

DECONSTRUCTING THE TELEHEALTH INDUSTRY: PART II
IMPROVING THE ACCESS POINTS OF HEALTHCARE DELIVERY

SPRING 2018 • INDUSTRY WHITE PAPER



Ziegler

CAPITAL :: INVESTMENTS :: ADVICE

| ABOUT THE AUTHOR



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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 telehealth companies, including IRIS, AirStrip, MDLive, and Voalte.

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 telehealth 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.

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INTRODUCTION

It's Just Healthcare

Over the last several years, virtual care has gained popularity, trust, and acceptance in the healthcare community. The sector continues to build momentum and its growth trajectory remains attractive for 2018 and beyond.

Since we published our first edition of “Deconstructing the Telehealth Industry” in 2016, the virtual care sector has hit a tipping point. At long last, and as evidenced by the points below, the sector is gaining widespread acceptance, proving its positive impact on the quality, cost, and availability of care, and increasingly becoming a visible, high-engagement tool in almost every aspect of the healthcare value chain.

- **Health systems** are increasingly adopting virtual care, helping to fuel the sector's growth. According to a 2017 Foley & Lardner survey of senior executives at hospitals, specialty clinics, ancillary services, and related organizations, over 75% of respondents said their organization offers or plans to provide telemedicine services⁽¹⁾.
- Within health systems, tele-stroke and tele-ICU have essentially become **standards of care** and tele-psychology will soon be as well, with many other “-ologies” knocking on the door. In a recent poll from The Sage Group, health system executives noted numerous specialties where telemedicine solutions have high potential to transform the standard of care, with the most popular responses being behavioral health/psychiatry, neurology, primary care, and cardiology (full Sage report available at <http://go.sage-growth.com/defining-telemedicine>)⁽²⁾.
- Leading **low-acuity/digital clinic offerings** are gaining momentum as membership and utilization continue to grow year-over-year. These solutions are also gaining credibility, as they are beginning to provide **tangible evidence** that their diverse service offerings can re-direct patients from higher-cost settings.
- Virtual care is beginning to **prove its worth in the form of savings**. 71% of respondents to the previously mentioned 2017 Foley & Lardner survey realized cost savings or ROI from telemedicine services and 54% realized savings above 10%⁽¹⁾.
- **Recent legislation continues to indicate growing confidence in virtual care**. In February 2018, a two-year federal budget

was signed into law that eliminates geographic restrictions on tele-stroke consultation services beginning in 2019, expands telehealth coverage under Medicare Advantage Plan B beginning in 2020, gives ACOs more flexibility to use telehealth services, and extends for two years CMS' Independence at Home demonstration, which establishes home-based primary care teams for Medicare beneficiaries with multiple chronic conditions, among other initiatives⁽³⁾.

- The **investment community has taken note** of the sector's potential and increased its appetite for virtual care and the broader digital health space. Venture funding for digital health companies in 2017 approached \$6 billion and included eight transactions above \$100 million, both of which are records⁽⁴⁾.
- **Third parties continue to validate the industry's size and growth potential**. According to a recent report by Zion Market Research, the global market for telemedicine was valued at ~\$18 billion in 2016 and is anticipated to grow at a CAGR of approximately 14% from 2017-2022⁽⁵⁾. Growth will likely be driven by:
 - Commoditization and declining costs of hardware and peripherals
 - Improving interoperability of software platforms
 - Solutions becoming increasingly reliable, easier to use, and more deeply embedded in both patient and provider workflows
 - Increasing reimbursement potential, including through expanding congressional legislation
 - The looming crisis of system-wide provider shortages
 - The barriers that many patients in rural communities face when seeking high-quality healthcare, particularly for the management and treatment of chronic conditions

As the virtual care movement grows, disagreements abound over how it should be used, who should use it, and even what to call it. Telehealth, telemedicine, eHealth, mHealth, and more titles have been used to name this sector. Ultimately, **it's just healthcare**, delivered using new digital technologies. In this paper, we will use the umbrella term “**virtual care**” as our standard phrase of choice to describe this subsegment. **However, we intend to demonstrate that given the wide variety of applications virtual care has for expanding access to care, improving its quality, and reducing its cost, it should not be pigeonholed or underestimated – ultimately, it is not a sidecar to the delivery of care, but a naturally integrated tool used to streamline the complex healthcare ecosystem.**

Meeting Patients Where They Are

We believe the next generation of successful virtual care companies will be those who understand the critical marriage between chronic care management, behavioral health, and social determinants.

The United States (among many other countries) is facing a looming healthcare crisis: the aging population (age 50+) is growing rapidly, and this demographic is at a high risk for developing chronic illnesses which are often laborious and expensive to manage and are frequently compounded by behavioral health conditions. In recent years, 71% of total healthcare spend in the U.S. was associated with care for those with more than one chronic condition⁽⁶⁾ and 50% of U.S. healthcare spend was generated by 5% of the population⁽⁷⁾. As aging populations grow and the incidence of chronic conditions rises, healthcare costs are anticipated to balloon and demand for services will far outpace provider availability, thereby reducing access and leading to worse outcomes. This is a crisis that demands significant, immediate response from the healthcare system to make effective, holistic care for chronic conditions more accessible for large populations. A highly promising solution to enable a finite provider population to cater to the needs of a growing, complex group of chronically ill patients is broad adoption of virtual care.

Virtual care is uniquely capable of addressing chronic illness because it can meet patients where they are – literally. Unlike many conventional models of care, it has the benefit of encountering patients at many points in their day-to-day lives, not just in physicians' offices. This allows virtual care models to influence patient outcomes by addressing not only the physical phenomenon of a chronic illness, but also psychological and social factors that may be more apparent outside of the office environment.

Take the example of a patient with uncontrolled diabetes. He not only has physical symptoms of his disease to attend to, but also behavioral risk factors he may need to address, such as his diet and exercise habits. Further, he may face social and environmental factors that lessen his ability to comply with care guidelines, like living in an inner city neighborhood with scarce grocery stores and healthy food choices but plentiful fast food. If he lacks transportation to and from endocrinologist appointments or does not have a supportive

network of family, friends, colleagues, and neighbors to help him attend to his care, the odds he will bring his diabetes under control are even lower. This patient, like most with chronic conditions, is not only in need of treatment for his body, but also support to reduce the impacts of behavioral and social risk factors.

The concept that the biological, psychological, and social components of wellbeing are deeply interrelated pieces of overall health and need to be addressed in a concerted, integrated fashion is called the biopsychosocial model of care. Unfortunately, conventional healthcare for chronic condition management often only addresses one or two elements of the biopsychosocial care model since it is limited to addressing what can be assessed in a physician's office, leaving fundamental aspects of patients' wellbeing ignored and underserved. These oversights and limited solutions lead to worse outcomes, higher costs, and greater suffering for all patients – especially those with chronic ailments, and most particularly those in the aging community.

Caring for all three aspects (biological, psychological, social) in an integrated way is imperative. The behavioral and social elements of care that can be difficult to detect during an office visit are innumerable and may include anxiety; depression; eating disorders; alcohol and drug dependency; dementia; air, water, and housing quality; availability of convenient transportation; strength of social networks and family stability; education and health literacy; and income. While these factors are not always easy to recognize in a physician's office, they meaningfully impact whether physical symptoms of chronic disease can be managed. Virtual care is capable of addressing the entire biopsychosocial continuum for these patients by providing access to diverse caregivers – physicians, therapists, even family and friends – at the times and in the places where they most need them. Effective solutions can not only provide immediate acute medical care, but can also empower patients to care for themselves holistically, while giving care teams an invaluable 360-degree view into their most challenging patients' needs. Enabling access to more diverse care options while enhancing patient-provider communication can help patients avoid dangerous and costly adverse health events.

The flexibility of virtual care is one of its greatest strengths. We hear all too often that there's one “best/correct” way to deliver virtual care; fortunately, this is simply not the case. Videocalls, phone calls, text chatting, store & forward communication, IVR, adaptive clinical templates, and many other delivery models fit a variety of settings. Depending on

the present disease state, acuity level, patient preferences, and available clinicians, different delivery modes may be more or less appropriate in varying circumstances, but can all be fittingly used in their own places across a continuum of care. Just as a scalpel and a stethoscope are valuable for different patients and different conditions in a conventional hospital,

so too can both videocalls and text chatting have their places in the next generation of healthcare. No one medium is definitively right or wrong to use in virtual care, but different delivery methods may be more or less correct for different patients, providers, settings, and care needs.

Top Growth Segments

We believe there are three healthcare subsectors particularly primed for growth in the virtual care-enabled world: behavioral health, post-acute/smart aging, and chronic care management.

1 Behavioral Health

Behavioral health is a critical component of holistic healthcare treatment and is unquestionably the fastest growing sector within virtual care. Because behavioral health providers usually do not need to physically touch patients and many patients prefer to access behavioral health services discretely, it is clearly one of the most obvious cases where virtual care can have an outsized impact. Additionally, tele-behavioral healthcare requires effectively no specialized investments beyond a simple video connection or similar tool, making it an inexpensive and easy foray into the virtual care space for many stakeholders.

- Industry participants are recognizing that solutions which provide analytically-driven engagement and seamless access to the appropriate behavioral health caregivers (psychiatrists, psychologists, social workers, drug counselors, nutritionists, etc.) can alleviate bottlenecks in acute care and emergency room settings. This helps solve one of this country's biggest health crises: lack of consistent access to qualified mental health professionals in diverse locations and within numerous care settings (rural and urban hospitals, senior living settings, federally qualified health centers, clinics, prisons/jails, schools, etc.).
- Effective behavioral health treatments can help patients quickly and consistently address mental health challenges; adhere to care regimens; cope with onerous or terminal diagnoses; and/or seek assistance or additional treatment. As such, behavioral healthcare is increasingly being recognized as a key component of proper chronic care management that can provide support, guidance, and structure.

