart Aging Continuum (p. 20-21)**

Within the "smart aging" landscape, the role of virtual care has evolved from providing senior citizens (age 65+) with monitoring and long-term care to providing diverse solutions that serve the entire "smart aging" population (age 55+). Today, virtual care solutions serve nearly every point of the smart aging continuum – from injury and illness prevention to acute and end-of-life care. We present in this schema an updated view of the smart aging continuum and describe the role of virtual care in five subsectors that are especially relevant to smart aging: social determinants of health, behavioral health, chronic care management, provider workforce management and after-hours SNF coverage.

- **Expanding Medicaid Coverage Of Virtual Care: A Policy Imperative (p. 22-23)**

Huge numbers of Medicaid beneficiaries face substantial health challenges, including chronic comorbidities, mental illnesses and struggles to access providers and tools that could make health management easier. These conditions

are exacerbated by social determinants of health such as transportation hurdles, inflexible work schedules and lack of consistent access to healthy food and/or reliable housing. With conventional healthcare, providing appropriate services at sustainable costs is impossible. It is therefore a policy imperative to provide reimbursed access to virtual healthcare tools and services that can help this population. This page describes in detail the challenges faced by many Medicaid recipients and explains our thesis around why virtual care can be especially helpful and impactful for this population. To provide further evidence of virtual care's potential with Medicaid recipients, this page briefly lists a representative handful of states that have recently expanded policies supporting the use of virtual care in Medicaid.

- **High Growth Segment: Tele-Oncology (p. 24)**

Tele-oncology epitomizes the core principles of virtual care's mantra as expressed by ATA CEO Ann Mond Johnson: ensure people get care where and when they need it, and when they do, make sure they know it is safe, effective and appropriate while empowering clinicians to do more good for more people. Tele-oncology has the ability to compassionately deliver care to cancer patients and their families and has two critical payment vehicles: 1) the Oncology Care Model, which is Medicare's value-based, risk-sharing payment model; and 2) the clinical trials/CRO industry, as tele-oncology can be used to dramatically increase the likelihood of a successful clinical trial.

- **Notable Market Developments (p. 25)**

This page discusses a number of notable virtual care transactions and developments that occurred since our last white paper, including noteworthy consolidations, transformative acquisitions by industry leaders (e.g. Teladoc Health's announced acquisition of InTouch Health) and diversified conglomerates, innovative cross-border activities, a flurry of capital events and legislative news.

- **Ziegler's Virtual Care Sector Map (p. 26-27)**

We once again present the Ziegler Virtual Care Sector Map which displays our view of the entire virtual care ecosystem on a high-level organizational diagram. We comprehensively updated the Sector Map since our last paper to include companies that have matured or recently entered the market, remove companies that have exited or been acquired and further distinguish the industry into distinct subsectors. Key updates and developments from the 2018 Sector Map include the following:

- It is becoming increasingly clear throughout the healthcare market that physical, behavioral and social components of wellbeing are deeply interrelated pieces of overall health. As such, we restructured our Sector Map to categorize the

virtual care landscape into four groups: (i) physical care; (ii) behavioral care; (iii) social resources; and (iv) integration and access tools which enable/support/complement the offerings in items (i-iii) above. The Sector Map is then further broken down into relevant subsectors and includes examples of companies in each subsector.

- As mentioned earlier, the behavioral health subsector has grown rapidly in the past 18 months. As such, we drastically expanded this subsector in our Sector Map and, to prevent space constraints, have presented the entirety of our Virtual Behavioral Health Sector Map on page 18.

- Given the increasing aging population and ubiquitous use of technologies to empower aging individuals to live independently, we have seen an influx of companies enter the virtual care industry to serve seniors and their caregivers. As such, we expanded the "Caring in Place" subsector and revised our "sub-classifications" to further distinguish these companies, which are used heavily for the aging population and also to assist younger individuals who require care at home due to injury, illness or disability.

- A number of new subsectors have been added to the Sector Map, including Managed Services Providers and Social Determinants Resources. We believe these subsectors represent innovative use cases for virtual care and exhibit strong growth potential.

We once again hope that the Ziegler Virtual Care Sector Map provides company executives, investors, employers, policy makers, payors and consumers a better understanding of the continuously evolving virtual care field.

- **Key Virtual Care Participants: A Diverse Landscape (p. 28-29)**

Diverse organizations across the country are actively using virtual care to help their patients, employees and communities. This page presents brief descriptions of the virtual care solutions offered by Amazon, the VA and four innovative health systems: Avera Health, Intermountain Healthcare, OSF HealthCare and the University of Pittsburgh Medical Center. As described further in the diagram, these organizations are serving diverse constituents in all areas of the country and are developing innovative ways to improve care, enhance access and retention and differentiate themselves from competitors.

- **Key Virtual Care Participants: Partners, Investors, Acquirers (p. 30)**

This page presents a representative list of virtual care partners, investors and acquirers who are emerging as leaders or potential "change-makers" in the virtual care market.
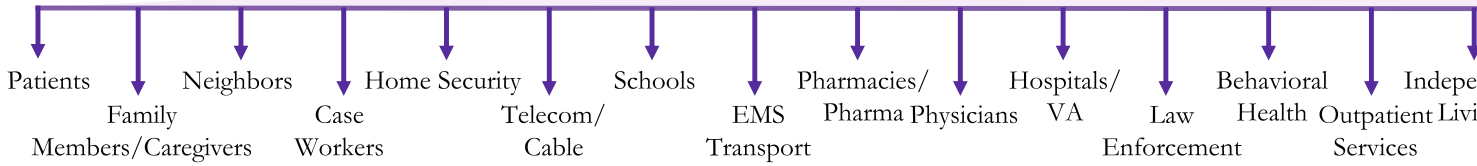
DRIVING FORCES FOR VIRTUAL CARE

The healthcare innovation landscape has finally matured to the point where virtual care innovations are being met with enthusi favorable tailwinds. Healthcare providers, payors and patients are craving more efficient delivery solutions and are willing to alig acceptance and demonstrate value with measurable ROIs, they are becoming an integral component of modern healthcare.

5G *Expansion of 5G networks and broadband are of special importance*

AI *AI and ML have particularly great promise*

STAKEH

Patients		Neighbors		Home Security		Schools		Pharmacies/		Hospitals/		Behavioral		Indepe
	Family		Case		Telecom/		EMS	Pharma	Physicians	VA		Health	Outpatient	Livi
	Members/Caregivers		Workers		Cable		Transport				Law			Services
											Enforcement			

CHARACTERISTICS OF SUCCESSFUL VIRTUAL CARE PROG

Stakeholder-specific virtual care programs o

Key Elements	1	Easy to use and implement **5G** **AI**	2	Embedded within existing workflow **5G** **AI**	3
Program Requirements	Program champion	Enrollment management **AI**	Education and training	Visible ROI or reimbursement **AI**	Care tra coordinat
Creates	Enhanced patient self-management **5G** **AI**				E

HISTORICAL BARRIERS TO VIRTUAL CARE ADOPTION –

- Adoption rates low
- Competing IT department priorities
- Confusion regarding insurance coverage
- Cost
- Ease of use

- Establishing common terminology
- Hard to define ROI and lack of proven ROI
- Inconsistent ongoing compliance
- Interoperability challenges
- Lack of reimbursement opportunity
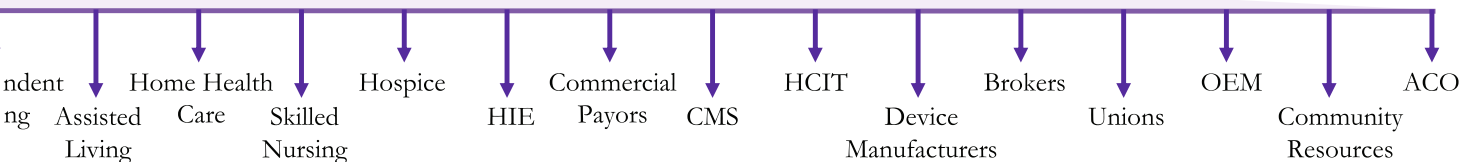
RECENT FAV

1	*Growing need for more efficient care delivery models*	2	*Payment models are better aligned to virtual care solutions and more funding sources are available*	3	*Proven use cases have become standards of care*
	– Increasing demand driven by large newly insured population and the Boomer generation moving into high healthcare consumption years – Looming provider shortages – Ongoing opioid crisis is driving demand for convenient care options, especially in rural areas **AI**		– Shift from fee-for-service to fee-for-value – Increasing number of ACOs – Readmission penalties – Self-insured employers/payors offering incentives – Shift of economic burden to consumers		– Tele-stroke and tele-ICU are widely viewed as standards of care; tele-behavioral health, tele-neurology and tele-primary care are likely next – Demonstrated favorable outcomes and measurable, proven ROIs – Increasing providers' and patients' comfort with technologies

RAPIDLY EVOL

- 5G and broadband access **5G**
- Aligned financial incentives
- Artificial intelligence **AI**

- Avatars and robotics
- Big data analytics
- Evidence-based medicine

- Gamification
- Genomic coordina
- Geo-targeting

asm across a wide array of stakeholder groups who are excited about designing successful virtual care programs supported by n their payment models to accommodate proven, increasingly commoditized virtual care tools. As these solutions gain greater

OLDERS

| ndent ng | Home Health Care | Hospice | Commercial Payors | HCIT | Brokers | OEM | ACO |
| Assisted Living | Skilled Nursing | HIE | CMS | Device Manufacturers | Unions | Community Resources | |

RAMS – BEING DISRUPTIVE WITHOUT BEING DISRUPTING

ptimize supply & demand needs to use scarce resources most efficiently

Analytically-driven engagement **AI**	4 Filters out the noise **AI**	5 Provides timely, relevant feedback **5G**

nsition and ion tools **AI**	Appropriate triage to diverse care providers	Logistics management **AI**	Reporting tools	Secure, HIPAA-compliant solutions	Measurability

vidence-based care pathways **5G** **AI**	Value-based care solutions

SIGNIFICANT PROGRESS MADE IN THE LAST SEVERAL YEARS

- Lack of single vendor, enterprise solution
- Medical establishment resistance
- Medical malpractice concerns
- Misaligned incentives
- Poor training and implementation

- Privacy and security concerns
- Regulatory hurdles (e.g. credentialing barriers)
- Slow adoption of smartphones/technology by seniors
- Telecom infrastructure/bandwidth limitations
- Uncoordinated engagement and awareness efforts

ORABLE TAILWINDS

4 *Favorable reimbursement trends*	5 *Acceptance and commoditization of virtual care-enabling technologies, from smartphones to wearable sensors*	6 *Increasing consumerism in healthcare*
– CY2020 Medicare policy expands reimbursement in fee-for-service virtual care, including new codes covering RPM, CCM and others – 42 states and DC now have laws requiring commercial plans to cover services delivered via virtual care – See page 25 for additional discussion	– Proliferation of low-cost devices that are secure and easy to use, especially with 5G and broadband access – Tablet and smartphone usage growing rapidly; per a 2019 AARP survey, 75% of adults age 50 and older now have a smartphone[12] **5G**	– Shift of costs to consumers and growth of HDHPs are giving patients more influence over their care decisions; cost and convenience becoming factors when selecting care – 82% of consumers view digital solutions as the most effective way to monitor health metrics[13]

VING FUTURE STATE

tion	• Implantable devices • Measurable order sets and guidance • Medical app formularies	• Predictive analytics • Smart homes • Virtual reality

VIRTUAL CARE CAN EFFICIENTLY AND EFFECTIVELY SERVE THE NEED
WHETHER PROVIDING, RECEIVING OR PAYING FOR CARE, EVERYONE STA

VIRTUAL CARE ADVANTAGES

Improve Provider Productivity:
- Increase staff efficiency at all levels
- Optimize triage so all clinicians consistently work to the full extent of their training and licensure
- Ease impact of clinical shortages and reduce burnout
- Improve care coordination
- Leverage AI to help providers consistently make quick, accurate decisions

Drive Consumer Access and Engagement:
- Enhance care quality and expand options for care settings, modalities and providers
- Modify behavior and promote healthier lifestyles
- Make care accessible, affordable and navigable

Reduce Cost:
- Provide care in the most appropriate setting and reduce no-shows
- Deliver tangible ROI

Enhance Care Coordination:
- Improve caregiver communication, including with family members
- Give patients greater awareness of their own health data
- Improve data capture, monitoring and sharing
- Improve healthcare access

Improve Outcomes:
- Enhance patient safety by making care accessible, affordable and navigable
- Speed time to recovery
- Avoid unnecessary hospitalizations and readmissions
- Encourage consistency in treatments, reduce errors
- Reduce lengths of stay
- Identify areas of concern earlier

CONSUMERS/PATIENTS CAN...

- Experience an unprecedented convenience factor – especially for low acuity/repeat illnesses and behavioral health
- Avoid the "unhealthy" setting of physician offices/urgent care centers/EDs/retail clinics and the strain of travel
- High-deductible/copay plans make economics of even self-pay virtual care solutions very attractive compared to in-person visits
- Enhance ability to self-manage, track and store health content
- Receive relevant, timely and unobtrusive reminders and alerts to prompt behavior changes
- Strengthen communications with family members and caregivers
- Access providers who are the right fit for a patient's preferences (e.g. LGBTQ sensitive, Spanish-speaking, etc.)
- Improve coordination of care for all members of a family

PROVIDERS CAN...