2 Post-Acute/Smart Aging

Although the full virtual care sector has reached the “bottom half of the 4th inning,” we are only in the “top half of the 1st inning” when it comes to virtual care for post-acute/smart aging environments. Of all population cohorts, virtual care may ultimately offer the most value to this market. Post-acute care complexity continues to grow as financial penalties for readmission are levied against both hospitals and, soon, skilled nursing facilities; meanwhile, there are roughly 10,000 individuals turning 65 years of age each day⁽⁸⁾. However, the lack of Medicare and Medicaid reimbursement for virtual care in post-acute/smart aging settings, when combined with these facilities' poor financial performance, has slowed the adoption of some of the most obvious and impactful offerings.

- No demographic has more complex chronic conditions than those age 65+. Furthermore, patients in this population are susceptible to a variety of behavioral health challenges related to dementia, loneliness, and change of environment. With compounding social factors such as a shortage of geriatric care providers and a rapidly expanding aging population, this group is in great need of innovative, sustainable, and holistic healthcare solutions that extend autonomy and respect people's dignity. As such, we believe no population is better situated to take full advantage of

the scope of services available via virtual care than this cohort, which is referred to in this paper as the “smart aging” population. The smart aging population is comprised of everyone from active 50-somethings wearing Fitbits to 90-year-olds in skilled nursing environments connecting with their physicians via videocall. This leaves ample room for innovation across a wide spectrum of needs.

- While this population has been slower to adopt smartphones, they are increasingly using all kinds of technology, particularly “smart speakers” (e.g. Amazon Echo/Alexa, Google Home) to organize their daily lives, connect with support networks like family and friends, and manage their healthcare. As their digital literacy improves and technology similarly adapts to their needs, they will not be so vastly underserved by the virtual care sector for much longer.
- After-hours SNF virtual care providers have demonstrated the ability to treat over 80% of SNF patients in place using virtual care⁽⁹⁾. This saves patients, their families, and payors the cost, stress, infection exposure, and poor outcomes associated with ambulance rides and hospital visits – which are typically the only options for these populations during medical crises when a physician is not on-site.

3 Chronic Care Management

The increasing prevalence of chronic diseases and recent legislation regarding virtual care reimbursement for chronic care management (“CCM”) are beginning to drive meaningful adoption of virtual solutions in this key subsector of healthcare.

- IRIS provides a remote diabetic retinopathy testing platform, which is a great example of how virtual care innovations can contribute to integrated CCM solutions that benefit all stakeholders. In IRIS's case:
 - Patients avoid scheduling an extra appointment (missed work, extra travel, need for childcare, new provider relationship) by completing retinal tests at their primary care physician's office and prevent the development of a vision-threatening illness;
 - Physicians engage with their patients in real-time about lifestyle adjustments needed to prevent retinal deterioration and receive payments from almost all payors for providing the exam;
 - Payors may pay roughly 1/20th the cost for treatment if the disease is caught early versus in its later stages⁽¹⁰⁾; and
 - Health systems, which frequently see annual diabetic retinopathy testing compliance rates in the 30% (a huge HEDIS score problem across the industry), can use IRIS to move compliance rates to north of 80% in under a year⁽¹¹⁾. This improvement can create large value-based incentive payments that, along with current fee-for-service payments, can generate notable windfalls and new revenue models for primary care that once were not available.

Challenges Remain

While the virtual care sector has made tremendous progress over the last several years, challenges persist around commercial utilization, reimbursement, cost, and regulations

- A large number of healthcare consumers have still not been introduced to virtual care. While commercial telehealth utilization has increased dramatically since 2014 (particularly for psychiatric and mental health services), a recent survey from Avizia stated that 82% of respondents still do not use telehealth. Patients' primary barriers to telehealth are not related to poor past experiences; instead,

many have not had the opportunity to use telehealth services, are unsure how comfortable they would be with a virtual vs. in-person visit, and do not know if telehealth is covered by their insurance. Providers and managed care companies must keep patients educated and informed about their telehealth options to increase patient utilization⁽¹²⁾.

- Third party reimbursement remains a hurdle for many providers, and resolving these issues is likely to be an evolutionary process. A number of states have payment parity laws, but coverage and requirements for reimbursement can vary dramatically and often have complicated caveats and loopholes. A 2017 survey by the Center for Connected Medicine and the Health Management Academy suggests organizations are optimistic about future reimbursement opportunities: of those respondents who were not receiving reimbursement in 2017, 71% expected to begin receiving reimbursement for virtual care in 2018⁽¹³⁾. Additionally, increased virtual care adoption and growth will likely pressure payors to expand reimbursement.
 - Fortunately, legislative trends appear to be in favor of expanding reimbursement for virtual care, as indicated in the two-year federal budget that was signed into law in February 2018, described earlier.
- Some organizations are hesitant to fund the upfront cost of virtual care programs; however, cost concerns appear to be dwindling as successful outcomes are achieved, clinical results with concrete ROIs continue to be published, and systems realize that virtual care is a necessary offering to maintain patient satisfaction and remain competitive.
- Given the virtual care sector's relative youth and cross-state nature, legal and regulatory policies related to patient informed consent, state licensure requirements, online prescribing, privacy and security, etc. are still evolving.

Overview of White Paper

Similar to our 2016 white paper, this document is structured around specific placemats which have either been updated or newly developed for this year's paper. The goal 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. Taken together, we believe that these diagrams illustrate the ubiquity of virtual care applications in the healthcare industry.

The placemats are summarized below:

1. Driving Forces for Virtual Care (p. 10-11)

This placemat 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, and the rapidly evolving future of the virtual care sector.

2. Virtual Care Programs Gaining Traction Across a Broad Universe of Stakeholders (p. 12-13)

Several developments have accelerated the demand for, and supply of, virtual care solutions. These trends are primarily influenced by the changing preferences, needs, and choices of eight key healthcare stakeholder groups: (i) consumers/patients; (ii) physicians; (iii) hospitals/health systems/the VA; (iv) employers/brokers & payors; (v) senior living/post-acute/hospice organizations; (vi) pharmacies/health retailers; (vii) digital clinical trials providers; and (viii) special uses, including schools and prisons. This section also lists the key goals of virtual care and discusses how achieving these goals

addresses the challenges of the modern healthcare system as a whole.

3. Virtual Care in the Smart Aging Continuum (p. 14-15)

Traditionally, virtual care has been an effective tool for senior citizens (age 65+) in need of monitoring and/or long term care; however, the virtual care industry has expanded its aging-based solutions to the entire smart aging population (age 50+), providing new solutions for injury and illness prevention during midlife (proactive vs. reactive care). This placemat presents a more detailed view of the entire smart aging continuum and describes the role and function of virtual care in four key smart aging segments: proactive care, aging in place, residential care, and other programs.

4. Use Case Spotlight: Virtual Care Applications in the "Smart Aging" Sector (p. 16-17)

Multiple virtual care companies are beginning to "prove their worth" in the smart aging sector in the form of savings to patients and customers. This section lists four subsectors

(after-hours SNF coverage, behavioral health, dermatology/wound care, and chronic care management) that are particularly relevant to smart aging and describes use cases and representative companies that have the potential to generate ROIs.

5. Virtual Care Ecosystem (p. 18-19)

We present an updated view of the virtual care ecosystem broken down by solution offerings; enabling tools, delivery mechanisms; channels/clients; and ultimately, payors – funding sources. We continue to specifically highlight the importance of data integration in connecting the various channels of virtual care solution offerings.

6. Ziegler's Virtual Care Sector Map (p. 20-21)

One of the most popular components of our 2016 "Deconstructing the Telehealth Industry" whitepaper was the **Ziegler Virtual Care Sector Map**, which provided our view of the entire virtual care ecosystem on a high-level organizational grid. We have comprehensively updated the Sector Map in this white 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.

The updated sector map reflects Ziegler's unique vision of the entire industry as a number of discrete subsectors. At the highest level, we believe that virtual care is broken down into four categories: (i) clinical solutions; (ii) caring at home solutions – post-acute & smart aging; (iii) clinical sensors/CCM/wellness and data integration; and (iv) mobile clinical communications and care delivery productivity. The sector map includes examples of companies in each subsector. Key updates and developments from the 2016 sector map include the following:

- The behavioral health subsector in our sector map has been significantly expanded and segmented. As noted earlier, the private and discretionary attributes of a virtual care model along with the lack of "hands-on" tests make remote, "in-place" (e.g. home, office, etc.) behavioral health treatment an optimal use case for virtual care.

- Given the volume of triage and senior living virtual care providers, we've created new sub-classifications to further distinguish companies within these sectors. We've also created a new smart aging subsector that includes senior living solutions, PERS, safety/wander/ADL tools, and mobile caregiver solutions.
- A number of new subsectors have been added to the map, including dermatology and wound care, dialysis, urology, digital pathology, women's/maternal health, and pharmacy. We believe these subsectors represent innovative use cases for virtual care and exhibit strong growth potential.
- The sector map also includes descriptions of key transactions and notable trends within select subsectors.

We hope that this Ziegler Virtual Care Sector Map will continue to provide company executives, investors, employers, policy makers, payors, and consumers a better understanding of the continuously evolving virtual care field.

7. Key Virtual Care Participants: Partners, Investors, and Acquirers (p. 22)

This placemat presents a representative list of key virtual care partners and acquirers, as well as active strategic investors.