- Use data analytics and AI to triage patients more efficiently, ensuring all providers consistently work at the top of their licenses and all patients receive the correct type of care
- Reduce no-shows and in-office waits by enabling virtual access
- Manage/track chronically ill patients more effectively and intervene at key moments to improve outcomes and change behaviors
- Incorporate AI to optimize diagnoses and treatment decisions
- Diversify/supplement income streams, enhance work/life balance
- Connect with a patient's other providers and caregivers more easily
- Address growing digital appetite/demands of patients
- Align quickly with rapidly evolving shared-risk models
- Increase complexity levels of in-office patients by treating low-acuity patients virtually

PAYORS & EMPLOYERS/BROKERS CAN...

- Provide appropriate care in the most cost-effective settings
- Enhance adherence and compliance to evidence-based pathways and use AI to increase treatment protocol consistency
- Modify patient behavior to promote healthier living
- Share risk with employees more effectively by increasing alternatives for plan designs
- Align solutions effectively with shared-risk payment models
- Improve wellness and drive specific programs/rewards
- Enhance productivity by reducing out-of-office time and improving mental health
- Counterbalance the increasing financial responsibility that employees face in high-deductible plans
- Reduce overall healthcare spend with more timely, consistent delivery of care
- Improve employee satisfaction

HOSPITALS/HEALTH SYSTEMS/VA CAN...

- Reduce avoidable readmissions and average length of stay
- Improve access to, and availability of, specialists – including providing access to specialists outside of the system when needed
- Appropriately use and optimize advanced practitioners
- Keep patients within a health system's network
- Manage/track chronically ill patients more effectively
- Improve care transition handoffs
- Differentiate brands and expand patient catchment
- Triage ED demand more efficiently
- Improve management of behavioral health and comorbid patients
- Align with rapidly evolving shared risk models more effectively
- Promote care delivery in the most appropriate setting for ACOs and PCMHs, including in the home

SENIOR LIVING/POST-ACUTE/HOSPICE CAN...

- Use scarce clinical resources more efficiently
- Avoid unnecessary hospitalizations/ED visits and related travel
- Manage/track chronically ill patients more effectively
- Increase medication and therapy adherence and compliance
- Create brand differentiation in a competitive marketplace
- Enhance caregiver/family member communication
- Gain the ability to measure changes in ADLs and vitals 24/7
- See early warning signs of health issues, with the potential help of AI – engage in "proactive" vs. "reactive" care, including behavioral
- Use safety monitoring solutions to increase patient security and family member/caregiver comfort
- Overcome reduced vision or mobility using voice-enabled tools
- Slow transition into more acute settings – reduce vacancy rates

PHARMACIES/HEALTH RETAILERS CAN...

- Support adherence and compliance with smart alerts and reminders as well as automated solutions such as pill dispensers
- Access to wireless peripherals such as blood pressure monitors can drive new traffic into retail pharmacies: position stores as the retail destination of choice for the virtual care wireless peripheral boom
- Encourage pharmacists to be viewed as trusted advocates for digital solutions such as medication adherence apps
- Drive loyalty with rewards programs
- Use retail pharmacy websites as trusted channels for driving adoption of virtual care solutions
- Create competitive differentiation and build loyalty
- Leverage retailers' customer support, installation and IT assistance teams to implement and support virtual care solutions for clients

CLINICAL TRIALS CAN...

- Enhance recruitment and fill trials more quickly while improving participant retention by making compliance simpler
- Broaden clinical trial catchment areas to improve access and compliance
- Minimize costs by reducing staffing needs, cutting significant transportation costs, improving patient recruitment process, etc.
- Deliver educational material and other content efficiently
- Drive medication adherence and promote formulary compliance
- Identify and intervene in the case of adverse events with more speed, precision and consistency
- Improve ability to track social and behavioral factors impacting trial participant outcomes
- Reduce trial duration and time-to-market for new drugs

SPECIAL USES

- Provide accessible care options to more effectively address the opioid crisis and other public health emergencies
- Enhance care at schools by providing remote access to acute care, behavioral care and hearing and speech therapy
- Supplement provider shortages during and after natural disasters, even when survivors are not physically reachable
- Increase access to primary and specialty care, as well as mental health services, for prison inmates; reduce high costs associated with transporting and guarding inmates in need of treatment
- Improve treatment options for American Indian and Alaska Native tribes, where lack of access to adequate care is, for some, a decades-long concern
- Use tele-ministry services to provide spiritual support (e.g. end-of-life care)

VIRTUAL CARE ECOSYSTEM

It is imperative that virtual care providers coordinate the right set of delivery tools, distribution channels and payment methods for virt management capabilities and big data analytics engines to create actionable intelligence. These enable virtual care to drive maximum provider ef costs and position virtual care and overall care delivery for long-term success. When artificial intelligence, machine learning and predictive analy

DELIVERY MECHANISMS

No single delivery mechanism is appropriate in all cases; the "right" mechanism or combination of mechanisms in a given situation is the one which optimizes provider resources and patient outcomes/experiences. Key factors in choosing delivery mechanisms include patient acuity, tech literacy and location; available provider resources; and cost.

Digital Delivery Mediums
- Augmented and virtual reality
- Chat/conversational agents/text
- Digestible implants and wearable devices/sensors
- Phone
- Radio-frequency identification
- Smart medication dispensers
- Store and forward
- Video

Digital Triaging Tools
- Adaptive clinical dropdown templates
- Alerts, reminders and non-compliance alarms
- Clinically-validated health risk & cognitive assessments
- Facial expression assessment/vocal indicators
- IVR reminders/instructions
- Passive activity monitor sensors
- Virtual assistants/avatars

Digital Scheduling/Navigation Tools
- Amazon Alexa/Google Home
- Online scheduling
- Patient reminders

Enabling Tools/Engagement
- GPS
- Rewards programs (ACO, CRO, employer, payor, pharmacy)
- Social networks
- Transportation managers
- Voice and facial recognition

Wireless Peripherals
- Blood pressure
- Cardiac monitors
- Glucometers
- Inhalers
- Scales
- Smartwatches
- Spirometers
- Stethoscopes
- Thermometers

ASSIMILATING TOOLS

Data Integration & Analytics – Enables value-based care by holding care providers and reci

- Alarm management
- Analytics
- Automated scribing

- Caregiver tools
- Case management software
- Claims data

- Clinical trial m
- EHRs
- Lab informatio

Artificial Intelligence and Machine Learning – Augment the cap

Analytically-Driven Social Determinant Toolkits – No virtual care program will succeed without be food, community-based resources, housing, child and elder

ual care and power them with robust analytics. With the right combination, users can effectively leverage workflow engines, data
ficiency and ensure that care takes place in the most appropriate settings, while driving individual engagement – all of which can help manage
tics are added to the system, the result is providers and patients that feel empowered to manage care for the full biopsychosocial patient.

CHANNELS & CLIENTS

The ideal channel or client is, first and foremost, trusted by its patients and providers. Additionally, the channel should have contact with patients in their everyday lives, access to providers and a viable financial model for offering virtual care services.

- American Indian and Alaska Native tribes
- Big box retailers
- Caregivers (incl. family and friends)
- Consulting firms
- CROs
- Direct-to-consumer
- Employers
- Federally Qualified Health Centers
- Health associations (AHA, AMA)
- Home health providers
- Home security companies
- Hospitals/health systems
- Long-term care providers
- Payors: commercial, federal, state
- Pharma companies
- Physician offices
- Schools
- Telecom/cable companies
- Trade unions
- VA

PAYORS & FUNDING SOURCES

Virtual care generates unique value propositions not historically possible with conventional healthcare, attracting unique payors and supporting the industry-wide transition to value-based care. Identifying payor sources for a given virtual care use case involves thinking creatively about who can most benefit from expanding the access points of care for a population and improving provider efficiency.

- ACOs
- American Indian and Alaska Native tribes
- Commercial payors
- CROs
- Employers
- Hospitals/Integrated Delivery Networks
- Medicaid
- Medicare
- Pharmaceuticals
- Philanthropic associations
- Self-pay and families
- Trade unions

pients accountable, enabling payors to track outcomes and providing visibility for biopsychosocial care

anagement tools	• Middleware	• Practice management software
n systems	• Nurse call solutions	• Radiology information systems/PACs
	• Pharmacy management systems	• Social services registries

abilities of human providers to ensure care is quick, accurate and data-driven

ing relevant in the social context where it is being deployed. Consider how to provide access to transportation,
care, skills training, financial services/assistance and other resources

BEHAVIORAL HEALTHCARE FOR THE DIGITAL ERA

Behavioral health addresses how emotions, behavior and biology relate to a person's mental wellbeing, their ability to function in everyday life and

AN OVERVIEW OF THE U.S. BEHAVIORAL HEALTH CRISIS

BEHAVIORAL HEALTH IS A WIDE-SCALE CHALLENGE

- Millions of Americans of all ages battle mental health challenges.
  - Nearly 20% of adults are experiencing a mental health illness (~45 million people)[14] and, in 2017, one in five adults over 60 suffered from a mental health or neurological disorder[15].
  - Children and adolescents are not immune, as one in five between the ages of 13-18, and 13% of those aged 8-15, live with a severe mental health disorder[16].
- The prevalence of mental health conditions is increasing, particularly among youth.
  - Between 2005 and 2017, the rate of individuals reporting symptoms consistent with major depression over the past year increased by 52% among teens and 63% in young adults[17].
  - Suicide rates are at their highest levels since World War II and have increased by 31% since 2001[18]; in 2017, suicide was the second leading cause of death in people ages 10 to 34[19].

FOR NUMEROUS REASONS, PEOPLE ARE NOT GETTING THE HELP THEY NEED

- Nearly six in 10 people with mental illness get no treatment or medication[20].
- There is a shortage of mental health clinicians, particularly in rural areas of the country.
  - >115M Americans live in "shortage areas" where the ratio of mental health providers to residents is less than 1:30,000[21]; 75% of rural counties have no practicing psychiatrist[22].
  - In 2020, the US will have significant shortages of social workers (44% shortfall), marriage and family therapists (35%), psychiatrists (34%) and psychologists (30%)[21].
- Even if insured, there appears to be a growing gap between coverage of mental and physical care despite laws requiring mental health parity: out-of-pocket spending on inpatient mental health care grew ~13x faster than all inpatient care from 2012-2017 and an office visit with a therapist is 5x as likely to be out-of-network as a primary care visit[20].

THE CONSEQUENCES OF THIS CRISIS ARE COSTLY

- Treating mental health and substance abuse is costly: total US spending (from all public and private sources) for mental healthcare is expected to total $280.5 billion in 2020[23].
  - Those suffering from mental health conditions make 6x as many ED visits as the overall population and submit 2-4x as many medical claims per year[24]. People suffering from depression submit, on average, an additional ~$9K per year in medical expenses per person[24]; additionally, those with serious mental illness are ~2x as likely to develop cardiovascular and metabolic diseases[18].
- Over 47,000 Americans died of an opioid overdose in 2017[27].
- Untreated/improperly treated mental illness can lead to numerous other "societal" costs (lost productivity, unemployment, etc.).
  - Depression is the leading cause of disability worldwide[18] and untreated mental illness is estimated to cost the US up to $300 billion every year in productivity losses[25].

WHAT ABOUT VIRT

Because virtual care solutions are flexible and can be tailored to address each patient's specific needs, they can effectively address numerous mental health conditions

The US is facing a behavio
tailored solutions to specifi
solutions can address inclu
- Anxiety disorders
- Bipolar and related disor
- Borderline personality di
- Child and adolescent sup
- Chronic pain
- Dementia, Alzheimer's a disorders

Virtual care can be delivered in multiple ways, thereby creating access for multiple populations

Modes of delivery include:
- Adaptive surveys
- Digestible, implantable a
- Phone and video calls
- Secure texting/chat/mess
- Voice- or video-enabled

Virtual tools can triage and treat patients more quickly and efficiently than traditional care methods

Virtual triage and care deliv
- AI and machine learning
- Alerts and reminders for appointments, therapeut
- Analytically-driven librar
- Augmented/virtual realit
- Clinically-validated asses
- Digital therapeutics (hig
- Transportation coordinat
- Technology-enabled/assis

The reasons mentioned above help enable analytically-driven, virtual care navigation tools that can drive care to the appropriate provider(s)

- Addiction counselors (in Certified Alcohol and Dr
- Certified Diabetes Educa
- Family and marriage cou
- Licensed Clinical Profess
- Licensed Clinical Social
- Medical directors
- Occupational therapists

Tele-behavioral health will likely become the preferred deliver
workforce optimization tools and clinical administrative infra
to the appropriate providers that they are starved for:

- ACOs
- American Indian and Alaska Native tribes
- Cancer programs
- Community mental health clinics
- Correctional facilities
- EDs
- Employers

- Family support pr
- FQHCs
- Hospital-based w
- Individuals
- K-12 schools and
- Long-term care (a skilled nursing, h
- Payors

their concept of self. This includes such facets as mental health, substance use, habits and physical symptoms of emotional distress.