8. Key Virtual Care Participants: Health Systems (p. 23)

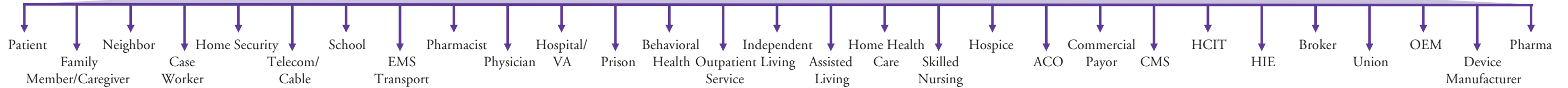
Integrated health systems, community hospitals, and rural/critical access facilities are becoming key participants in the virtual care industry, with a few health systems distinguishing themselves from their competition through virtual care adoption. Kaiser Permanente, the Veterans Health Administration, Ascension Health, Avera Health, and Mercy Health have rapidly expanded their virtual care initiatives and become model organizations for other health systems implementing virtual care programs. This placemat presents brief descriptions of the virtual care solutions offered by each of these five systems.

9. Key Virtual Care Participants: Representative Market Leaders (p. 24)

This placemat presents brief profiles of the largest publicly-traded and privately-held virtual care companies: Teladoc and GreatCall, respectively.

DRIVING FORCES FOR VIRTUAL CARE

STAKEHOLDERS



CHARACTERISTICS OF SUCCESSFUL VIRTUAL CARE PROGRAMS – BEING DISRUPTIVE WITHOUT BEING DISRUPTING

Stakeholder-specific virtual care programs optimize supply & demand needs – utilize scarce resources most efficiently

Key Elements	1 Easy to use and implement		2 Embedded within existing workflow		3 Analytically-driven engagement		4 Filters out the noise		5 Provides timely, relevant feedback	
	Program champion	Enrollment management	Education and training	Path to reimbursement/demonstrable ROI	Care transition and coordination tools	Appropriate use of mid-level clinicians	Logistics management	Reporting tools	Secure, HIPAA-compliant solutions	Measurability
Program Requirements										
Creates	Enhanced patient self-management			Evidence-based care pathways			Value-based care solutions			

HISTORICAL BARRIERS TO VIRTUAL CARE ADOPTION – SIGNIFICANT PROGRESS MADE IN THE LAST SEVERAL YEARS

- Adoption rates
- 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
- Lack of single vendor, enterprise solution
- Medical establishment resistance
- Medical malpractice concerns
- Misaligned incentives
- Poor training and implementation
- Privacy and security concerns
- Regulatory hurdles
- Slow adoption of smartphones/technology by seniors
- Telecom infrastructure/bandwidth limitations
- Uncoordinated engagement efforts

RECENT FAVORABLE TAILWINDS

1 <i>Need for more efficient delivery models</i>	2 <i>Payment models are better aligned to virtual care solutions</i>	3 <i>Proven use cases have become standards of care</i>	4 <i>Favorable reimbursement trends</i>	5 <i>Acceptance and commoditization of virtual care-enabling technologies, from smartphones to wearable sensors</i>	6 <i>Increasing consumerism in healthcare</i>
<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Shift from FFS to FFV Increasing number of ACOs Readmission penalties Self-insured employers/payors offering incentives Shift of economic burden to consumers 	<ul style="list-style-type: none"> Tele-stroke and tele-ICU are widely viewed as the standard of care; tele-behavioral health, tele-neurology, and tele-primary care are likely next Demonstrated favorable outcomes and measurable, proven ROIs Increasing MD, nurse, and patient comfort with technologies 	<ul style="list-style-type: none"> FY2018 Medicare policy includes new/add-on codes for remote monitoring, virtual specialty, ongoing, and chronic care⁽⁹⁾ Recently passed federal budget expands Medicare Adv. coverage in 2020 and increases ACOs' flexibility to use telehealth services⁽³⁾ 	<ul style="list-style-type: none"> Proliferation of low-cost devices that are secure and easy to use and integrate Tablet and smartphone usage is outpacing other technologies; smartphone adoption by adults aged 65 and over in the U.S. has nearly quadrupled in the last five years⁽⁹⁾ 	<ul style="list-style-type: none"> 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⁽¹⁴⁾

RAPIDLY EVOLVING FUTURE STATE

- Aligned financial incentives
- Artificial intelligence
- Avatars and robotics
- Big data analytics
- Digestible sensors
- Evidence-based medicine
- Gamification
- Genomic coordination
- Geo-targeting
- Implantable devices
- Measurable order sets and guidance
- MedApp formularies
- Predictive analytics
- Smart homes
- Virtual reality

VIRTUAL CARE PROGRAMS GAINING TRACTION ACROSS A BROAD UNIVERSE OF STAKEHOLDERS

VIRTUAL CARE SITS AT THE INTERSECTION OF EVERY SIGNIFICANT STAKEHOLDER GROUP IN TODAY'S HEALTHCARE SYSTEM:

CONSUMERS/PATIENTS

- Avoid the “unhealthy” setting of physician offices/urgent care centers/ERs/retail clinics
- Experience an unprecedented convenience factor – especially for low acuity/repeat illnesses and behavioral health
- High-deductible/high-copay plans making economics of even self-pay virtual care solutions very attractive
- Enhances 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
- Employer, payor, and pharmacy rewards programs drive utilization

PHYSICIANS

- Triage patients more efficiently – reduce no-shows and in-office wait times
- Manage/track chronically ill patients more effectively
- Diversify/supplement income streams
- Provide MDs with a more complete view of patient health status
- Address growing digital appetite/demands
- Align quickly with rapidly evolving shared risk models
- Increase complexity levels of in-office visits
- Improve productivity of nurses and mid-levels
- Engage patients and drive healthy behavior change at teachable moments

HOSPITALS/HEALTH SYSTEMS/VA

- Reduce avoidable readmissions and average length of stay
- Improve access to, and availability of, specialists
- Appropriately utilize and optimize mid-level providers
- Keep patients within a health system's network
- Triage ER demand more efficiently
- Manage/track chronically ill patients more effectively
- Improve care transition handoffs
- Differentiate brands and expand patient catchment
- Improve management of behavioral health patients
- Align with rapidly evolving shared risk models more effectively
- ACOs/PCMHs promote care delivery in the most appropriate setting

EMPLOYERS/BROKERS & PAYORS

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

VIRTUAL CARE GOALS

Drive Consumer Engagement:

- Modify behavior
- Promote healthier lifestyles
- Enhance care quality and expand consumer options for care settings and modalities

Improve Clinical Efficiency:

- Ease impact of clinical shortages
- Improve care coordination
- Increase staff efficiencies – optimize mid-levels
- Speed time to intervention

Reduce Cost:

- Deliver care in an optimal cost environment
- Deliver tangible ROI

Improve Outcomes:

- Avoid unnecessary hospitalization
- Enhance patient safety
- Reduce errors
- Speed time to recovery
- Reduce readmissions

Enhance Care Coordination:

- Improve caregiver communication
- Improve data capture, monitoring, and sharing
- Improve healthcare access

SENIOR LIVING/POST-ACUTE/HOSPICE

- Utilize scarce clinical resources more efficiently
- Avoid unnecessary hospitalizations/ER visits
- 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 – engage in “proactive” vs. “reactive” care, including behavioral health
- Safety monitoring solutions increase patient security and family member/caregiver comfort
- Slow transition into more acute settings – reduce vacancy rates

PHARMACIES/HEALTH RETAILERS

- Support adherence and compliance
- Position as the retail destination of choice for the virtual care wireless peripheral boom
- Pharmacists viewed as trusted advocates for virtual care apps
- Drive loyalty with rewards programs
- Kiosks as a hub for virtual care solutions
- Utilize retail pharmacy websites as trusted channels for driving adoption of virtual care solutions
- Access to wireless peripherals will drive new traffic into retail pharmacies
- Competitive differentiator

CLINICAL TRIALS PROVIDERS

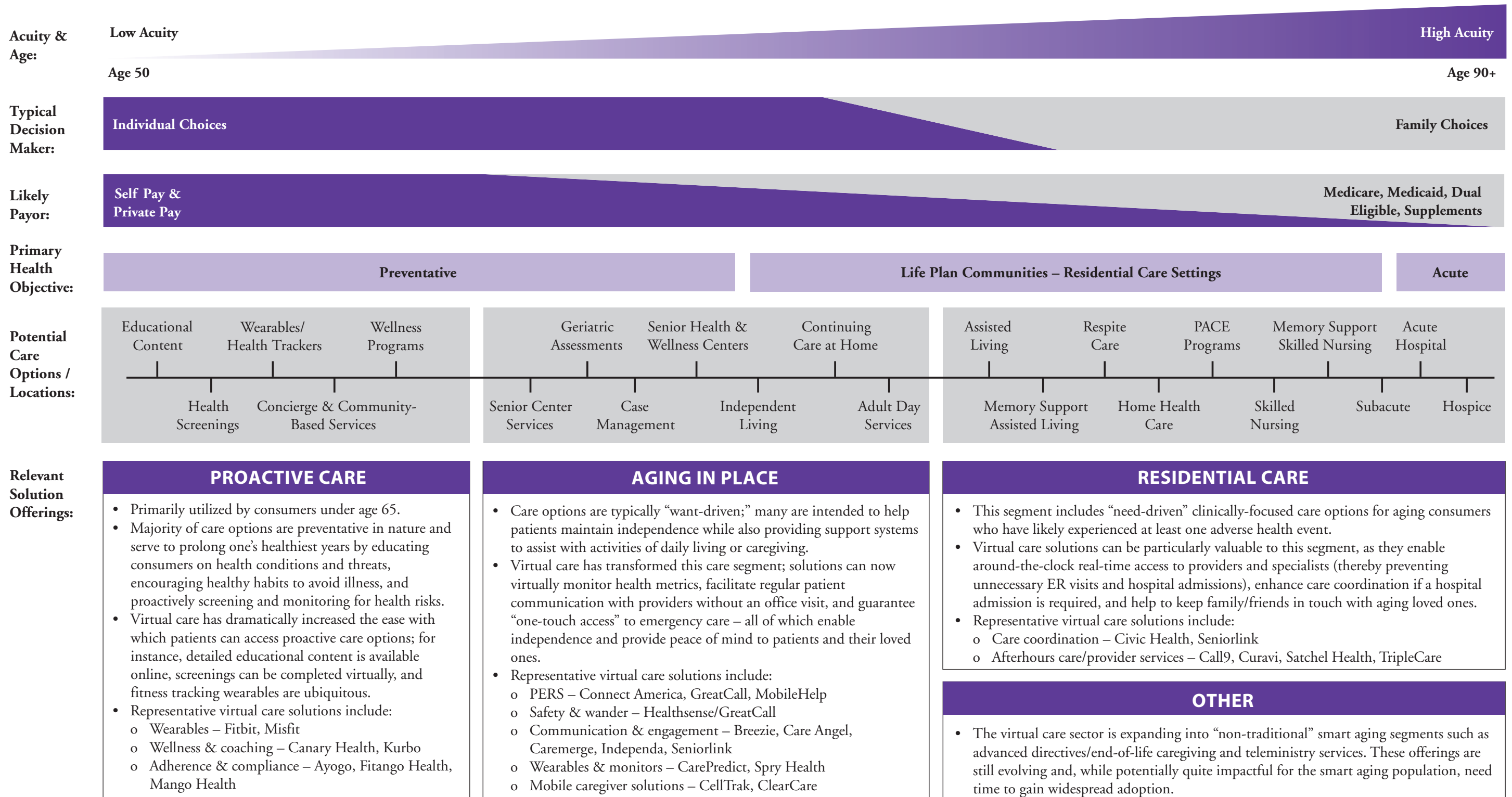
- Drive medication adherence and promote formulary compliance
- Deliver content and educational material efficiently
- Broaden clinical trial catchment areas to improve access and compliance
- Identify and intervene in the case of adverse events with more speed, precision, and consistency
- Shorten time-to-market for new drugs
- Lower trial duration and cost
- Reduce staffing needs
- Enhance recruitment while improving patient retainage
- Improve ability to track social and behavioral factors impacting trial participants

SPECIAL USES

- Enhance care at schools and improve educational outcomes by providing access to remote acute care, behavioral health counseling, and hearing and speech therapy
- Supplement provider shortages during disaster relief efforts and connect people with providers who cannot physically reach survivors
- 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
- Utilize teleministry services to provide spiritual support during end-of-life care and other times of need
- Provide accessible care options to more effectively address the opioid crisis and other public health emergencies

VIRTUAL CARE IN THE SMART AGING CONTINUUM

THE SMART AGING ECOSYSTEM ENCOMPASSES NUMEROUS CARE SETTINGS THAT PRIMARILY SERVE CONSUMERS AGE 50 AND ABOVE. WHILE A PATIENT'S ACUITY AND ABILITY TO PAY ULTIMATELY DETERMINE HIS/HER CARE SETTING, VIRTUAL CARE IMPACTS NEARLY EVERY ASPECT OF THE CONTINUUM.



Adapted from Greystone Communities' Continuum of Care Chart

USE CASE SPOTLIGHT: VIRTUAL CARE APPLICATIONS IN THE SMART AGING SECTOR

THE SMART AGING COMMUNITY HAS SEEN SIGNIFICANT POSITIVE OUTCOMES FROM IMPLEMENTING VIRTUAL CARE SOLUTIONS IN A FEW KEY SUBSECTORS; UTILIZATION IS EXPECTED TO EXPAND WITHIN THESE NICHEs AND INTO NEW SMART AGING SPECIALTIES.

AFTER-HOURS SNF COVERAGE

CHALLENGES

- Lack of after-hours physician care in SNFs leaves nursing staff ill-equipped to handle complex patient episodes at night or on weekends and holidays.
 - SNF medical directors are typically only available during limited weekday hours and work for multiple different facilities.
 - SNF patients who need urgent care are often expensively and sometimes traumatically transferred and admitted to a hospital, where they are susceptible to secondary infections.
- Reimbursement is at stake for SNFs with high readmission rates.
 - Health systems face financial penalties for readmissions, so they favor discharging patients to SNFs with low readmission rates.
 - SNFs will begin facing financial penalties for readmissions in October 2018⁽¹⁵⁾.

VIRTUAL CARE SOLUTIONS

- SNFs need convenient after-hours medical expertise.
- “Treat in place” general and emergency solutions – Offers 24/7 virtual access to providers utilizing two-way audio/video tech and digital diagnostic tools.
 - Solutions have been proven to effectively treat a majority of patients who need after-hours care without transferring patients from their beds.
 - Avoiding a trip to the hospital saves staff time, patient stress, family worry, and potential exposure to additional infections.
- Remote monitoring solutions – Peripherals and platforms can immediately alert caregivers when vital signs or other health measures are out of range.



BEHAVIORAL HEALTH

CHALLENGES

- Mental illness presents an enormous and quickly growing challenge to the smart aging community.
 - Roughly 1 in 4 adults age 65+ are afflicted with a mental illness; those age 85+ have the highest suicide rate of any age group⁽¹⁶⁾.
 - As people age, increasing risks of dementia, loneliness, financial stress, and physical health worries can compromise mental wellbeing.
- Excessive use of psychotropic drug prescriptions to calm senior patients is a growing concern across the smart aging industry.
- Behavioral health problems are becoming increasingly difficult to efficiently address in all age groups given a growing patient base, geographic limitations of patients, and provider shortages; the smart aging community may face heightened barriers to receiving care, such as a lack of caregiver education on the subject.

VIRTUAL CARE SOLUTIONS

- The smart aging community requires accessible mental healthcare at home and in residential facilities.
- The discretionary nature of virtual care models along with the lack of “hands-on” tests required for behavioral healthcare, make “in-place” (e.g. home, office) tele-behavioral health visits an optimal use for virtual care, especially when convenience is a priority.
- Facility- and home-based virtual care solutions – Provide a virtual network of psychiatrists, psychologists, or social workers to deliver real-time, remote care/therapy sessions via video or phone.
- “Chatbots” – “Always available” solutions use natural language processing to simulate a therapy session.



DERMATOLOGY / WOUND CARE

CHALLENGES

- As skin ages it becomes more susceptible to injury/infection and heals more slowly.
 - Dermatological conditions ranging from frequent dryness and bruising to skin cancer are more common in the elderly⁽¹⁷⁾.
 - Without prompt treatment, skin ailments can cause discomfort and pain, and may be fatal.
- Wounds such as diabetic foot ulcers and surgical wounds may be especially difficult to treat in elderly skin; suboptimal or mistreatment of wounds can lead to severe and expensive long-term complications.
 - Chronic wounds impact 15% of Medicare beneficiaries at annual cost of ~\$28-32 billion⁽¹⁸⁾.
- Dermatologist and wound care specialist shortages have extended wait times for skin-related treatments.
 - In 2017, the average wait time in major cities for a routine skin exam by a dermatologist was ~32 days – a ~12% increase from 2014⁽¹⁹⁾.

VIRTUAL CARE SOLUTIONS

- The smart aging community has a great need for skin and wound care, but limited access due to nationwide provider shortages as well as age-specific challenges such as lack of access to convenient transportation.
- “Rapid access” derm solutions – Allow patients to upload descriptions/photos of skin conditions at any time; providers then quickly turn around diagnoses.
 - Especially helpful to diagnose minor conditions and triage serious cases to in-person visits.
- Wound care solutions – Patients or providers can periodically upload photos and allow a care team to remotely track/monitor wound progress.
 - Solutions create quality outcomes; cost and labor savings; reduced risk; and higher satisfaction.