UAL CARE MAKES IT AN ATTRACTIVE SOLUTION FOR BEHAVIORAL HEALTH?

ral health crisis that is too frequently described in sweeping, broad terms. Virtual care solutions are being thoughtfully designed to deliver uniquely
c areas of need and points of care, giving patients and providers the ability to meaningfully combat real health problems. Some key areas that these
de:

ders
sorder
pport

nd other neurocognitive

- Depressive disorders (incl. perinatal mood disorders)
- ED behavioral health crises
- End-of-life, survivorship and grief counseling
- Feeding and eating disorders
- Marriage/couples/family counseling
- Neurodevelopmental disorders (incl. ADHD, autism)
- Obsessive-compulsive and related disorders

- Schizophrenia spectrum and other psychotic disorders
- Sleep disorders
- Speech and occupational therapy
- Substance-related and addictive disorders
- Trauma and stressor-related disorders (incl. PTSD)

nd wearable devices

age: real-time and asynchronous communications
virtual assistants and avatars

ery tools include:

medication adherence, scheduling and follow-up
c exercises, etc.
ies of therapeutic activities
y and facial expression/voice assessments
sment/diagnostic/therapeutic tools
h-quality, evidence-based software)
ion
ted patient intakes

Virtual care solutions can operate within an organization's existing workflows and can thereby help drive engagement while providing timely and relevant feedback

Seamless interoperability with other data sources will dramatically increase the likelihood of improved patient wellbeing and maximized provider usage while closing operational gaps.
- Access to community-based resources
- Access to financial assistance programs
- Bidirectional access to EHRs and other data sources
- Coordination with chronic care management programs and clinical trials, including patient matching
- Integration with revenue cycle tools
- Reporting tools to quantify impact in terms of patient outcomes, financial ROI and/or operational improvement
- Unobtrusive communication for patient, the entire provider team and permissioned family members/friends

cluding
ug Counselors)
tors
nselors
ional Counselors
Workers

- Pastors and chaplains
- Professional coaches
- Primary care physicians
- Psychiatric nurse practitioners
- Psychiatric pharmacists
- Psychiatrists – child, adolescent, adult
- Psychologists
- Speech therapists

Even more than in any other specialty, virtual care workflows built into behavioral health can drive timely, evidence-based, analytically-driven engagement with the appropriate, scarce providers for all patients, maximizing the likelihood of all providers operating at the top of their licenses and all patients receiving the correct care.

POTENTIAL OUTCOMES OF VIRTUAL CARE IN BEHAVIORAL HEALTH

y medium for behavioral health solutions once the
structure are in place, giving myriad institutions access

ograms
ards

universities
ssisted living,
ospice)

- Primary care physicians
- Psychiatric hospitals and outpatient units
- Residential treatment centers
- Substance abuse treatment centers
- Survivorship groups

Virtual behavioral solutions can lead to:
- Greater access with reduced barriers related to time, geography and stigma
- Improved care and significant cost reductions, generating a meaningful ROI
- Improved compliance and coordination with other CCM programs
- Improved employee training and productivity; reduced turnover and staff recruitment expense
- Increased ability to manage social determinants of health including with improved matching of patients to providers with relevant cultural competencies
- Improved medication adherence and compliance; reduction in anti-psychotic drug prescriptions
- Reduced hospital admissions and shorter high-acuity wait times
- Regained emotional health and wellbeing
- Significant reductions in missed appointments/identification of patients at risk of attrition

VIRTUAL BEHAVIORAL HEALTH SECTOR MAP

Virtual Psychiatry

- Aligned Telehealth/American Well
- Bright Heart Health
- Brightside
- Concert Health
- e-Psychiatry
- FasPsych
- Forefront Telecare
- Genoa Telepsychiatry/United Healthcare
- Ginger
- HealthLinkNow
- innovaTel Telepsychiatry
- Insight Telepsychiatry/Regroup
- Iris Telehealth
- JSA Health/SOC Telemed
- MDLIVE
- MediTelecare
- MedOptions
- MindCare Solutions
- Mindoula
- Mindstrong Health
- Orbit Health
- PMC/Senior Life Solutions/Integrated Telehealth Partnerss
- qlēr Solutions
- Quartet Health
- Teladoc Health
- Telemynd
- thera-LINK
- wayForward
- WeCounsel

Screening & Monitoring Tools

- Brightside
- Concert Health
- Ellipsis Health
- FeelingBetterNow
- HealthRhythms
- M3 Information
- Mentegram
- Meru Health
- Mindstrong Health
- myStrength/Livongo
- NeuroFlow
- Sentio Solutions (Feel)
- Spring Health
- StressPal
- Synchronous Health
- Telemynd
- Valera Health
- WellBrain

Virtual Therapy & Counseling

- AbleTo/Joyable
- American Well
- BetterHelp/Teladoc Health
- Bright Heart Health
- Brightside
- Concert Health
- Dotcom Therapy
- FasPsych
- Forefront Telecare
- Ginger
- Ieso Digital Health
- Insight Telepsychiatry/Regroup
- MDLIVE
- MediTelecare
- MedOptions
- Mentegram
- MindCare Solutions
- Mindoula
- Mindstrong Health
- NOCD
- Quartet Health
- Sentio Solutions (Feel)
- Talkspace
- TAO Connect
- Telemynd
- thera-LINK
- wayForward
- WeCounsel

Substance Use Disorder Focus

- Bicycle Health
- Boulder Care
- Bright Heart Health
- CHESS Health
- DynamiCare Health
- Kaden Health
- MAP Health Management
- Pear Therapeutics
- PursueCare
- Ria Health
- Triggr Health
- Workit Health

Pediatric Focus

- AmplioSpeech
- Behavior Imaging Solutions
- Cognoa
- Dotcom Therapy
- Insight Telepsychiatry/Regroup
- PresenceLearning
- TeleTeachers

Self-Management Tools

- FeelingBetterNow
- HabitAware
- Happify
- Headspace
- Kick
- myStrength/Livongo
- NeuroFlow
- NOCD
- Prevail Health
- Sentio Solutions (Feel)
- SilverCloud Health
- TAO Connect
- wayForward
- Woebot

Digital Therapeutics

- BehaVR
- Big Health
- Freespira
- HealthRhythms
- Meru Health
- myStrength/Livongo
- Pear Therapeutics
- SilverCloud Health
- StressPal
- Synchronous Health

Workplace Mental Health

- FeelingBetterNow
- Ginger
- LifeDojo
- Modern Health
- Spring Health
- Tiatros
- Valera Health
- wayForward

A confluence of factors are helping participants across the healthcare industry understand the critical role that behavioral health plays in wellbeing. Because behavioral health is such a large and promising part of today's virtual care landscape, we moved the behavioral health section of our Sector Map here, to its own page. The rest of the Sector Map can be found on pages 26-27.

Note: The virtual care sector is constantly evolving. This is a representative listing of companies in the sector and is not intended to be exhaustive.

SECTOR

MOOD AND ANXIETY DISORDER MANAGEMENT

- Some of the most common behavioral health issues are mood disorders (~21% lifetime prevalence rates in American adults – e.g. major depressive disorder, seasonal affective disorder) and anxiety disorders (~31% lifetime prevalence – e.g. generalized anxiety disorder, obsessive-compulsive disorder) [19].
- Virtual care solutions can connect people with the right providers, content and other tools that can help manage mood and anxiety disorders anywhere, anytime.
- Many solutions are adaptable to a variety of conditions (e.g. AbleTo counseling) while others are specialized for certain acuities or diagnoses (e.g. NOCD tracking of compulsions).
- Some tools are optimal for self-management; others connect people with qualified providers, including psychiatrists, psychologists and licensed clinical social workers.

Select representative companies:

AbleTo · American Well · Big Health · Brightside · DOTCOM THERAPY · e-Psychiatry · FasPsych Your Quality Telepartner · feel · ginger · HABITAWARE · happify · headspace · MDLIVE · Mentegram · myStrength · nOCD · SilverCloud · talkspace · TAO · TELADOC · Woebot

SUBSTANCE USE DISORDERS (SUDS) AND MEDICATION-ASSISTED TREATMENT (MAT)

- Roughly 20 million Americans battle a SUD; one out of every eight adults with a SUD struggles with both alcohol and drug use disorders simultaneously[26].
- More than 130 people die every day in the US due to an opioid overdose[27].
- Many EDs are overwhelmed by SUD patients seeking help and often in crisis: they are frequently in need of long-term rather than emergency care.
- Using virtual care allows those with a SUD to begin sobriety treatment anytime from anywhere, with few delays or barriers.
- MAT can be prescribed remotely in certain scenarios.
- Virtual SUD treatment tools often enhance accountability by incorporating quick access to support groups and coaches into treatment plans.

Select representative companies:

BICYCLE HEALTH · Boulder · Bright Heart Health · CHESS HEALTH Real Evidence. Real Recovery. · DynamiCare HEALTH · Kaden · MAP Health Management · Pear THERAPEUTICS · PursueCare · Ria HEALTH · TriggrHealth · Workit Health
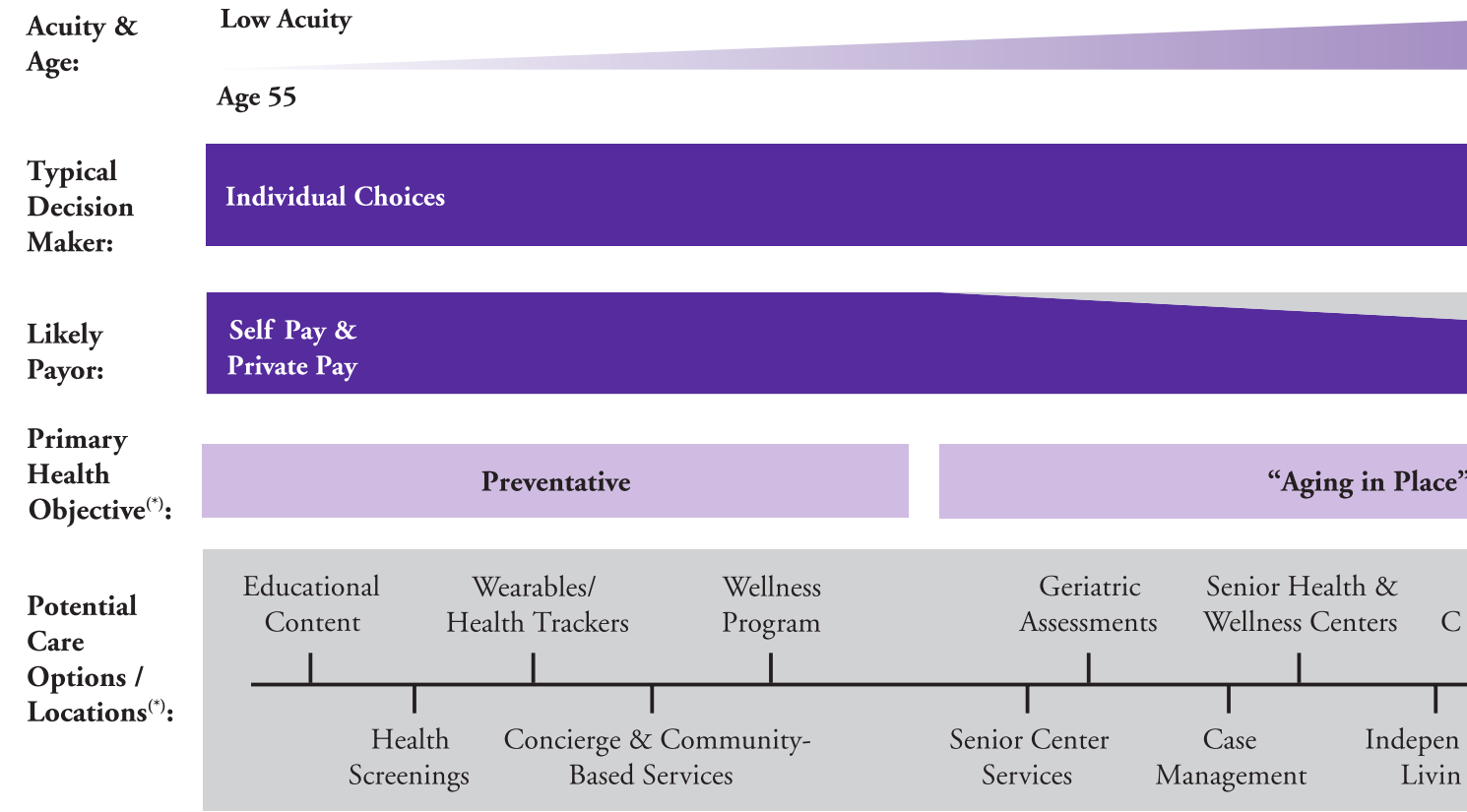
POPULATION-SPECIFIC SOLUTIONS

- Some populations with a high prevalence of behavioral health challenges find it uniquely difficult to access behavioral care.
- 2 million people with mental illness are booked into jail every year[28]. Whether for competency hearings or long-term care to prevent recidivism, virtual care provides a new avenue for inmate mental health access that is reliable, affordable and safe.
- American Indians and Alaska Natives have consistently sought behavioral healthcare that is sensitive to their cultures and histories and that can be accessed at reasonable prices, often from reservations. Virtual care makes identifying, retaining and communicating with appropriate providers simpler than ever.
- Students of all ages may be unable to access the behavioral health resources they need due to age, geography, financial means or experience. Virtual care brings age-appropriate, affordable resources anywhere – from the school counseling office to a dorm room.