CHRONIC CARE MANAGEMENT

CHALLENGES

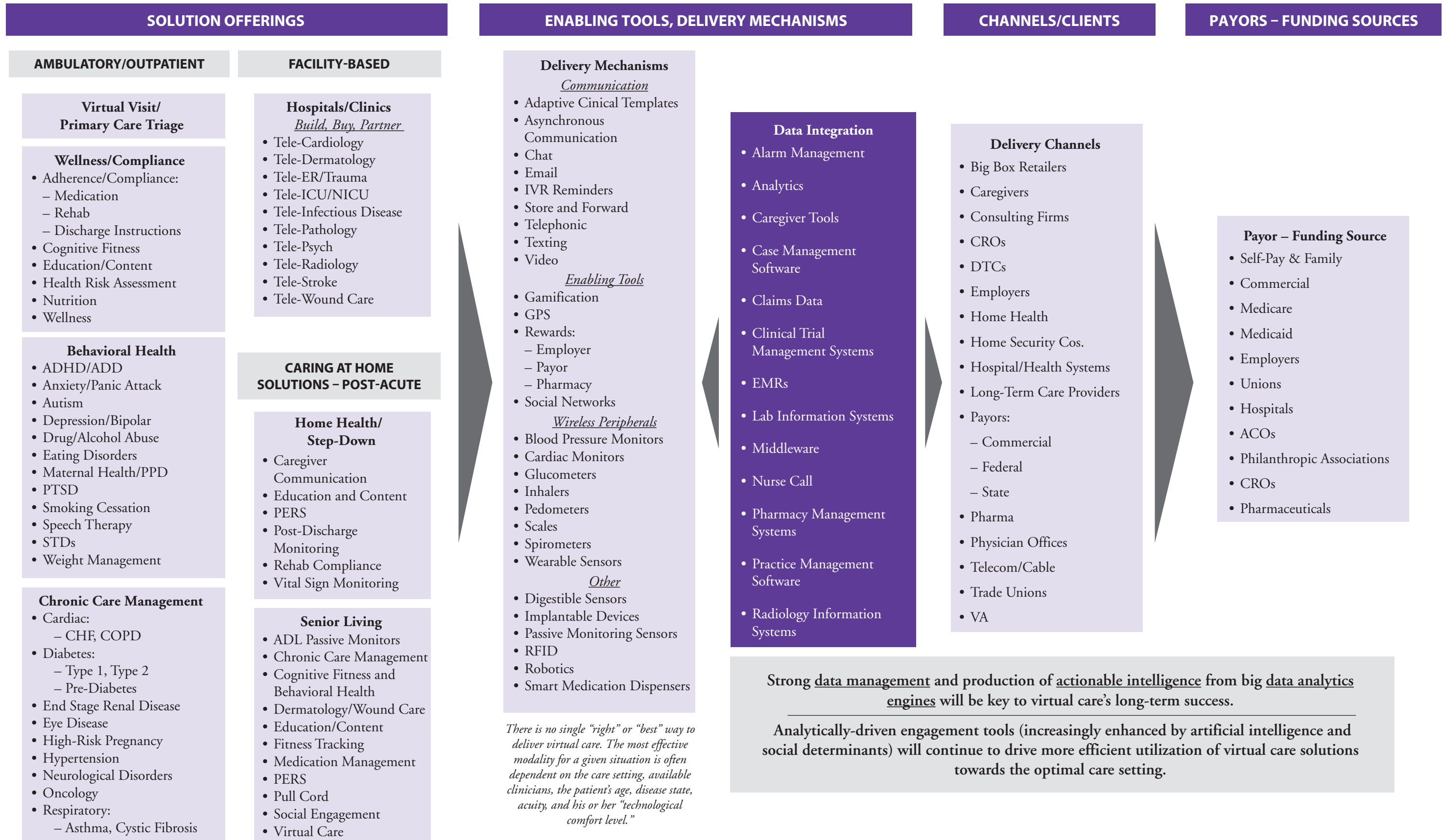
- Three in four Americans aged 65+ have multiple chronic diseases such as heart disease, high blood pressure, cancer, diabetes, and obesity⁽⁶⁾.
 - Managing one or more chronic conditions can be a significant logistical, financial, and emotional burden.
 - The number of older Americans suffering from chronic diseases will likely increase as the Boomer generation ages.
- Patients with chronic conditions tend to be the heaviest users of healthcare, generating significant costs; 71% of total healthcare spend in the U.S. is associated with people with more than one chronic condition⁽⁶⁾.
- Comprehensive care for chronic conditions is difficult to coordinate, especially for the smart aging population, which is particularly susceptible to chronic disease.
- Whether aging at home or in a residential care facility, the smart aging community faces barriers to chronic condition management tools.

VIRTUAL CARE SOLUTIONS

- Tools that help seniors manage their chronic conditions independently or with caregivers in diverse settings are in high demand.
- Numerous telemedicine solutions specifically address chronic conditions and allow for personalized, high-touch patient management, improved care coordination, and proactive care options.
- Cardiac solutions – Wearable patches can record and remotely transmit real-time ECG data to caregivers, allowing for intervention during emergencies.
- Diabetes solutions – Blood glucose tests can be given at home and results can be digitally transmitted to a smartphone and care platform for review.
- Asthma/COPD solutions – Digital sensors attach to an inhaler to document and monitor symptoms.



VIRTUAL CARE ECOSYSTEM



ZIEGLER'S VIRTUAL CARE SECTOR MAP

CLINICAL SOLUTIONS

Triage (Primary & Specialty)
Hospital-Based Solutions
Clinical Trial Solutions
Kiosks

CARING AT HOME SOLUTIONS – POST-ACUTE & SMART AGING

In-Home Monitoring
PERS/mPERS/Safety/Fall/Wander Detection
Adherence & Compliance Tools
Post-Acute Settings

CLINICAL SENSORS/CCM/WELLNESS DATA INTEGRATION

Disease Focused – Cardiac, Diabetes, Respiratory, etc.
Vital Signs Monitoring
Consumer Wellness & Fitness
Data Integration

MOBILE CLINICAL COMMUNICATIONS CARE DELIVERY PRODUCTIVITY

Clinical Communication (Inside & Outside of Hospital)
Text/Voice/Video
Telepresence/Robotics/Avatar
Telemedicine Platforms

REPRESENTATIVE SUBSECTOR COMPANIES

CLINICAL SOLUTIONS	CARING AT HOME SOLUTIONS – POST-ACUTE & SMART AGING	CLINICAL SENSORS/CCM/WELLNESS DATA INTEGRATION	MOBILE CLINICAL COMMUNICATIONS CARE DELIVERY PRODUCTIVITY							
<p>Triage (Primary & Specialty) <i>On-Demand Remote MD/Nurse Care</i></p> <ul style="list-style-type: none"> American Well AskTheDoctor.com Avizia/Carena CirrusMD Doctor on Demand First Opinion First Stop Health HealthJoy HealthTap Intellivisit Lemonaid Health MDLIVE MyOnCallDoc MyTelemedicine OTN Pager SwiftMD Teladoc TeleMed2U Zipnosis <p><i>Care Navigation/Virtual Care Plans</i></p> <ul style="list-style-type: none"> Consejo Sano Fusionetics <p><i>Virtual Physician Assistant</i></p> <ul style="list-style-type: none"> BrightMD Buoy Health 	<p>Hospital Based Solutions</p> <ul style="list-style-type: none"> Advanced ICU Care AirStrip Eagle Telemedicine EmOpti InTouch/AcuteCare Telemedicine ProgenyHealth REACH Health Specialists on Call <p>Behavioral Health <i>Facility-Based Solutions (Primarily)</i></p> <ul style="list-style-type: none"> Aligned Telehealth FasPsych Forefront TeleCare Genoa Telepsychiatry InnovaTel InSight Telepsychiatry Iris Telehealth JSA Health PresenceLearning Regroup Therapy <p><i>Home-Based Solutions (Primarily)</i></p> <ul style="list-style-type: none"> AbleTo e-Psychiatry Ginger.io HealthLinkNow Lyra Health Mindoula Quartet Health Talkspace Trigger Health WeCounsel <p><i>Digital Assessment/Diagnostic Solutions</i></p> <ul style="list-style-type: none"> Behavior Imaging M3 Palo Alto Health Sciences 	<p>In-Home Monitoring</p> <ul style="list-style-type: none"> ActiCare Health AMC Health Canary Telehealth Care Tech Systems CareMatix Chronic Care Management Cloud DX Critical Signal Technology eCaring Health Recovery Solutions Ideal Life Medisafe Medocity TouchPointCare Vivify Health VRI <p>Adherence & Compliance</p> <ul style="list-style-type: none"> AdhereTech AiCure Ayogo Health emocha Fitango Health HealthPrize Mango Health Medisafe Proteus Digital Health Reflexion Health <p>Lab</p> <ul style="list-style-type: none"> Analyte Health PWNHealth Workpath <p>Sleep</p> <ul style="list-style-type: none"> Singular Sleep 	<p>Smart Aging Solutions</p> <p>Senior Living <i>Communication/Engagement Tools</i></p> <ul style="list-style-type: none"> Breezie Care Angel Catalia Health GrandCare Independa It's Never 2 Late Oneview Healthcare Rendever Seniorlink Touchtown <p><i>Care Coordination</i></p> <ul style="list-style-type: none"> Civic Health Seniorlink Ynca Welcome Home Health <p><i>Provider Services</i></p> <ul style="list-style-type: none"> Call9 Castleton Group Curavi Health MPAC Healthcare Satchel Health Third Eye Health TripleCare <p><i>Wearables/Remote Patient Monitoring</i></p> <ul style="list-style-type: none"> ActiveProtective CareBand Sentrian Spry Health <p>PERS</p> <ul style="list-style-type: none"> Connect America GreatCall/Lively Life Alert Mobile Help Philips Lifeline Tunstall <p>Safety/Wander/ADL</p> <ul style="list-style-type: none"> Healthsense/GreatCall <p>Mobile Caregiver Solutions</p> <ul style="list-style-type: none"> Care.com CareLinx/Generali CellTrak ClearCare HomeTeam Honor 	<p>Cardiac</p> <ul style="list-style-type: none"> AliveCor Biotricity Cardiac Designs Cardio CardioMedix Eko Devices Caremerge InfoBionic Intelesens/UltraLinq iRhythm Technologies Isansys Lifewatch/BioTelemetry Preventice/eCardio SHL Telemedicine Vital Connect <p>Vital Signs</p> <ul style="list-style-type: none"> Caretaker Medical Owlet PhysIQ Proteus Digital Health Qardio <p>Service Providers</p> <ul style="list-style-type: none"> InDemand Interpreting Premise Health SimplyWell (Viverac) Wellness Corp Solutions <p>Data Integration</p> <ul style="list-style-type: none"> MD Revolution Sentrian Validic <p>Social Determinants Analytics</p> <ul style="list-style-type: none"> Socially Determined TAVHealth 	<p>Diabetes</p> <ul style="list-style-type: none"> DarioHealth Entra Health/CRF Glooko GlucoMe Glytec Livongo Omada Onduo Sano Senseconics Solera Health Telcare/BioTelemetry Trvidia Health Virta Health <p>Respiratory</p> <ul style="list-style-type: none"> Adherium Alvio Cohero Health Propeller Health ResApp Health Strados <p>Wellness</p> <ul style="list-style-type: none"> Azumio Canary Health Fitbit Kurbo Misfit Multisensor Diagnostics Noom Omada Physitrack Telespine Vida Health 	<p>Clinical Communication</p> <ol style="list-style-type: none"> Nursing Communications Provider Communications Alarm Management Middleware <ul style="list-style-type: none"> Audacious Inquiry Bernoulli CaptureProof Connexall Conversa Health Cureatr DocBookMD/Script First Opinion GenerationOne Medigram Mobile Heartbeat/HCA PatientSafe Solutions PeraHealth PerfectServe Spok TigerText Vidyo Voalte Vocera/Extension Healthcare <p>Patient Engagement/Navigation</p> <ul style="list-style-type: none"> Accolade Eliza/HMS Evive Health GetWellNetwork Jiff/Castlight Limeade Redbrick Health Sharecare Virgin Pulse Wellbe Welltok 	<p>Scheduling</p> <ul style="list-style-type: none"> Amion Lightning Bolt Solutions Qgenda/Tangier ZocDoc <p>Telemedicine Platforms</p> <ul style="list-style-type: none"> AMD Global Telemedicine Avizia/Carena AZOVA CareClix Chiron Health Cloudbreak Health Dictum Health GlobalMed InTouch Health/TruClinic MyTelemedicine Oneview Healthcare SnapMD Spruce SwyMe TytoCare ViTel Net VSee <p>Care/Case Management</p> <ul style="list-style-type: none"> Altruista Casenet eCaring ProgenyHealth ZeOmega <p>Telepresence/Robotics</p> <ul style="list-style-type: none"> Giraff/Camano vGo/Vecna 			
<p>Dermatology & Wound Care</p> <ul style="list-style-type: none"> AZOVA CaptureProof Corstrata Curology Direct Derm eCare Tissue Analytics WoundMatrix WoundRounds Woundtech 	<p>Women's/Maternal Health</p> <ul style="list-style-type: none"> Babyscripts Maven Ovia Health Pacify Wildflower Health 	<p>Eye Care – Retinal Screening</p> <ul style="list-style-type: none"> 20/20 Now GoCheck Kids Inoveon IRIS Opternative 	<p>Pharmacy</p> <ul style="list-style-type: none"> eazyScripts PEAR Therapeutics PharmD on Demand PipelineRx TelePharm 	<p>On-Demand Urgent Care</p> <ul style="list-style-type: none"> DispatchHealth One Medical StationMD Zipline 	<p>Dialysis</p> <ul style="list-style-type: none"> Sanderling Renal Services 	<p>Urology</p> <ul style="list-style-type: none"> PercuVision 	<p>Digital Pathology</p> <ul style="list-style-type: none"> Leica/Aperio 	<p>Kiosks</p> <ul style="list-style-type: none"> AMD Global Telemedicine American Well Higi/Stayhealthy MedAvail Pursuant Health 	<p>Clinical Trials</p> <ul style="list-style-type: none"> AiCure AMC Health Clinical Ink CRF Health 	<p>2nd Opinion</p> <ul style="list-style-type: none"> 2nd MD Best Doctors/Teladoc Grand Rounds MAVEN Project RubiconMD Second Opinions
<p>NOTABLE MARKET DEVELOPMENTS AND COMMENTARY</p> <ul style="list-style-type: none"> Three of the largest participants in the virtual care sector demonstrated strong consistent growth, completed several strategic tuck-in acquisitions, and were handsomely rewarded by the equity capital markets: <ul style="list-style-type: none"> Teladoc (NYSE: TDOC) acquired BetterHelp in 2015, HealthiestYou in 2016, and Best Doctors in 2017, and saw membership and visits increase by ~30% and ~50%, respectively, from 2016 to 2017⁽²⁰⁾. Over the last 18 months (9/1/16 to 2/28/18), Teladoc's share price jumped ~125%⁽²¹⁾. Biotelemetry (NASDAQ: BEAT) acquired Telcare in 2016 and LifeWatch in 2017, and over the last 18 months saw its share price increase over 70%⁽²¹⁾. BEAT's success helped facilitate another successful IPO in the same sector: iRhythm Technologies (NASDAQ: IRTC), whose share price has more than doubled since its public offering in October 2016⁽²¹⁾. GreatCall acquired Lively in 2015 and HealthSense in 2016, and was recapped by GTCR in 2017 for an undisclosed amount. Two of the largest players in the facility-based platform solutions space (carts, peripherals, tablets, and integrating software) – Avizia and InTouch Health – extended their reach into the virtual care services space with acquisitions of Carena in 2017 and TruClinic in 2018, respectively. The digital diabetes sector continued to see significant equity capital flow as both Livongo (\$52.5 million) and Omada (\$50 million) completed funding rounds in 2017. Additionally, the partnership between Sanofi and Verily (Google) committed \$500 million to create Onduo, a virtual diabetes clinic. The tele-psych/behavioral health space is the fastest growing sector in virtual care with numerous groups showing exponential growth in 2017 and 2018. <i>We anticipate the pace of consolidation in 2018 and 2019 to accelerate as players strive to create meaningful scale, diversified platform service offerings along logical adjacent co-morbidities, and analytically-driven workflow engines that connect seamlessly to both clinical and financial IT systems.</i> 										