Select representative companies:

Avera eCARE - Psychiatry for American Indian and Alaska Native communities, schools, corrections and more

FOREFRONT TELECARE - Psychiatric care for rural facilities including skilled nursing and hospitals

INSIGHT / regroup - Behavioral healthcare for community mental health clinics, health systems and more

PresenceLearning - Live online special education services (e.g. speech-language therapy) for K-12 schools

THE SMART AGING ECOSYSTEM ENCOMPASSES NUMEROUS CARE SETTINGS THAT PRIMARILY SERVE CONSUMERS THAT ARE ESPECIALLY RELEVANT TO THE SMART AGING MARKET, WE BELIEVE VIRTUAL CARE WILL BE AN IN

Acuity & Age:

Low Acuity

Age 55

Typical Decision Maker:

Individual Choices

Likely Payor:

Self Pay & Private Pay

Primary Health Objective(*):

Preventative

"Aging in Place"

Potential Care Options / Locations(*):

| Educational Content | Wearables/ Health Trackers | Wellness Program | | Geriatric Assessments | Senior Health & Wellness Centers | C |
| | Health Screenings | Concierge & Community- Based Services | | Senior Center Services | Case Management | Indepen Livin |

Select Subsectors Relevant to the Smart Aging Market

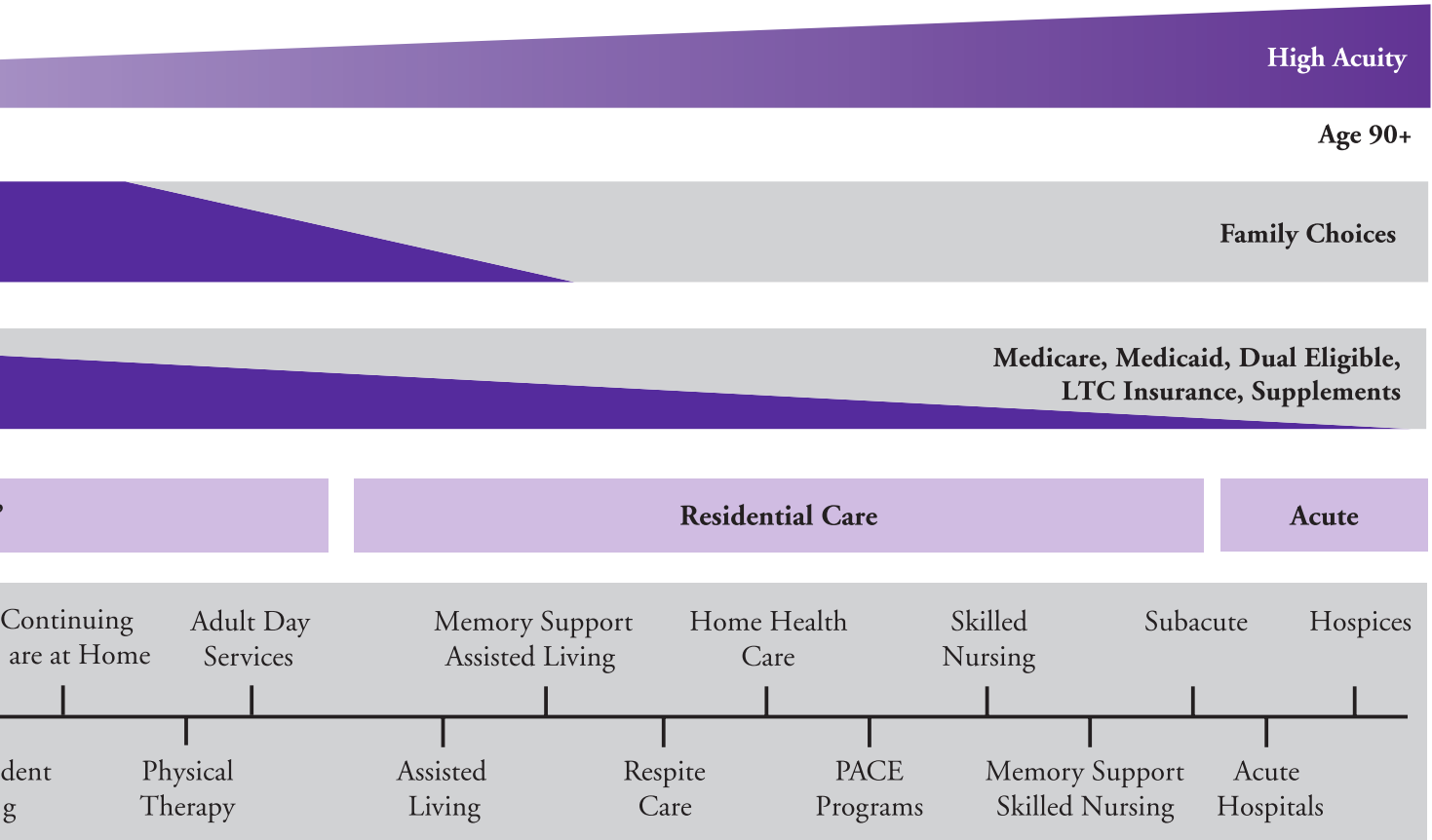| SOCIAL DETERMINANTS OF HEALTH	BEHAVIORAL HEALTH	CHRONIC
• Numerous studies have found that SDOH factors such as housing, transportation, education, food and social isolation can significantly impact aging adults' ability to access care, adhere to treatments, live independently and "age in place." • Several organizations are exploring ways to enable more holistic, SDOH-focused care. These efforts are bolstered by CMS which declared in 2019 that it would allow MA and Part D plans to offer benefits that address SDOH.	• Mental health challenges in the aging population are not uncommon (one in five older adults experienced a mental health or neurological disorder in 2017[15]), yet they are becoming increasingly difficult to effectively address given a growing patient base and provider shortages. • The discretionary nature of virtual care models along with the lack of hands-on requirements for behavioral healthcare make "in-place" tele-behavioral health visits an optimal use for virtual care.	• A number of exclusively foc chronic diseas for the majori US and are co adults (~85% condition and • Today, there a proven their a conditions by providing pro

*Adapted from Greystone Communities' Continuum of Care Chart

High Acuity

Age 90+

Family Choices

Medicare, Medicaid, Dual Eligible, LTC Insurance, Supplements

Residential Care

Acute

Continuing
are at Home

Adult Day
Services

Memory Support
Assisted Living

Home Health
Care

Skilled
Nursing

Subacute

Hospices

dent
g

Physical
Therapy

Assisted
Living

Respite
Care

PACE
Programs

Memory Support
Skilled Nursing

Acute
Hospitals

C CARE MANAGEMENT

virtual care companies are
used on helping patients manage
es, as chronic conditions account
ty of healthcare spend in the
mmonly diagnosed in aging
of older adults have at least one
60% have at least two[29]).
re numerous solutions that have
bility to help those with chronic
improving care coordination and
active, personalized care options.

emetry CANARY HEALTH.

MedMinder spry

PROVIDER WORKFORCE MANAGEMENT

- A 2018 Ziegler survey found that staff
  recruitment, retention and labor costs were the
  largest areas of concern amongst NFP senior
  living CFOs. It is likely that these and other
  labor-related challenges will grow in the coming
  years as providers require more staff to serve the
  growing aging population.
- While some companies in this subsector may
  not provide "virtual care," many have built
  innovative digitally-enabled solutions that
  address common labor-related pain points.

arena BookJane embodied labs

On Shift PayActiv

AFTER-HOURS SNF COVERAGE

- Many SNFs have limited after-hours provider
  coverage which can leave staff ill-equipped
  to handle complex episodes at night or on
  weekends and holidays. As such, SNF residents
  who need urgent care are often expensively
  and sometimes traumatically transferred to a
  hospital, treated, then readmitted to a SNF.
- Virtual care solutions help combat such
  dilemmas by offering "treat-in-place" tools that
  provide 24/7 virtual access to providers, using
  two-way audio/video technology and digital
  diagnostic tools.

amwell CURAVI HEALTH MPAC Healthcare

TAPESTRY TELEHEALTH THIRD EYE HEALTH

Why expand Medicaid coverage for virtual care? Medicaid is a massive, rapidly growing program and its recipients face challenges that are no
can afford Medicaid beneficiaries greater access to providers and wellness tools, improve basic care navigation for individuals and enhance the m
coverage for virtual care services in Medicaid populations will be a key determinant of whether virtual care tools are successful in meeting the ne

other populations, Medicaid patients are unlikely to be able to afford out-of-pocket services and will simply go without the benefits of
care coverage in order to positively impact patient care and Medicaid budgets.

DISPROPORTIONATE HEALTH CHALLENGES

- **Chronic Conditions** – Medicaid beneficiaries are more vulnerable to chronic diseases than the US as a whole. A 2017 *American Journal of Preventive Medicine* study found that ~56-62% of Medicaid beneficiaries aged 18-64 years had at least one chronic condition vs. national estimates of 50% for all adults[30].
- **Maternal & Fetal Health** – In 2015, half of all US states reported that 50% or more of births were financed by Medicaid[31]. Women with Medicaid coverage are more likely to have preterm births and low-birthweight infants vs. the privately insured. Women covered by Medicaid are also less likely to receive timely, adequate prenatal care, as ~94% of privately insured women in a MACPAC study began receiving prenatal care in the first trimester vs. ~79% of those insured by Medicaid[32].
- **Emergency Room Utilization** – As of 2015, Medicaid patients used the emergency room at twice the rate of those with private insurance, according to CMS[33]. Medicaid was the most common payor type among all ED visits every year from 2006 to 2015 for patients under age 18 and among all patients aged 18-44 in 2014 and 2015[34].
- **Tobacco Use** – Nearly 25% of adult Medicaid recipients smoke tobacco vs. 14% of all adults in the US[35]. Per a 2017 study, smokers covered by Medicaid were more likely than those with private insurance to have chronic disease (55% for Medicaid vs. ~37% for private insurance) and more likely to experience severe psychological distress (~16% vs. 3%)[36].
- **Falls** – Medicaid spent $9 billion on falls in 2015[37] and as of 2016, was the largest payor of long-term services/supports that are often needed after a fall[38]. The SDOH challenges described below likely increase the risk of falls for Medicaid recipients.

- **Behavioral Health** – Mental illness is more than twice as prevalent among Medicaid enrollees as the general population[39] and Medicaid is the single largest payor for mental health services in the US[10]. As evidence of this disproportion, Medicaid covered 14% of the general adult population in 2015 but covered 21% of adults with behavioral health conditions, 26% of adults with serious mental illness and 17% of adults with a SUD[23]. Recently, Medicaid has played an active role in addressing the opioid crisis, as Medicaid covered nearly four in ten nonelderly adults with an opioid use disorder in 2017[40].

HEALTH CONDITIONS EXACERBATED BY STRUGGLES TO ACCESS CARE

One's ability to access appropriate healthcare depends not only on insurance coverage for a service, but on numerous economic and social factors widely defined as Social Determinants of Health. As described below, many of these determinants are particularly pertinent to Medicaid recipients and may exacerbate existing conditions or prevent patients from accessing care.

- **Fewer Providers Accept Medicaid** – Across all types of providers, just ~71% will see Medicaid patients while 90% will accept privately insured individuals. Per a recent MACPAC study, 68% of general practice or family physicians accepted new patients with Medicaid (vs. 91% that accepted private insurance) and 35% of psychiatrists will accept new patients using Medicaid (vs. 62% accepting commercial plans or Medicare)[41].
- **Transportation Challenges** – Adults with Medicaid coverage are ~8x more likely than those with private coverage to delay care because of a lack of transportation[42]. A 2014 CMS survey of Medicaid users found that lack of transportation was the third-greatest barrier to care for adults with disabilities[43].
- **Access to Safe/Reliable Housing** – Medicaid expansion under the ACA significantly increased health coverage for people experiencing homelessness and unstable housing[44]; on average, those without stable housing live ~27 years less than the average "housed" person and are more likely to be admitted/readmitted to, and will stay longer in, hospitals[45].
- **Access to Healthy Food** – 32% of Medicaid beneficiaries often purchase less-healthy food options than they otherwise would because of lack of money (vs. 13 % of non-recipients) and 43% skip at least one meal per day due to a lack of food (vs. 28% of non-recipients)[46]. 55% of zip codes with a median income below $25,000 fit the definition of "food deserts."[47]
- **Inflexible Work Schedules** – ~40% of workers participating in "safety net programs" (i.e. Medicaid, other public health insurance coverage, SNAP, TANF and rental assistance programs) have no more than one week's notice of their work schedule vs. ~19% of nonparticipants. Safety net program participants are also less likely than nonparticipants to work a regular daytime shift (~58% vs. ~75%) and to have control over when each workday begins and ends[48].

t as frequently experienced by many privately insured patients. Compared to "conventional" healthcare delivery models, virtual care solutions anagement of behavioral and chronic conditions. Deploying these solutions can be transformative for Medicaid recipients. However, insurance eds of this population and averting the enormous cost and access crisis looming for Medicaid programs that continue with the status quo. **Unlike virtual care if the services are not covered by insurance. This leaves Medicaid policymakers with a unique opportunity to expand virtual**

EXPANDING VIRTUAL CARE COVERAGE CAN HELP

INCREASE CONVENIENCE & ACCESSIBILITY

- **The single most important catalyst to improving access to care for Medicaid recipients may be the near-ubiquitous access to cost-effective and reliable cell/smartphone service.** Nearly all smartphones today can serve as a "virtual navigation hub" for digital health solutions. By simply having a smartphone, consumers can avoid physically traveling to a provider's office and can instead access the following tools from nearly any convenient location:
  - **Behavioral Health Tools**
  - **Chronic Care Management Tools**
  - **Logistics Tools for "Blocking and Tackling"**
    - ◦ Scheduling tools, transportation assistance, secure messaging
  - **Passive Monitoring and Safety Solutions**
    - ◦ PERS, fall detection, activities of daily living sensors
  - **Alerts and Reminders**
    - ◦ Appointment and medication reminders, behavioral cues
  - **Social Services/Resources**
- Reducing transportation challenges by making care available from anywhere inherently alleviates some challenges related to inflexible patient schedules. Additionally, select virtual care solutions offer 24/7 access to caregivers, ensuring care is available anytime.
- There are basic tech-enabled solutions to help users find and check availability for providers who accept Medicaid.

OPTIMIZE PROVIDER USE & IMPROVE EFFICIENCY

- Virtual care facilitates **provider workforce optimization at all levels,** including for specialists, PCPs, NPs, LCSWs, case workers and allied professionals alongside informal caregivers such as family, friends and volunteers (e.g. college students).
- Through the benefit of continually improving solutions embedded within existing workflows, virtual care can **drive timely, evidence-based, analytically-driven engagement** to the appropriate provider at the appropriate time. This allows providers to consistently work at the top of their licenses.
- The continued introduction of these workforce optimization tools will enable virtual care's goal of **cost-effectively increasing the access points of high-quality physical, behavioral and social care.**
- These tools will **ease the current and future crisis of provider shortages.**

ADDRESS A RANGE OF RELEVANT CONDITIONS

- The scope of conditions addressed by virtual care has dramatically expanded, as evidenced in our Sector Map (p. 26-27).
- A number of organizations are recognizing the importance of SDOH and have developed solutions that **work with community resources** to help patients find housing, food and other social resources, in addition to physical and behavioral healthcare.

RECENT VIRTUAL CARE EXPANSION WITHIN MEDICAID

Many states have taken advantage of the enormous opportunity presented by virtual care to expand coverage of innovative services in Medicaid programs and improve lives in the process. A few recent examples are below, and a summary of the ATA's 2019 "State of the States" Medicaid coverage analysis can be found here.

- In August 2019, the agency that administers Medi-Cal benefits for over 13.5 million California residents finalized guidelines that significantly expanded virtual care reimbursement in the Golden State[49].
- New Hampshire decided in August 2019 that its Medicaid program will cover remote patient monitoring and store-and-forward services and give primary care and other providers more leeway to use virtual care beginning in 2020[50].
- In October 2019, Oklahoma expanded its tele-pharmacy program to the entire state, giving thousands of Oklahomans and their care providers access to a connected health platform that delivers personalized care management[51].

*Strong **data management** and production of **actionable intelligence** from **big data analytics engines** will be key to virtual care's long-term success. Analytically-driven engagement tools, increasingly enhanced by AI and information on social determinants, will continue to drive more efficient use of virtual care solutions in optimal care settings. These tools could revolutionize care for Medicaid beneficiaries.*

HIGH GROWTH SEGMENT: TELE-ONCOLOGY

Tele-oncology epitomizes the core principles of virtual care's mantra as expressed by ATA CEO Ann Mond Johnson: ensure people get care where and when they need it, and when they do, make sure they know it is safe, effective and appropriate while empowering clinicians to do more good for more people. Tele-oncology has the ability to compassionately deliver care to cancer patients and their families and has two critical payment vehicles: 1) the Oncology Care Model, which is Medicare's value-based, risk-sharing payment model; and 2) the clinical trials/CRO industry, as tele-oncology can be used to dramatically increase the likelihood of a successful clinical trial.

VIRTUAL CARE CAPABILITIES

REMOTE MONITORING/ VITALS	MEDICATION ADHERENCE/ COMPLIANCE	POST-DISCHARGE INSTRUCTION/ FOLLOW-UP/ COMPLIANCE	PHYSICIAN/ CAREGIVER/ FAMILY MEMBER COMMUNICATIONS	COMPASSIONATELY DELIVER ACCESS TO CARE IN THE MOST CONVENIENT POSSIBLE SETTINGS
BEHAVIORAL HEALTH/ DEPRESSION	CONTENT REPOSITORY	DATA MANAGEMENT	END-OF-LIFE/ PALLIATIVE CARE COMMUNICATIONS/ SURVIVORSHIP	

VIRTUAL CARE BENEFITS

ONCOLOGY SERVICES / OCM

- Enable early detection and preventative care with constant monitoring and care support
- Improve communication between family members, primary care MDs and specialists
- Improve inpatient and post-discharge care coordination
- Provide easier access to care plans and alternative treatments
- Ease difficult cancer treatment processes, including with behavioral health support
- Simplify patients' access to educational content
- Allow for seamless capture and integration of patient data into existing workflows

CLINICAL TRIALS

- Enhance patient recruitment capabilities/expand catchment reach
- Increase patient communication, engagement and, as a result, retention
- Improve data capture, data management and outcomes tracking
- Reduce the need for patient travel and site visits with in-home treatments and monitoring
- Increase patient medication adherence leading to shorter trial duration
- Improve efficiencies and workflows, thereby reducing staff demands

VALUE

IMPROVE PATIENT CARE	ENHANCE PATIENT AND FAMILY EXPERIENCE	REDUCE COSTS
REDUCE TRAVEL	REDUCE UNNECESSARY HOSPITALIZATIONS	CREATE DIFFERENTIATED SERVICE OFFERINGS

Virtual care facilitates provider (subspecialist, specialist, PCP, PA, NP, case worker, social worker, family member) workforce optimization. Through the benefit of continually improving solutions embedded within existing workflows, virtual care can drive timely, evidence-based, analytically-driven engagement to the appropriate providers, thereby enabling them to operate at the top of their licenses.

NOTABLE MARKET DEVELOPMENTS

TRANSFORMATIVE DEALS

- As we anticipated in our spring 2018 white paper, "Improving the Access Points of Healthcare Delivery," the pace of consolidation and capital inflows in the virtual care industry has dramatically increased. This trend has created platforms of meaningful scale with diversified service offerings, particularly service offerings for logical comorbidities (e.g. platforms for both diabetes and cardiac disease). Many of these platforms are powered by data-driven workflow engines that connect to clinical and financial IT systems for a seamless user experience.
  - In one of the most significant deals in the virtual care sector's history to date, Teladoc Health announced in Jan-2020 its agreement to acquire InTouch Health for $600 million. Through this transaction, which is expected to close by the end of Q2 2020, Teladoc Health will become the largest virtual care player in the market, with significant scale to provide virtual care services for all levels of acuity, from critical care to everyday visits.

- In addition to many of the brand name virtual care players continuing their successful efforts to build scale and diversify their offerings (**Teladoc Health, American Well, BioTelemetry,** etc.), the most disruptive trend in the sector is the entry of multi-billion dollar diversified conglomerates (**Amazon, Best Buy, Google,** etc.) as they gobble up some of the biggest names in virtual care. Meanwhile, Babylon Health's $550 million capital raise at a $2 billion valuation introduced the first well-capitalized AI-based virtual care platform into the marketplace, with the ability to connect with many other virtual care participants' solutions.

- 2019 also had several landmark capital events that likely foreshadow the start of several public equity offerings (**Livongo's** IPO and **American Well's** anticipated S1 filing).

UNIQUE PARTNERSHIPS

- **Amazon** acquisitions of **Health Navigator** and **PillPack**
- **Best Buy** acquisitions of **Critical Signal Technologies** and **GreatCall** and partnership with **TytoCare**
- **Google** acquisition of **Fitbit**
- **Optum** acquisition of **Vivify Health**
- **ResMed** acquisitions of **MatrixCare** and **Propeller Health**
- **TrialCard** acquisition of **Mango Health**

COMMUNICATION

- **Hillrom** acquisition of **Voalte**
- **PerfectServe** acquisitions of **CareWire** and **Lightning Bolt Solutions**
- **QGenda** acquisition of **OpenTempo**
- **SCI Solutions** acquisition of **DatStat**

TELE-BEHAVIORAL ENTHUSIASM

- **AbleTo** capital raise and acquisition of **Joyable**
- **Forefront Telecare** capital raise
- **Insight Telepsychiatry / Regroup** merger
- **SOC Telemed** acquisition of **JSA Health**
- **Talkspace** capital raise

CROSS-BORDER ACTIVITY

- **Babylon Health's** entry to US market
- **Teladoc Health** acquisitions of **Advance Medical** and **MédecinDirect**
- **Tunstall** exit from US market
- **TytoCare** entry to US market and retail partnership with **Best Buy**

FACILITY-BASED SOLUTION EXTENSIONS

- **American Well** acquisitions of **Aligned Telehealth** and **Avizia**
- **Curavi (UPMC Enterprises)** acquisition of **TripleCare**
- **Teladoc Health** announced acquisition of **InTouch Health**, and **InTouch Health** acquisitions of **REACH Health** and **TruClinic**

DIABETES SOLUTIONS

- **Livongo** IPO and acquisition of **Retrofit**
- **Omada** capital raise
- **Medtronic** acquisition of **Nutrino**
- **BioTelemetry** acquisition of **Telcare**

ADDITIONAL NOTABLE CAPITAL RAISES

- **98point6, CirrusMD, Current Health (snap40), First Stop Health, Higi, Hinge Health, MDLIVE** and **Roman**

POLICY MOMENTUM

- **Federal Policy Innovation: New Solutions and Locations Covered**
  - CY2019 Medicare policy expands virtual care reimbursement, including by providing for nationwide reimbursement of virtual care for stroke, end-stage renal disease and SUDs (in accordance with the Bipartisan Budget Act of 2018 and the SUPPORT Act); new Communication Technology-Based Services such as virtual check-ins, asynchronous evaluation of video/images and inter-professional consults; and remote patient monitoring.
  - CY2020 Medicare policy further expands fee-for-service reimbursement for virtual care, including new codes covering remote patient monitoring, CCM, eVisits and more; it also implements flexible use of virtual care in Medicare Advantage (MA) plans and ACOs (in accordance with the Bipartisan Budget Act of 2018).
  - Starting in January 2020, MA plans can offer arguably the broadest range of reimbursed virtual services, including care delivered online asynchronously and via call centers and RPM devices; MA plans can now offer these additional virtual care services as a "basic" benefit rather than only a "supplemental" benefit.

  - There are more than 100 Medicare CPT/HCPCS codes related to virtual care or that can be used in the context of virtual care.
  - The patient home is an allowed virtual care originating site for virtual home dialysis care, substance use disorder treatment, brief check-ins, eVisits and remote patient monitoring.
  - Congress recently introduced the bipartisan, bicameral CONNECT for Health Act of 2019, which includes 15 provisions related to virtual care and includes an outline for testing virtual care applications in Medicare VBR models.
- **State-Level Progress: Coverage Trending Toward Expansion**
  - 42 states and DC now have laws requiring commercial health plans to cover services delivered via virtual care and 10 states have parity laws requiring commercial health plans to reimburse providers for certain virtual services at an equivalent rate as in-person services.
  - Although the specifics vary among states, all 50 states and DC offer some reimbursement for certain virtual care offerings.
- **The Next Challenges to Overcome**
  - Remove all geographic restrictions, increase access to 5G networks and achieve payment parity (especially for Medicaid).