KEY VIRTUAL CARE PARTICIPANTS: PARTNERS, INVESTORS, AND ACQUIRERS

CONGLOMERATES

- Amazon-JPM-Berkshire Hathaway
- BD/Carefusion
- GE
- Hearst
- Philips
- Siemens
- Virgin
- Xerox

CONSUMER DEVICES

- Amazon
- Apple
- Flex
- Google
- LG
- Motorola
- Nokia/Withings
- Samsung

CONSUMER WEARABLES

- Fitbit
- Jawbone
- Under Armour

CRO/CLINICAL TRIALS

- Charles River
- ICON
- IMS Health/Quintiles (IQVIA)
- LabCorp/Covance/Chiltern
- Parexel
- PPD
- PRA
- Syneos Health

DATA ANALYTICS/CONTENT

- 3M
- Advisory Board/United/Optum
- Elsevier
- Experian
- IBM/Truven
- IMS Health/Quintiles (IQVIA)
- Inovalon
- Medidata
- Nuance
- Premier
- Press Ganey
- Verscend
- WebMD
- Wolters Kluwer

DEVICE & DIAGNOSTICS

- Abbott/St. Jude/Alere
- BioTelemetry/LifeWatch
- Boston Scientific
- Dexcom
- Hill-Rom/Welch Allyn
- Leica/Aperio
- Medtronic/Cardiacom
- Nihon Kohden
- ResMed/Brightree
- Spacelabs Healthcare

ENTERPRISE HEALTHCARE IT HOSPITAL/PHYSICIAN

- Allscripts
- athenahealth
- Cerner
- Epic

ENTERPRISE HEALTHCARE IT SENIOR LIVING

- MatrixCare
- Netsmart/HealthMEDX
- PointClickCare

HEALTHCARE DISTRIBUTOR

- AmerisourceBergen
- Cardinal
- Henry Schein
- McKesson

HEALTHCARE SERVICES

- Almost Family-LHCG
- Amedisys
- AMSURG/Envision
- DaVita-United/Optum
- Fresenius
- Home Instead
- Kindred-Humana
- MEDNAX/vRad
- Onduo
- ResCare
- Team Health

INFRASTRUCTURE/CONNECTIVITY

- DXC
- Intel
- Qualcomm

LAB

- LabCorp/Covance/Chiltern
- Quest Diagnostics

PAYOR

- Anthem
- BCBS
- Centene/Health Net
- Cigna
- CVS-Aetna
- Humana
- Kaiser Permanente
- Molina Healthcare
- United/Optum
- WellCare

PHARMACEUTICALS

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

REMOTE MONITORING

- Bosch
- Honeywell
- Tunstall

RETAIL PHARMACY

- CVS-Aetna
- Walgreens/Rite Aid
- Walmart

SECURITY

- ADT/Protection 1
- Alarm.com
- Ascent/MONI
- Harris
- Leidos
- STANLEY

TELECOM

- AT&T
- CenturyLink
- Sprint
- Verizon

NOTABLE STRATEGIC INVESTORS



- | | | | | | |
|---------------------------|-----------------------------------|------------------|------------------------------|-----------------------|------------------------------|
| • Adventist Health System | • Dignity Health | • GE Ventures | • Kaiser Permanente Ventures | • Providence Ventures | • Summation |
| • Ascension Ventures | • dRx Capital | • Google | • LabCorp | • Qualcomm | • Sutter Health |
| • Baxter Ventures | • Echo Health | • Heritage Group | • McKesson Ventures | • Sandbox | • The Ziegler Link-Age Funds |
| • CVS Ventures | • Fresenius Medical Care Ventures | • Home Instead | • Microsoft | • Siemens Ventures | • UPMC |
| | | • Humana | | | |


KEY VIRTUAL CARE PARTICIPANTS: HEALTH SYSTEMS

Health systems, community hospitals, and rural/critical access facilities are becoming key participants in the virtual care industry, with a few health systems differentiating themselves through virtual care adoption. The list and profiles below present select early leaders in the deployment of virtual care solutions across their networks.