ZIEGLER'S VIRTUAL CARE SECTOR MAP

CONSUMER HEALTH & WELLNESS

Triage (Primary & Specialty)
On-Demand Remote MD/
Nurse Care
- 98point6
- AkosMD
- AllyHealth
- American Well/Avizia/Carena
- Axs Healthcare
- Babylon Health
- Call A Doctor Plus
- CirrusMD
- Cleo
- Doctor on Demand
- Eden Health
- EZaccessMD
- First Stop Health
- Galileo
- Hazel
- HealthJoy
- HealthTap
- IntellaTriage
- Intellivisit
- K Health
- Krixi Care
- KRY
- Lemonaid Health
- Maple
- MDLIVE
- MeMD
- MYidealDOCTOR
- MyOnCallDoc
- MyTelemedicine
- Nice Healthcare
- NuPhysicia
- OnMed
- Orbita
- OTN
- OTTO Health/NextGen
- Pager
- PlushCare
- Salus Telehealth
- Sherpaa/Crossover Health
- SteadyMD
- SwiftMD
- Synct
- TelaCare
- Teladoc Health
- TeleMed2U/Kura MD
- TytoCare
- United Concierge Medicine
- virtuwell
- WellVia
- Zipnosis

Triage (Primary & Specialty)
Care Navigation/Virtual Care Plans
- Consejo Sano
- Eden Health
- Fusionetics
- SpaKinect

Virtual Physician Assistant
- Ada
- BrightMD
- Buoy Health

Kiosks
- AMD Global Telemedicine
- American Well
- Higi/Stayhealthy
- MedAvail
- OnMed
- Pursuant Health

Wellness
- Aidar
- Azumio
- Babylon Health
- Canary Health
- Fitbit/Google
- Misfit/Fossil
- Monj
- Noom
- Omada
- Physitrack
- Telespine
- Vida Health

On-Demand Urgent Care
- DispatchHealth
- EZaccessMD
- FetchMD
- Medpod
- Nice Healthcare
- One Medical
- StationMD
- Zipline

TARGETED DISEASE STATES

Oncology
- Kaiku
- Navigating Cancer
- SmartBridge Health

Dermatology & Wound Care
- 3Derm Systems
- Azova
- CaptureProof
- CarePICS
- Corstrata
- Curology
- DermatologistOnCall
- DirectDerm
- eKare
- First Derm
- MyWoundDoctor
- Tissue Analytics
- WoundMatrix
- WoundRounds
- Woundtech

Diabetes
- DarioHealth
- Entra Health/CRF
- Glooko
- GlucoMe
- Glytec
- Lark Health
- Livongo
- Omada
- Onduo/Sanofi/Verily
- Sano
- Senseonics
- Solera Health
- Telcare/BioTelemetry
- Trividia Health
- Virta Health

Sleep
- DocViaWeb
- Singular Sleep

Dentistry
- The TeleDentists

Gastrointestinal
- SonarMD
- Vivante Health

Respiratory
- Adherium
- Cohero Health
- Propeller Health/ResMed
- ResApp Health
- Strados

Women's, Maternal & Neonatal
- Ava
- Babyscripts
- Cleo
- Docent Health
- Femometer
- Flo
- Gennev
- Mahmee
- Maven
- Natural Cycles
- Nurx
- NUVO Cares
- Ovia Health
- Owlet
- Pacify/Advantia Health
- PeriGen
- Pill Club
- Progeny Health
- Wildflower Health

Eye Care
- 20/20 Now
- Insight Optics
- IRIS
- SimpleContacts
- Visibly

Cardiac
- AliveCor
- Biotricity
- Cardiac Designs
- CardioMedix
- Endotronix
- InfoBionic
- iRhythm Technologies
- Isansys
- Lifewatch/BioTelemetry
- Preventice/eCardio
- Qardio
- SHL Telemedicine
- Vital Connect

VIRTUAL CARE PLATFORMS
- 19Labs, Inc.
- Access Physicians
- ACETIAM
- Alina TeleHealth
- AMD Global Telemedicine
- American Well/ Avizia/Carena
- Azalea Health
- Azova
- Beam Healthcare
- CallingDr
- Care.IT
- CareClix
- Chiron Health/
- Medici
- Cloudbreak Health
- Curai/First Opinion
- Curatess
- CureCompanion
- Dictum Health
- Doxy.me
- Eceptionist
- eVisit
- Firefly Health
- FONEMED
- Global Partnership for
- Telehealth
- GlobalMed
- Hifinite
- Medici
- MediSprout
- Medpod
- Medweb
- Mend
- MyTelemedicine
- Neighbors Telehealth
- Oneview Healthcare
- OTTO Health/ NextGen
- PatientClick
- SimpleVisit
- SmartCareDoc
- SnapMD/VirTrial
- Suquino
- Spruce
- SwyMe
- Teladoc Health/ InTouch Health/ TruClinic
- TeleHealth365
- TeleMed 2020
- TeleSpecialists
- TytoCare
- ViTel Net

PATIENT ENGAGEMENT/ NAVIGATION
- Accolade
- Ada
- AllyHealth
- b.well
- Babylon Health
- Eliza/HMS
- Evive Health
- Force Therapeutics
- GetWellNetwork
- GYANT
- Jiff/Castlight
- K Health
- Klara
- Lifemesh
- Limeade
- Locus
- MobileSmith Health
- my mhealth
- MyTelemedicine
- Noteworth
- Orbita
- Redbrick Health/ Virgin Pulse
- SCI Solutions
- Sharecare
- VIM
- Wanda
- Wellbe
- Welltok
- Xealth

CLINICAL COMMUNICATION
- AGNITY
- AristaMD
- Audacious Inquiry
- Bernoulli/Capsule Technologies
- CaptureProof
- Central Logic
- Connexall
- Conversa Health
- Cureatr
- DocBookMD/ Medici
- GenerationOne
- Hucu
- Klara
- Medigram
- Mobile Heartbeat/ HCA
- PatientSafe Solutions
- PeraHealth
- PerfectServe
- Spok
- TigerConnect
- Vidyo/Enghouse Systems
- Voalte/Hillrom
- Vocera/Extension Healthcare
- XFERALL

FACILITY-BASED SOLUTIONS

Hospital-Based Solutions
- Advanced ICU Care
- AirStrip
- American Well
- Beam Healthcare
- Blue Sky Telehealth
- Eagle Telemedicine
- EmOpti
- PercuVision
- ProgenyHealth
- RTNA
- SOC Telemed
- Teladoc Health/InTouch Health/AcuteCare Telemedicine/REACH Health
- TeleSpecialists
- VeeMed
- VitalConnect
- Virtual Medical Staff

Second Opinion
- 2nd.MD
- AllyHealth
- AristaMD
- Best Doctors/Teladoc Health
- DocPanel
- Grand Rounds
- MAVEN Project
- MORE Health
- RubiconMD
- SecondOpinions.com

Clinical Trials
- AiCure
- AMC Health
- Clinical Ink/RTI International
- doc.ai
- Hifinite
- Signant Health
- Teckro
- THREAD
- VirTrial/SnapMD

Lab & Pathology
- Leica Biosystema
- PWNHealth
- Workpath

Senior Living
Communication/Engagement Tools
- Breezie
- Care Angel
- Catalia Health
- Caremerge
- Connected Living
- GrandCare Systems
- Independa
- It's Never 2 Late
- K4Connect
- LifeShare Technologies/Spectrio
- Oneview Healthcare
- Seniorlink
- Touchtown/Uniguest

Care Coordination
- Aiva Health
- CivicHealth/Strategic Health Care
- Collective Medical
- iHealthHome
- Seniorlink
- TeleMed 2020
- Vynca
- Welcome Home Health

Provider Services
- Castleton Group
- Curavi Health
- MPAC Healthcare
- Tapestry TeleHealth
- TeleHealth Solution
- Third Eye Health

Wearables & Remote Patient Monitoring
- ActiveProtective
- Anelto Health
- BlueStar SeniorTech
- CareBand
- CarePredict
- Current Health
- Electronic Caregiver
- m.Care
- PhysIQ
- Spry Health
- SynsorMed
- Theora Care (Clairvoyant Networks)
- Trapollo
- UnaliWear
- VitalTech

CARING IN PLACE

In-Home Monitoring
- ActiCare Health
- AMC Health
- CallingDr
- Canary Telehealth
- Care Innovations
- Care Technology Systems
- CareMatix
- Caretaker Medical
- Chronic Care Management
- Cloud DX
- Contessa Health
- CST/Best Buy
- DispatchHealth
- eCaring
- Endotronix
- Global Telehealth Services
- Health Recovery Solutions
- Ideal Life
- Locus Health
- Medisafe
- Medocity
- TouchPointCare
- VitalConnect
- Vivify Health/Optum
- VRI

Safety/Wander/ADL
- Healthsense/GreatCall/Best Buy
- SafelyYou
- Vigil Health Solutions
- VirtuSense Technologies

Mobile Caregiver Solutions
- CellTrak
- ClearCare/WellSky
- Hometeam
- Honor
- Synzi

PERS
- Assured Independence
- Connect America
- Electronic Caregiver
- GreatCall/Lively/Best Buy
- Life Alert
- MobileHelp
- QMedic
- SilverSphere/Sentrics

Remote Physical Therapy
- Giraffe Healthcare
- Hinge Health
- Physera
- Physitrack
- Plethy
- Reflexion Health
- SWORD Health

BEHAVIORAL CARE
SEE PAGE 18

SOCIAL RESOURCES

Adherence & Compliance
- AdhereTech
- AiCure
- Assured Independence
- ayogo
- Electronic Caregiver
- emocha
- Fitango Health
- HealthPrize
- Hero
- MangoHealth/TrialCare
- MedaCube
- MedMinder
- Medisafe
- MobileSmith Health
- Proteus Digital Health
- Reflexion Health
- Wellth

Social Determinants Resources
- Healthify
- Kaizen Health
- Lyft
- NowPow
- Uber

Social Determinants Analytics
- Mindoula
- Socially Determined
- TAVHealth/Signify Health/Remedy Partners
- Unite Us

N & ACCESS

SCHEDULING
- Amion
- Krixi Care
- Kyruus
- Lightning Bolt Solutions/CareWire/PerfectServe
- Mend
- MobileSmith Health
- Orbita
- OTTO Health/NextGen
- QGenda/Tangier
- SCI Solutions
- Solv
- Zocdoc

DATA INTEGRATION
- b.well
- Curai/First Opinion
- Human API
- Lifemesh
- MD Revolution
- Sentrian
- Validic

MANAGED SERVICES PROVIDERS
- CareWorx Fully Managed
- Hughes
- K4Connect

PHARMACY
- Alto
- eazyScripts
- FetchMD
- HeyDoctor/GoodRx
- Hims/Hers
- Pear Therapeutics
- PharmD on Demand
- PipelineRx
- Roman
- TelePharm/Cardinal Health
- Upwell Health
- ZeOmega

SERVICE PROVIDERS
- CyraCom
- Enzyme Health
- Healthy Bytes
- InDemand Interpreting/Stratus Video
- NuPhysicia
- Premise Health
- SimplyWell/Virgin Pulse
- Wellness Corporate Solutions

CARE/CASE MANAGEMENT
- Altruista Health
- Casenet/Centene
- Contessa Health
- eCaring
- Force Therapeutics
- Noteworth
- ProgenyHealth
- TimeDoc Health

The combination of finite provider resources, increased consumerism, ubiquitous technologies and reimbursement pressures (among other factors) inside a hospital are now being performed digitally. As such, health systems and other provider organizations are actively exploring how virtual care improve efficiencies, enhance treatments and enable integrated care throughout the patient lifecycle. In a similar vein, a number of employers are e costs, boost productivity and improve retention. Shown below are select health systems, provider organizations and innovative employers who are s
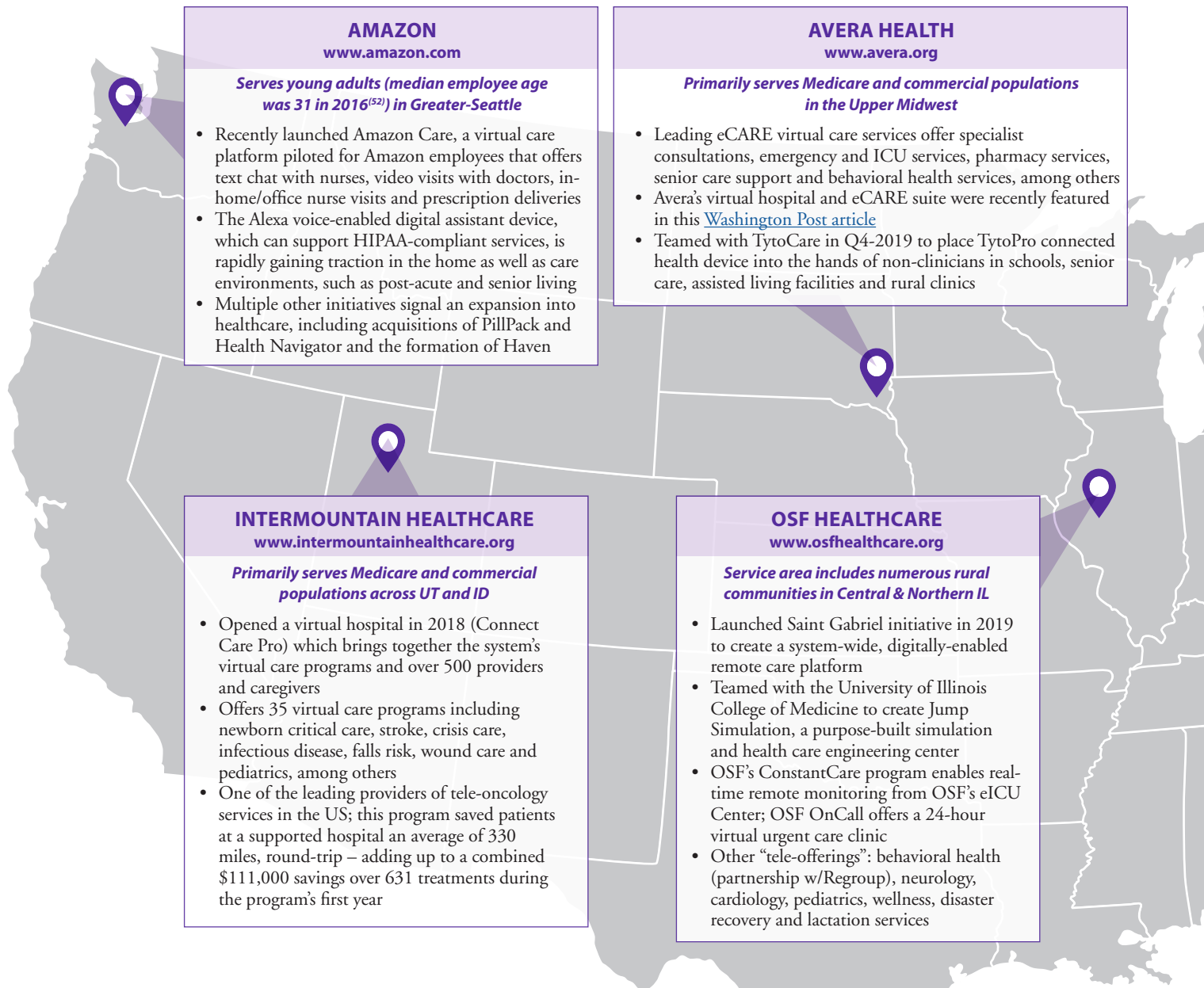
AMAZON
www.amazon.com

Serves young adults (median employee age was 31 in 2016[52]) in Greater-Seattle

- Recently launched Amazon Care, a virtual care platform piloted for Amazon employees that offers text chat with nurses, video visits with doctors, in-home/office nurse visits and prescription deliveries
- The Alexa voice-enabled digital assistant device, which can support HIPAA-compliant services, is rapidly gaining traction in the home as well as care environments, such as post-acute and senior living
- Multiple other initiatives signal an expansion into healthcare, including acquisitions of PillPack and Health Navigator and the formation of Haven

AVERA HEALTH
www.avera.org

Primarily serves Medicare and commercial populations in the Upper Midwest

- Leading eCARE virtual care services offer specialist consultations, emergency and ICU services, pharmacy services, senior care support and behavioral health services, among others
- Avera's virtual hospital and eCARE suite were recently featured in this Washington Post article
- Teamed with TytoCare in Q4-2019 to place TytoPro connected health device into the hands of non-clinicians in schools, senior care, assisted living facilities and rural clinics

INTERMOUNTAIN HEALTHCARE
www.intermountainhealthcare.org

Primarily serves Medicare and commercial populations across UT and ID

- Opened a virtual hospital in 2018 (Connect Care Pro) which brings together the system's virtual care programs and over 500 providers and caregivers
- Offers 35 virtual care programs including newborn critical care, stroke, crisis care, infectious disease, falls risk, wound care and pediatrics, among others
- One of the leading providers of tele-oncology services in the US; this program saved patients at a supported hospital an average of 330 miles, round-trip – adding up to a combined $111,000 savings over 631 treatments during the program's first year

OSF HEALTHCARE
www.osfhealthcare.org

Service area includes numerous rural communities in Central & Northern IL

- Launched Saint Gabriel initiative in 2019 to create a system-wide, digitally-enabled remote care platform
- Teamed with the University of Illinois College of Medicine to create Jump Simulation, a purpose-built simulation and health care engineering center
- OSF's ConstantCare program enables real-time remote monitoring from OSF's eICU Center; OSF OnCall offers a 24-hour virtual urgent care clinic
- Other "tele-offerings": behavioral health (partnership w/Regroup), neurology, cardiology, pediatrics, wellness, disaster recovery and lactation services

OTHER SELECT HEALTH SYSTEMS LEADING THE DEPLOYMENT OF VIRTUAL CARE

- Ascension
- Banner Health
- BJC HealthCare
- Carle Health System

- Cleveland Clinic
- CommonSpirit Health
- Dartmouth-Hitchcock
- Flagler Health+

- Hospital Sisters Health System
- Kaiser Permanente
- Marshfield Clinic Health System
- Mass Gen/Partners HealthCare

Data sourced from each organization's website and/or public offerin

has created a dynamic in which many forms of care that used to take place
and related technologies can expand their patient base, prevent leakage,
xploring ways to offer virtual care to their employees in an effort to manage
uccessfully using virtual care for their communities.

UNIVERSITY OF PITTSBURGH MEDICAL CENTER ("UPMC")
www.upmc.com

Strong urban presence & govn't payor mix

- Built, among other offerings, outpatient clinics in rural areas throughout western PA where patients can have live virtual appointments with UPMC physicians; offers clinical services in 40 subspecialties
- UPMC AnywhereCare offers virtual visits with a diagnosis and care plan 24/7/365
- Provides in-home virtual care equipment to promote proactive patient self-care for chronic conditions
- In 2018, Curavi Health, a UPMC Enterprises company, acquired TripleCare; together they offer virtual care services for post-acute and LTC facilities

US DEPARTMENT OF VETERANS AFFAIRS ("VA")
www.va.gov

***Serves veterans of all ages and acuities***

- Established 11 "tele-hubs" for mental health care, 11 for primary care, a national tele-mental health center, two tele-ICU centers, a national tele-stroke program and a tele-genomic medicine service, among others
- In FY18, provided >2.2M episodes of care to >782K patients via virtual care (>45% of these veterans lived in rural areas)
- FY18: RPM enrollees had a 53% decrease in bed days of care and a 33% decrease in hospital admissions; "tele-mental" services reduced acute psych bed days by 40% and admissions by 34%

- Mercy
- Nicklaus Children's Health System
- NewYork-Presbyterian
- Northwell Health

- Providence
- Spectrum Health
- SSM Health
- Trinity Health

g statements

THE ROLE OF VIRTUAL CARE IN HOSPITALS & HEALTH SYSTEMS

Hospitals across the country have meaningfully increased their adoption of virtual care over the past several years. A 2019 American Hospital Association report found that 76% of US hospitals connected with patients and consulting practitioners at a distance through the use of video and other technology in 2017 vs. 35% in 2010[1] and a recent Definitive Healthcare survey found that adoption of virtual care services or solutions in inpatient settings increased amongst respondents from 54% in 2014 to 85% in 2019[2].

% of hospitals fully or partially implementing computerized virtual care system[1]

Year	%
2010	35%
2011	41%
2012	43%
2013	52%
2014	55%
2015	61%
2016	65%
2017	76%
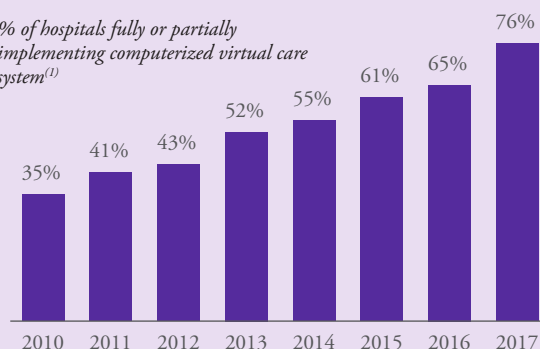
Today, tele-stroke, tele-psych, tele-ICU and tele-ED are widely accepted as standards of care within health systems, with more "-ologies" knocking on the door. Interestingly, there are a handful of progressive health systems who have not only implemented some of these specialties but have prioritized virtual care on a system-wide basis and developed "digital access centers" or "virtual hospitals."

Virtual hospitals, while fairly young, are often structured as single-site locations that house a clinical care team and combine virtual care services with a "clinical command center" that helps triage patients to the appropriate level of care and connect them with the right providers at the right moment. These "hospitals without beds" can serve as the hub of all access points across care settings within a health system, ensuring that patients receive optimal care in the location best suited to their needs. These facilities can extend beyond operational efficiencies and cost savings to meet the broader missions of health systems and drive growth, stem leakage, optimize scheduling and provider usage and deliver revenue while ensuring comprehensive access across the continuum, thereby aligning systems' clinical, financial, operational and cultural needs.

KEY VIRTUAL CARE PARTICIPANTS: PARTNERS, INVESTORS, ACQUIRERS

ACO TECHNOLOGY
- Aledade
- Caravan Health
- Evolent Health
- Health Catalyst

CONGLOMERATES
- Amazon
- Becton Dickinson
- GE
- Google
- Hearst
- HP
- Philips
- Siemens
- Virgin
- Xerox/Conduent

CONSUMER DEVICES & WEARABLES
- Amazon
- Apple
- Best Buy
- Google/Fitbit
- Jawbone
- Samsung
- Under Armour

CONSUMER VIRTUAL CARE PLATFORMS
- American Well
- Babylon Health
- MDLIVE
- Teladoc Health

CROS & CLINICAL TRIALS
- Charles River Laboratories
- ICON
- IQVIA
- LabCorp/Covance/Chiltern
- Parexel
- PPD
- PRA
- Syneos Health
- THREAD Research

DATA ANALYTICS & CONTENT
- 3M
- Advisory Board/Optum
- DXC
- Elsevier
- Experian
- GetWellNetwork
- Hearst
- IBM
- Inovalon
- IQVIA
- Medidata Solutions
- Nuance
- Premier
- Press Ganey
- Sharecare
- Verily/Google
- Verscend Technologies
- WebMD
- Wolters Kluwer

DEVICES & DIAGNOSTICS
- Abbott
- BioTelemetry
- Boston Scientific
- Dexcom
- Hill-Rom
- Leica Biosystems
- Medtronic
- Nihon Kohden
- ResMed
- Roper
- Spacelabs
- Vocera
- Zeiss

DIGITAL NAVIGATION & SCHEDULING
- Central Logic
- Conduit Health Partners
- Kyruus
- Phreesia
- QGenda
- SCI Solutions

ENTERPRISE HEALTHCARE IT: HOSPITAL & PHYSICIAN
- Allscripts
- Cerner
- Epic

ENTERPRISE HEALTHCARE IT: SENIOR LIVING
- Best Buy/GreatCall/CST
- Netsmart/HealthMEDX
- PointClickCare
- ResMed/Matrixcare

HEALTHCARE DISTRIBUTORS
- AmerisourceBergen
- Cardinal Health
- Henry Schein
- McKesson

HEALTHCARE SERVICES
- Almost Family/LHCG
- Amedisys
- AmSurg/Envision
- DaVita/United/Optum
- Fresenius
- Humana
- MEDNAX
- ResCare
- Team Health

LABS
- LabCorp
- Quest

PAYORS
- Aetna
- Anthem
- Blue Cross Blue Shield
- Centene
- Cigna
- Humana
- Kaiser
- Molina
- United/Optum

PHARMACEUTICALS
- Abbott/St. Jude/Alere
- Baxter
- Bayer
- Johnson & Johnson
- Merck
- Novartis
- Pfizer
- Teva

RETAIL PHARMACIES
- CVS
- GoodRx
- Walgreens
- Walmart

SECURITY
- ADT
- Alarm.com
- Ascent
- Harris
- Leidos
- Stanley

TELECOM
- AT&T
- CenturyLink
- Sprint
- Verizon

NOTABLE STRATEGIC INVESTORS
- AdventHealth
- Ascension Ventures
- AVIA
- Baxter Ventures
- Concord Health Partners
- CVS
- Echo Health Ventures
- Fresenius Medical Care Ventures
- Generator Ventures
- GV (Google Ventures)
- HCA Healthcare
- Heritage Group
- Intel Capital
- Kaiser Permanente Ventures
- McKesson Ventures
- Microsoft
- OSF Ventures
- Providence Ventures
- Qualcomm Ventures
- Sandbox Industries
- Siemens Venture Capital
- STANLEY Healthcare
- Summation Health Ventures
- Sutter Health
- UH Ventures
- UPMC Enterprises
- Ziegler-LinkAge Funds

Learn more at:
www.aviahealthinnovation.com
The AVIA Innovator Network of forward-thinking health systems solves pressing challenges with digital solutions that deliver outsized results. AVIA's distinctive approach to innovation at scale includes investing in high-potential companies and driving awareness of, and engagement with, these companies' solutions across the Network. This model offers Network Members introductions to highly vetted partners and gives digital health companies broad exposure to potential clients.

ZIEGLER LINK·AGE FUNDS

Learn more at:
www.ziegler.com/ziegler-link-age-funds/
The Ziegler-LinkAge Funds provide a unique platform for collaboration and innovation among the limited partner investors, primarily not-for-profit senior living providers. The Funds have a bespoke focus on technology, tech-enabled services and emerging care delivery models in the post-acute and aging markets. Not only can the Funds' investor base provide informed thoughts on market needs and preferences, but it also represents a potential customer base for Fund portfolio companies.

CONCLUSION

Virtual care is becoming an increasingly important component of today's healthcare environment. Not only are stakeholders gaining comfort with virtual care delivery methods, but virtual care solutions are proving they can effectively serve a multitude of specialties and conditions. Tele-stroke and tele-ICU solutions, for example, have already become "standards of care" within health systems, and virtual care shows tremendous promise in many other specialties including women's health, dermatology/wound care, primary care, and pediatrics, among others. As stated throughout this paper, we believe the following four domains are particularly well-suited to the prominent use of virtual care in the near-term:

1. **Behavioral Health** – Americans of all ages are struggling to receive adequate behavioral health care for numerous reasons, including cost, geography and provider availability. Virtual care solutions allow patients to access convenient, affordable treatment options with appropriate providers (psychiatrists, psychologists, social workers, etc.) while also alleviating bottlenecks in emergency rooms and other acute care settings. Because behavioral health providers usually do not need to physically touch patients, and because patients may prefer to access behavioral health services discretely, using virtual care technologies to deliver behavioral health services is one of the best and most impactful use cases.