- | | | | | | |
|-----------------|-----------------------|------------------|---------------------|--------------------|---------------------|
| • Ascension | • CHI Franciscan | • Dignity Health | • Kaiser Permanente | • Mercy | • Providence Health |
| • Avera Health | • Cleveland Clinic | • HCA | • Marshfield Clinic | • Nemours | • UMMC |
| • Banner Health | • Dartmouth-Hitchcock | • Intermountain | • Mayo Clinic | • Northwell Health | • UPMC |

SELECT EXAMPLES OF HEALTH SYSTEM VIRTUAL CARE LEADERS


	 KAISER PERMANENTE ⁽²²⁾ Kaiser Permanente Telehealth / Oakland, CA	 telehealth SERVICES ⁽²³⁾ VA Telehealth / Washington, D.C.
Overview	<ul style="list-style-type: none"> • Provides telehealth services 24/7, anywhere in the world • Offers many telehealth specialties including behavioral health, burn, dermatology, emergency, remote monitoring, second opinion, stroke, on-site consultation, and urgent care • Serves more than 50% of Kaiser Permanente's patient population (nearly 59 million patients) via online portals, virtual visits, or through the health system's applications • More telehealth touches than in-person visits since 2012, with 58% of 2016 visits occurring via secure email, phone, or video 	<ul style="list-style-type: none"> • The largest health system in the nation; views telehealth as one of its transformational initiatives; uses telehealth modalities such as clinical video, home telehealth, and store-and-forward telehealth • Offers 50+ telehealth specialties for VA patients at 900+ sites • Specialties include addiction, behavioral health, cardiology, dermatology, gastrointestinal, pulmonology, wound, and others • Recent report from NASEM strongly recommends a substantial increase in the use of "virtual care technologies" throughout the VA for mental health services⁽²⁴⁾
Virtual Access	<ul style="list-style-type: none"> • 5.1 million appointments requested online • 85,000 video visits completed 	<ul style="list-style-type: none"> • 2.2 million telehealth episodes of care • 4% growth in telehealth uses from veterans
Provider Communication	<ul style="list-style-type: none"> • 39.9 million phone calls between providers and patients • 30.3 million secure emails between provider and patients 	<ul style="list-style-type: none"> • 282 telehealth training sessions provided for providers • 3 modalities of telehealth treatments for veterans
Results	<ul style="list-style-type: none"> • 50% faster diagnosis-to-treatment for stroke patients • 21.8 million prescriptions filled online • 45.4 million lab tests viewed 	<ul style="list-style-type: none"> • 59% decrease in VA bed days-of-care • 39% reduction in acute psychiatric VA bed days-of-care • 91% satisfaction scores from veterans using telehealth

 **ASCENSION** GoodHealth Austin, TX

- Provides telehealth services at 10 of its 15 Ministry Markets in 19 different specialties; has delivered over 20,000 virtual care encounters this year, which excludes the activity within GoodHealth's portal, online scheduling, and remote patient monitoring
- The GoodHealth Solutions Center, a hub for patient access, care coordination, and virtual care, opened in Austin, TX in 2017
- Offers OnDemand Care platform for real-time virtual visits and other telehealth specialties system-wide
- Services include virtual care, innovation, central monitoring units, digital clinics, clinical analytics, specialty telemedicine, scheduling, care coordination, 24/7 nurse line, ePharmacy, transfer center, and bed management
- GoodHealth Digital Clinic app allows patients to directly connect with providers for scheduled or unscheduled care
- Also offers providers support with virtual care services, after-hours urgent care services and nurse line, hospital admissions and transfers, and specialty care appointments
- Ascension was recognized by the ATA in 2017 for placing 17 Ascension hospitals on the "Most Wired List"

 **Avera** Avera eCARE Sioux Falls, SD

- Began telehealth services in 1993 with eCARE Specialty Clinic servicing rural facilities in the Avera Health System
- Has since grown to expand services to include eight other specialties, including eCARE ICU, eCARE Emergency, eCARE Pharmacy, eCARE Senior Care, eCARE School Health, eCARE Behavioral Health, eCARE Hospitalist, and eCARE Correctional Health
- In 2012, Avera opened the eHELM, which is Avera's virtual hospital hub, providing 24/7 coverage via telehealth
- Provides services in hospitals and clinics, schools, senior care, and correctional facilities
- Offers AveraNow, a mobile application for immediate access to healthcare professionals through tablet, phone, or computer
- AveraNow charges a flat fee for physician access per visit
- Also has telehealth virtual access kiosks in Sioux Falls grocery stores
- Provides care in 16 states, through nearly 400 sites; has seen more than 1 million patients
- Saves approximately \$5 million per month through telehealth applications and services, amounting to over \$190 million historically
- Partners with American Well

 **Mercy** Mercy Virtual Care Center St. Louis, MO

- A fully staffed leading health system initiative leveraging virtual technology; dedicated to pioneering a new model of care
- Shifts the care paradigm from fee-for-service to fee-for-value by extending and augmenting person-centric care continuums within and beyond traditional care
- Offers a portfolio of evolving solutions that will progressively transform the health and care continuum
- Extends expert, interdisciplinary team care into people's daily lives through vEngagement – proactive solutions mitigating chronic condition exacerbation and activating patients, teams, and broader support to decrease reliance on more intensive, acute care
- A growing 800+ coworker team partnering with traditional care to bring expertise when and where it is needed
- Mercy Virtual strategy seeks to combine an integrated partnership and a portfolio of solutions for a seamless, frictionless care experience
- Partners and contracts with like-minded healthcare systems dedicated to transforming the care and health experience for patients and other stakeholders

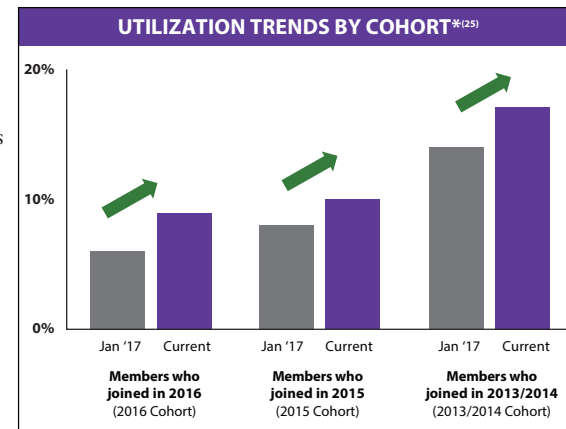
KEY VIRTUAL CARE PARTICIPANTS: REPRESENTATIVE MARKET LEADERS

Shown below are brief profiles highlighting key characteristics and developments of the largest publicly-traded and privately-held virtual care companies: Teladoc and GreatCall, respectively. These organizations have built innovative product suites, exhibited consistent growth – both organically and through acquisitions – and demonstrated the value that virtual care can provide across the healthcare landscape.

TELADOC (NYSE: TDOC)

Teladoc has a national network of more than 3,100 licensed healthcare professionals, serves over 10,000 total clients (payors, providers, and employers), and completed over 1.4 million visits in 2017. The company's convenient, proven solutions serve numerous constituents and over the last three years, Teladoc has meaningfully increased its visit volume (70% CAGR since 2014) and revenue (75% CAGR since 2014). This growth has not gone unnoticed, as the company's share price has increased by ~125% over the last 18 months.⁽²⁰⁾

- **Robust service offerings enhanced by acquisitions:** Multiple acquisitions and partnerships since 2015 have helped Teladoc improve its consumer engagement platform (HealthiestYou) and enter new market segments such as behavioral health (BetterHelp) and second opinions/patient decision support (Best Doctors). The company also launched its own dermatology solution and partnered with Analyte Health to enhance its on-demand diagnostic testing and laboratory capabilities. As a result, Teladoc now offers one of the broadest product suites in the virtual care market which can be tailored to nearly every client segment.
- **Proven use cases and ROIs:** Teladoc has published numerous case studies demonstrating that its solutions help clients across industries generate savings/ROIs. This empirical evidence validates Teladoc's offerings and is a critical component of its value proposition.
- **Evidence of increased utilization over time:** As shown on the right, members who have had access to Teladoc for longer periods of time use the solution more frequently than those who recently joined: the utilization rate for users onboarded in 2013/2014 is nearly twice as high as for the recently onboarded 2016 cohort. This virtual care model, therefore, is not just a “flash-in-the-pan” offering but a product that gains momentum over time.
- **Incentive alignment provides an opportunity for significant revenue upside:** Teladoc recently extended and revised its contract for Aetna's fully insured population to eliminate a PMPM fee but include a shared savings component (in addition to a per-visit fee). Teladoc believes this new model may increase its revenue per visit by four times. Additionally, Teladoc is more frequently offering lower initial PMPM rates (plus a per-visit fee), with increases to the PMPM as utilization rises. These new models align Teladoc's incentives with its customers' and create potential for meaningfully higher revenue in the coming years.⁽²⁶⁾



GREATCALL

Initially operating as a developer of phones and services for seniors, GreatCall now provides numerous “connected health” solutions that help individuals maintain safety and independence. The company's robust portfolio of mobile health and safety offerings directly addresses the needs of numerous constituents along the smart aging continuum. GreatCall's recent tuck-in acquisitions have expanded its product suite and footprint, and its recent recapitalization by GTCR has the company well-positioned to continue serving as a leader in the PERS industry.

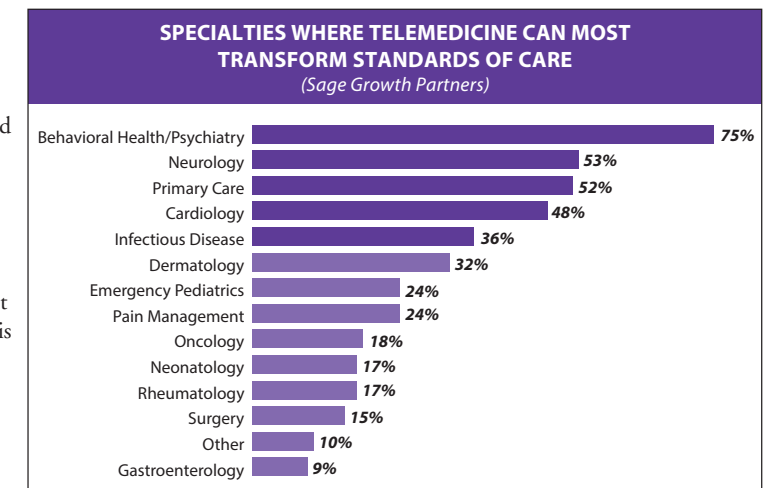
- **Innovative product suite expanded with the acquisition of Lively:** GreatCall was one of the first companies to offer mobile PERS solutions and has been at the forefront of PERS and safety service innovation for several years. With its acquisition of Lively, a connected home health platform for older adults, GreatCall consolidated its product suite under a single brand, including a small, mobile medical alert device and a wearable, wrist-worn PERS solution.
- **Healthsense acquisition helps extend footprint:** The Healthsense technology utilizes passive sensors and pattern recognition algorithms to analyze ADL data and proactively alert caregivers when changes in data indicate a looming health incident. Notably, Healthsense had a strong presence in senior living communities and monitored more than 20,000 lives in senior living, managed care, and home care markets. Healthsense also had demonstrated its product's efficacy in a peer-reviewed article published in the Journal of the American Geriatrics Society. The article outlined how a managed care organization could provide better, lower-cost care with its passive monitoring technology. This acquisition not only expands GreatCall's data and analytics capabilities but, with the published results, helps the company gain traction in new, growing market segments that can directly benefit from its broader offerings.
- **GTCR recapitalization validates value proposition:** The PERS sector has seen sizeable PE investments over the last several years (MobileHelp/ABRY, ConnectAmerica/Rockbridge), and it is clear that outside parties understand the value and potential of these solutions. The GTCR transaction supports GreatCall's market-leading position and will help the company complete future tuck-in deals and further grow its customer base from direct-to-consumer to commercial markets.