2. **Post-Acute & Smart Aging** – As the Boomer generation ages, more consumers are looking to "age in place" and seek convenient, intuitive solutions that provide wellness support, an increased sense of safety and easy connections to loved ones and caregivers. Similarly, as more consumers transition to life plan communities, facilities will greatly benefit from adopting virtual care offerings that aim to reduce unnecessary hospital visits, provide patients with around-the-clock access to high-quality care, monitor chronically ill patients and maximize patient autonomy. Virtual care technology serving the post-acute space has evolved tremendously over the last several years and shows no signs of slowing.

3. **Services for Medicaid Recipients** – Many Medicaid beneficiaries face substantial health challenges which are exacerbated by social determinants of health such as transportation hurdles, inflexible work schedules and lack of consistent access to healthy food and/or reliable housing. Compared to "conventional" healthcare delivery models, virtual care solutions can afford Medicaid beneficiaries greater access to providers and wellness tools, improve basic care navigation for individuals and enhance the management of behavioral and chronic conditions.

4. **Oncology & Clinical Trials** – In addition to providing monitoring services and access to a shrinking number of specialists, tele-oncology solutions can dramatically improve patient comfort and convenience by allowing patients to receive numerous aspects of compassionate cancer care from the comfort of their own homes rather than physically traveling to see providers. Tele-oncology offerings will be of particular value to clinical trials providers, as they can help expand catchment areas, improve patient adherence and compliance, boost participant retention and reduce trial costs, among other benefits.

As noted in our prior whitepaper, we are entering the "middle innings" of the virtual care sector's evolution. The industry's progress over the last several years is evident: provider utilization has increased, standards of care have been redefined, cost savings driven by virtual care have been clearly documented and, perhaps most importantly, there have been positive legislative developments which create pathways to commercial, federal and state reimbursement. As we look to the future, it is becoming clear that long-term "winners" in this market will be those who demonstrate sustainable **engagement**; establish **trust** with patients and providers; develop **intuitive, safe and secure** solutions; integrate **SDOH** services and analytics; and demonstrate compelling use cases.

The future leaders of virtual care will understand the importance of data and will effectively manage and filter data to improve client workflows and provide analytically-driven engagement solutions that eliminate friction from legacy tools. Importantly, successful virtual health solutions will use data to effectively triage patients to the right level of care at the right moment, thereby enabling providers to continuously work at the highest levels permitted by their licensure and making it possible for more patients to receive the right care. Strong **data management** and the production of **actionable intelligence from big data analytics engines** will be critical to virtual care's long-term success, especially when paired with the emerging potential of artificial intelligence and machine learning.

Today's healthcare industry is facing unprecedented challenges and demands diverse solutions that can improve outcomes, increase access to care and reduce costs for a variety of populations. The virtual care market has proven it can meaningfully impact care delivery and will be an integral tool in the healthcare industry both in the near- and long-term.

SOURCES

1. "Fact Sheet: Telehealth." American Hospital Association. February 2019.
2. "Definitive Healthcare Survey: Inpatient Telehealth Adoption on the Rise." mHealth Times. August 6, 2019.
3. "Telehealth Index: 2019 Physician Survey." American Well. 2019.
4. "Ericsson Mobility Report." Ericsson. June 2019.
5. "FCC Proposes Establishing $20.4 Billion Rural Digital Opportunity Fund." Federal Communications Commission. August 1, 2019.
6. "Summary of the Leading Infrastructure For Tomorrow's America Act." The Committee on Energy and Commerce. May 2019.
7. "Telehealth 2.0: The resurgence." University of Michigan Institute for Healthcare Policy & Innovation. March 18, 2019.
8. "75% of Americans Lack Access or Unaware of Telehealth Options, Survey Finds." HIT Consultant. August 1, 2019.
9. "The aging population in the US is causing problems for our healthcare costs." Business Insider. July 18, 2019.
10. Centers for Medicare & Medicaid Services. September 2019.
11. "What Is Telemedicine and How Can It Help People with Cancer?" Memorial Sloan Kettering Cancer Center. December 21, 2017.
12. "2019 Tech and the 50+ Survey." AARP. January 2019.
13. "Enabling Healthcare Consumerism." McKinsey & Company. May 2017.
14. Mental Health America. 2019.
15. "Mental Health and Aging." Grantmakers in Aging. February 2019.
16. "32 Surprising Mental Health Statistics." Talkspace. April 30, 2019.
17. "A Rise in Depression Among Teens And Young Adults Could Be Linked To Social Media Use." National Public Radio. March 14, 2019.
18. "Mental Health By The Numbers." National Alliance on Mental Illness. September 2019.
19. National Institute of Mental Health. 2017.
20. "'Mental Health Parity' is Still An Elusive Goal in U.S. Insurance Coverage." National Public Radio. June 7, 2019.
21. "Is There a Shortage of Mental Health Professionals in America?" GoodTherapy. March 8, 2019.
22. Forefront Telecare. July 2019.
23. "Behavioral Health Coverage In Medicaid Managed Care." Institute for Medicaid Innovation. April 2019.
24. "Anxiety is expensive: Employee mental health costs rise twice as fast as all other medical expenses." CNBC. September 27, 2018.
25. "The Real Cost of Untreated Mental Illness in America." Constellation Behavioral Health. March 27, 2019.
26. "Alcohol and Drug Abuse Statistics." American Addiction Centers. November 11, 2019.
27. "Opioid Overdose Crisis." National Institute on Drug Abuse. January 2019.
28. "Jailing People with Mental Illness." National Alliance on Mental Illness. Date unknown.
29. "Supporting Older Patients with Chronic Conditions." National Institute on Aging. May 17, 2017.
30. "Prevalence and Medical Costs of Chronic Diseases Among Adult Medicaid Beneficiaries." American Journal of Preventive Medicine. 2017.
31. "Half of states report 50 percent or more of births financed by Medicaid." Healthcare Finance. March 30, 2017.
32. "Access in Brief: Pregnant Women and Medicaid." Medicaid and CHIP Payment and Access Commission. November 2018.
33. "States Strive to Keep Medicaid Patients Out of the Emergency Department." The Pew Charitable Trusts. February 24, 2015.
34. "Trends in Hospital Emergency Department Visits by Age and Payer, 2006-2015." Agency for Healthcare Research and Quality. March 2018.
35. "Medicaid Could Save $2.6 Billion a Year With Dip in Smoking." U.S. News & World Report. April 19, 2019.
36. "Smoking prevalence in Medicaid has been declining at a negligible rate." May 25, 2017. Accessed via the US National Library of Medicine.
37. "Elderly Falls Prevention Legislation and Statutes." National Conference of State Legislatures. July 2, 2018.
38. "Preventing Elderly Falls." National Conference of State Legislatures. May 2016.
39. "Can the Right Technology Reduce Avoidable Emergency Department Visits?" California Health Care Foundation. April 23, 2019.
40. "The Opioid Epidemic and Medicaid's Role in Facilitating Access to Treatment." Kaiser Family Foundation. May 24, 2019.
41. "PCPs, Psychiatrists Much Less Likely to Accept Medicaid." Health Payer Intelligence. February 6, 2019.
42. "Medicaid Coverage of Non-Emergency Medical Transportation." Medicaid and CHIP Payment and Access Commission. May 2019.
43. "No Car, No Care? Medicaid Transport Program Faces Cuts in Some States." National Public Radio. January 27, 2018.
44. "Taking Away Medicaid for Not Meeting Work Requirements Harms People Experiencing Homelessness." Center on Budget and Policy Priorities. March 14, 2019.
45. "RX for Health: A Place to Call Home." Health Affairs. August 27, 2018.
46. "Expanding Access to Healthy Food for Medicaid Beneficiaries." American Heart Association. January 2019.
47. "Examining Food Deserts in the US: Lessons Learned from Philadelphia's Success Story." Act.md. April 15, 2019.
48. "Precarious Work Schedules Could Jeopardize Access to Safety Net Programs Targeted by Work Requirements." Urban Institute. June 2019.
49. "California's Medi-Cal Program Expands Telehealth Reimbursement." Nixon Peabody. August 21, 2019.
50. "New Hampshire Expands Medicaid Coverage for Telehealth, RPM Services." mHealth Intelligence. August 13, 2019.
51. "Oklahoma Medicaid Program to Boost Medication Management ." mHealth Intelligence. October 25, 2019.
52. "The average age of employees at all top tech companies, in one chart." Business Insider. September 11, 2017.

ACRONYMS

ACA = Affordable Care Act

ACO = Accountable Care Organization

ADHD = Attention Deficit Hyperactivity Disorder

ADL = Activities of Daily Living

AHA = American Hospital Association

AI = Artificial Intelligence

AMA = American Medical Association

ATA = American Telemedicine Association

CCM = Chronic Care Management

CHIP = Children's Health Insurance Program

CMS = Centers for Medicare & Medicaid Services

CRO = Contract Research Organization

ED = Emergency Department

EHR = Electronic Health Record

EMS = Emergency Medical Service

FQHC = Federally Qualified Health Center

HCIT = Health Care Information Technology

HDHP = High-Deductible Health Plan

HIE = Health Information Exchange

ICU = Intensive Care Unit

IVR = Interactive Voice Response

LCSW = Licensed Clinical Social Worker

LGBTQ = Lesbian, Gay, Bisexual, Transgender and Questioning (or Queer)

LTC = Long Term Care

MA = Medicare Advantage

MACPAC = Medicaid and CHIP Payment and Access Commission

MAT = Medication Assisted Treatment

ML = Machine Learning

NFP = Not-For-Profit

NP = Nurse Practitioner

OCM = Oncology Care Management

OEM = Original Equipment Manufacturer

PA = Physician Assistant

PACs = Picture Archiving and Communication System

PACE = Program of All-Inclusive Care for the Elderly

PCMH = Patient Centered Medical Home

PCP = Primary Care Provider

PERS = Personal Emergency Response System

PTSD = Post-Traumatic Stress Disorder

ROI = Return on Investment

RPM = Remote Patient Monitoring

SDOH = Social Determinants of Health

SNAP = Supplemental Nutrition Assistance Program

SNF = Skilled Nursing Facility

SUD = Substance Use Disorder

TANF = Temporary Assistance for Needy Families

VA = Veterans Health Administration

VBR = Value Based Reimbursement

ABOUT ZIEGLER CORPORATE FINANCE HEALTHCARE

Ziegler has long lasting relationships with healthcare providers, information technology companies, financial sponsors and other thought leaders across the nation, giving us unique insight into emerging trends and the future direction of the healthcare industry.

WHO WE ARE

Our team has an extensive track record of putting our client objectives above all else in closing transactions. As a result, we successfully deliver tailored merger & acquisition, capital raising, restructuring and corporate partnering solutions, helping organizations identify and capitalize on exceptional and differentiated opportunities.

Ziegler's team has an unwavering dedication to the healthcare industry and includes professionals with extensive healthcare investment banking, corporate development, operational, accounting and entrepreneurial backgrounds enabling us to deliver unmatched advisory services to our clients.

PRODUCTS & SERVICES

We customize solutions to meet our clients' strategic and financial objectives, and take a true advisory approach into our engagements and long-term relationships.

- Mergers & Acquisitions
  - Sell-Side Advisory
  - Buy-Side Advisory
- Capital Raising & Recapitalizations
- Fairness Opinions & Valuations
- Strategic Partnerships & Customer Development Initiatives

SECTORS OF FOCUS

- Healthcare Services
- Hospitals & Health Systems
- Healthcare Information Technology & Outsourcing
- Senior Living & Post-Acute Care
- Physician Groups
- Virtual Care

ZIEGLER HEALTHCARE SERVICES & TECHNOLOGY TEAM

NEIL BORG
HEAD OF CORPORATE FINANCE HEALTHCARE, SENIOR MANAGING DIRECTOR
nborg@ziegler.com
301 828 1065

GRANT CHAMBERLAIN
MANAGING DIRECTOR
gchamberlain@ziegler.com
312 596 1550

ANDREW COLBERT
SENIOR MANAGING DIRECTOR
acolbert@ziegler.com
212 284 5422

CHRIS HENDRICKSON
MANAGING DIRECTOR
chendrickson@ziegler.com
312 705 7286

CHRIS ROGERS
MANAGING DIRECTOR
crogers@ziegler.com
615 982 7550

ADDITIONAL LEADERS OF ZIEGLER'S VIRTUAL CARE TEAM

ADAM HELLER
DIRECTOR
aheller@ziegler.com
312 596 1554

NATALIE CURRERI
ASSOCIATE
ncurreri@ziegler.com
312 596 1606

ALEX ANTWAN
ANALYST
aantwan@ziegler.com
312 596 1608

DANIEL CORAN
ANALYST
dcoran@ziegler.com
312 596 1504

| CONTACT US

ZIEGLER

One North Wacker Drive
Suite 2000
Chicago, IL 60606

800 366 8899
askziegler@ziegler.com

[f] [t] [in]

Disclaimer Statement
Information contained or referenced in this document is for informational purposes
only and is not intended to be a solicitation of any security or services.

B.C. Ziegler and Company | Member SIPC & FINRA

Ziegler

CAPITAL :: INVESTMENTS :: ADVICE