*Cohort by calendar year refers to membership base associated with clients on-boarded in a given calendar year. Represents clients with 50k or fewer U.S. Paid Members. “Current” is believed to be 2H 2017.

CONCLUSION

Virtual care is a fast-growing sector that is already having an outsized impact on the healthcare industry. As virtual care continues to rapidly gain traction across a broad set of stakeholders, numerous positive tailwinds encourage fast continued growth and integration with mainstream healthcare. While virtual care has the ability to materially impact numerous subsectors of healthcare, we believe the following three domains are particularly ripe for disruption:

- 1 **Behavioral Health** – Millions of Americans suffer from mental health conditions but cannot access care due to their geographic location and/or economic status – issues which are frequently exacerbated by provider shortages. Virtual care solutions allow patients to access convenient, affordable treatment options with appropriate providers (psychiatrists, psychologists, social workers, drug counselors, etc.) while also alleviating bottlenecks in emergency rooms and other acute care settings. Given virtual care's discretionary attributes and the lack of “hands-on” tests needed for mental health services, behavioral health has become the fastest growing segment of virtual care and will continue to gain traction as patient and provider awareness increases.
 - Sage Growth Partners recently reported that 75% of surveyed healthcare executives believe telemedicine will potentially transform the standard of care in behavioral health/psychiatry (full Sage report is available at <http://go.sage-growth.com/defining-telemedicine>)⁽²⁾.
- 2 **Post-Acute & Smart Aging** – As the Boomer generation grows older, more consumers will look to “age in place” and will 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. While most solutions currently serving this sector are still relatively new, they are addressing an obvious, growing need.
- 3 **Chronic Care Management** – Chronic conditions impact millions of Americans and account for a significant portion of the country's healthcare spend. Patients, families, providers, and payors all benefit from solutions that help patients monitor their chronic conditions, improve their health, and ultimately reduce costs. When patients are empowered to accomplish these goals independently with convenient tools that do not require constant visits to a physician's office, they save time and money and are more likely to remain engaged in their own care. The chronic care subsector is relatively mature and has long been recognized as a top use case for virtual care, but tremendous growth potential still exists as ROIs for new tools and conditions are documented, reimbursement evolves, and smart aging applications are explored further.



Unsurprisingly, these three key subsectors frequently overlap, as older adults along the smart aging continuum have high incidence rates of chronic conditions and often struggle to access the complementary behavioral health services that are sometimes required to effectively manage both chronic disease and the mental changes related to aging. Virtual care providers that understand the relationships between these three high-growth subsegments and can effectively address two or more of them together will be especially well-positioned to capitalize on the virtual care market's fast growth.

While virtual care continues to gain momentum, challenges undoubtedly remain. Regulatory questions related to patient informed consent; state licensure requirements; online prescriptions; and privacy and security must be answered by the appropriate legal bodies. Organizations using virtual care must continue documenting and publishing concrete use cases and ROIs to ease administrators' potential worries around cost. Provider “buy-in” needs to remain strong, and organizations must keep patients educated about virtual care offerings to increase comfort and utilization. Most importantly, the virtual care industry will greatly benefit if Medicare, Medicaid, and commercial payor policies evolve to provide broader reimbursement for virtual care services without excessively complex and confusing regulations. Comprehensive reimbursement that is easily understood will allow consumers and provider organizations to justify the cost of virtual care, increase awareness, and drive long-term adoption and utilization.

We are beginning to enter 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, and defensible ROIs have been clearly documented. Sector leaders are beginning to emerge, as organizations who have achieved sustainable engagement, established trust, developed safe and secure solutions, and demonstrated compelling use cases are scaling operations and establishing footholds as front-runners. That being said, there is still boundless potential for innovation and growth. Today's healthcare industry is facing unprecedented challenges and demands diverse solutions that can improve outcomes, increase access to care, and reduce costs. The virtual care market, although still gaining traction, 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) “2017 Telemedicine and Digital Health Survey; Telemedicine Surges Ahead As Providers, Patients Embrace Technology.” Foley & Lardner LLP. November 2017.
- (2) “Defining Telemedicine’s Role; The View From The C-Suite.” Sage Growth Partners. February 2018.
- (3) “Telehealth, Telemedicine Reimbursement Score Big in New Budget Deal.” mhealthintelligence.com. February 9, 2018.
- (4) “2017 Year End Funding Report: The end of the beginning of digital health.” Rock Health. 2018
- (5) “Telemedicine Market (Tele-Education, Tele-Training, Tele-Consultation, Tele-Monitoring, Tele-Care, and Tele-Surgery) for Neurology, Orthopedics, Cardiology, Dermatology, Emergency Care, Internal Medicine, Gynecology, and Other Applications: Global Industry Perspective, Comprehensive Analysis and Forecast, 2016 – 2022.” Zion Market Research. March 2017.
- (6) Centers for Disease Control and Prevention.
- (7) “5% of Americans Made Up 50% of U.S. Health Care Spending.” The Atlantic. January 13, 2012.
- (8) “10,000 Boomers Turn 65 Every Day. Can Medicare and Social Security Handle It?” This Fiscal Times. May 9, 2017.
- (9) “2018 Telehealth Industry Trends.” The Advisory Board. 2018.
- (10) “Eylea outperforms Avastin for diabetic macular edema with moderate or worse vision loss” National Institutes of Health. February 29, 2016
- (11) “CoxHealth Case Study” IRIS. Jonathan Stevenson, IRIS Chief Information Officer. March 2018.
- (12) “Closing the Telehealth Gap.” Avizia. 2017.
- (13) “Top of Mind for Top U.S. Health Systems 2018.” Center for Connected Medicine and The Health Management Academy. December 2017.
- (14) “Enabling healthcare consumerism.” McKinsey & Company. May 2017.
- (15) “Hospitals have felt the financial squeeze for years. These guys are next.” Crain’s Chicago Business. July 29, 2017.
- (16) “A Look Into Older Adults’ State of Mind.” U.S. News & World Report. October 11, 2017.
- (17) “Aging changes in skin.” U.S. National Library of Medicine.
- (18) “New study documents cost and impact of chronic wounds; Demonstrates imperative for wound specific quality measures, payment models and Federal research funding.” Alliance of Wound Care Stakeholders. October 4, 2017.
- (19) “Wait times for dermatologist visits up 3.5 days since 2014.” Dermatology News presented by MDedge. April 6, 2017.
- (20) Teladoc Forms 10-K for the years ended December 31, 2017, December 31, 2016, and December 31, 2015. Teladoc website.
- (21) Yahoo! Finance & NASDAQ.
- (22) Section data sources: National Coordinating Committee for Multiemployer Plans. September 2017. “Kaiser CEO: Telehealth Outpaced In-Person Visits Last Year” Telehealth News. October 2016.
- (23) Section data source: U.S. Department of Veterans Affairs website.
- (24) “VA Provides Mental Health Care to Veterans of Recent Iraq and Afghanistan Wars of Comparable or Superior Quality to Other Providers, Yet Substantial Unmet Need Remains.” The National Academies of Sciences, Engineering, and Medicine. January 31, 2018.
- (25) “36th Annual J.P. Morgan Healthcare Conference.” Teladoc presentation. January 8, 2018.
- (26) Teladoc Q3 2017 Results Earnings Call Transcript, as provided by Seeking Alpha.

ACRONYMS

ACO = Accountable Care Organization
 ADD/ADHD = Attention Deficit Disorder/
 Attention Deficit Hyperactivity Disorder
 ADL = Activities of Daily Living
 ATA = American Telemedicine Association
 CAGR = Compound Annual Growth Rate
 CCM = Chronic Care Management
 CHF = Congestive Heart Failure
 CMS = Centers for Medicare & Medicaid
 Services
 COPD = Chronic Obstructive Pulmonary
 Disease
 CRO = Contract Research Organization
 DTC = Direct-To-Consumer

ECG = Electrocardiogram
 EMR = Electronic Medical Record
 EMS = Emergency Medical Service
 FFS/FFV = Fee-For-Service/Fee-For-Value
 HCIT = Health Care Information Technology
 HDHP = High-Deductible Health Plan
 HEDIS = Healthcare Effectiveness Data and
 Information Set
 HIE = Health Information Exchange
 ICU/NICU = Intensive Care Unit/Neonatal
 Intensive Care Unit
 IVR = Interactive Voice Response
 mPERS = Mobile Personal Emergency
 Response System

NASEM = The National Academies of
 Sciences, Engineering, and Medicine
 OEM = Original Equipment Manufacturer
 PACE = Program of All-Inclusive Care for the
 Elderly
 PCMH = Patient-Centered Medical Home
 PERS = Personal Emergency Response System
 PMPM = Per-Member-Per-Month
 PPD = Postpartum Depression
 RFID = Radio-Frequency Identification
 ROI = Return on Investment
 SNF = Skilled Nursing Facility
 VA = Veterans Affairs

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