Tradeshow Summary

American Telemedicine Association 2019 – Fostering adoption through collaboration

April 2019

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Contents

INTRODUCTION	3	
CONNECTED HEALTH OVERVIEW	4	
THE MULTICHANNEL PATIENT EXPERIENCE	5	
THE ECONOMICS OF TELEMEDICINE	6	
NEW IMPLEMENTATIONS OF TELEMEDICINE	7	
THE ROLE OF RETAILERS, BEHAVIORAL ECONOMICS IN TELEMEDICINE	8	
THE ETHICS AND REGULATIONS OF ARTIFICIAL INTELLIGENCE	9	
INVESTING IN TELEHEALTH	10	
THE FDA AND TECHNOLOGY INNOVATION	11	
THE FDA AND TECHNOLOGY INNOVATION – APPLICABILITY TO TELEMEDICINE	12	
VIRTUAL CONSULTATIONS IN THE UNITED STATES	13	
VIRTUAL CONSULTATIONS IN THE UNITED STATES CONT.	14	
CONTINUED WORK NEEDED TO ACHIEVE SCALE	15	

Introduction

- Ernest N Memorial Convention Center, New Orleans
- 3,000 attendees
- 185 exhibitors

Opening remarks:

- The American Telemedicine Association (ATA) held its first conference 25 years ago, it is time to embrace a new vision and focus one where the association is the advocate to disseminate telehealth. The ATA needs to collaborate in new ways to foster adoption. *Ann Johnson, CEO ATA*
- Why is telehealth not scaling to a more significant degree? The industry needs to focus on the macroeconomics of healthcare and payer/provider models – gainshare models are hard to prove. When there is no more room in the healthcare dollar for another service, there needs to be a new evaluation of how to categorize telehealth on the P&L. It needs to be calibrated to a higher level. In addition, the perspective of consumers needs to be elevated as well. Andrew Watson, MD, UPMC, President ATA
- If the US had good healthcare outcomes the high level of spending would not be considered a crisis. Innovation in healthcare is famously slow, requiring 17 years for change on average. Further, healthcare in the United States is highly variable, outcomes are not measured, and costs are increasing. The industry needs to create better relationships with not only the patient but also amongst the care team. We need to scale high value services to volume. *Elizabeth Teisberg, PhD, Value Institute for Health and Care*

Connected health overview

Connected health includes digital health (consumer medical devices, fitness devices, remote patient monitoring, health kiosks, virtual consults), connected clinical care, healthcare IT, and telemedicine. The ATA conference continues to expand the world of telemedicine in its discussions and exposition, now including:

- Tele-cardiology
- Tele-dentistry (triage support)
- Tele-dermatology
- Tele-ophthalmology (retinal imaging)
- Tele-orthopedics
- Tele-psychiatry
- Tele-rehabilitation

Also included in this list, but not featured at the conference, is tele-radiology which is the process of transmitting radiological patient images from one location to another for the purposes of sharing studies with other radiologists and physicians.

During the conference there was also significant focus on the regulatory environment in the US, including FDA guidance for medical devices and the state of service reimbursement. Further, the conference covered much of the ecosystem connecting healthcare today, which is depicted in the associated figure from IHS Markit. All of which combines to form a multichannel patient experience.



The multichannel patient experience

As new technologies have emerged in virtual healthcare, little effort has been put in converging these technologies. Both telehealth and remote patient monitoring (RPM) have existed for multiple decades, however in the era of smart devices, all of these have evolved into becoming less costly and more user friendly for both provider and patient. In the next five years convergence is expected to occur at a greater level due to the synergies between different virtual health technologies. Early signs of convergence appeared in 2016, where a number of RPM vendors added video as part of their services for chronic disease management. This was due to the shift towards mobile health hubs or consumer grade tablets used as gateway devices. Today, leaders of the industry refer to a multichannel experience that bring nearly all digital health applications together and help the patient or consumer in navigating healthcare.

The multichannel patient experience is divided by three layers of patient engagement; 1) the automated experience, 2) the virtual experience and 3) the personal experience. The automated experience has the purpose of navigating the patient in healthcare by providing timely information, coordinating care, and to some extent providing personalized content through human-to-machine interactions. The automated experience is heavily dependent on artificial intelligence, discussed more indepth in the next slide, and is intended to bring personalized medicine to the masses while eliminating waste, and positioning the patient as a partner.

The virtual experience is a level deeper and more resource intensive, but is required for services that cannot be delivered in an automated fashion. Telehealth and RPM play an important role in the virtual experience, and will gradually become the primary channel between patient and provider. Despite its resource intensiveness compared to automated services, there are still great sources for efficiencies in virtual solutions compared to conventional healthcare by e.g. eliminating unnecessary doctor visits or limiting bed occupancy in hospitals to acute patients only.

Finally, there is the personal patient experience, which is face time with a physician. Physicians and healthcare personnel are in most cases superior in providing patient care. Human resources, or the lack thereof, is an operational challenge in most healthcare sectors, and is the real purpose behind the multichannel patient experience. That is freeing up the most important resource in healthcare, human capital, and making the best use of it.

There were several major developments in 2018 that imply big changes to the conventional model for healthcare. The Amazon-Berkshire-JP Morgan Chase healthcare partnership is set to serve approximately 1 million patient-employees across the three organizations. Atul Gawande, which will be heading this partnership as CEO, is expected to significantly alter the way healthcare is provided and paid for, and the multichannel experience will surely be the architecture of care. In addition to this partnership, Apple announced AC Wellness in 2018, which are health clinics for its employees and their respective family members. Apple is already well invested in healthcare, with health-related hardware and software solutions and is anticipated to rely heavily on technology to support a multichannel patient experience in its clinics.

This tradeshow summary includes key takeaways from all of these topics, from both the presenters and the vendors on the show floor.

The economics of telemedicine

The problem with telehealth today, as noted by Pamela Peele, PhD, University of Pittsburgh Medical Center, is that it is sold as a 'whole loaf of bread instead of by the slice'. The entire cost is placed on the payer – which may involve too many components that do not bring value to the payer or the patient. This is a fundamental issue that needs to be addressed.

What is scaring the Centers for Medicare and Medicaid Services (CMS) and other payers?

- The fundamental economic concept of substitutes and complements. Is telemedicine additive or is it a substitute? What if existing access is not actually adequate for the individual? If that is a question then it is neither a substitute or complement, it is a service that brings up the base level of care.
- If it is a substitute, then many physicians are not on board with the idea that telemedicine is as good as face-to-face consultation.
- UPMC has saved \$150 per visit by using telemedicine, however, payers say that the people using the service would not have done so had it not been so convenient. They did not really need the consult so it is additive.
- Telemedicine is currently sold to the CMS (as other payers follow CMS), however, the economics of the service will shift if and when providers sell directly to patients/consumers.

UPMC Enterprises

UPMC Enterprises is a venture organization within UPMC that invests in companies making tech that UPMC wants to use. One of the companies they have invested in is Vivity (\$17 million).

Vivify provides a mobile, cloud-based platform enabling a pathway to remote care management through personalized care plans, biometric data monitoring, video education and conferencing, and textto-speech configured to the needs of each patient.

Interoperability and reimbursement are still limiting scale. Implementation standards are needed, this is an industry wide problem. For reimbursement, interpreting CMS guidelines can take months of back and forth communication, and this communication may remain ongoing with each provider and payer facing unique negotiations.

New implementations of telemedicine

Addison Care, Electronic Caregiver – Emergency medical technician (EMT) conversations, vitals reading, caregiver interactions, and medication management.

 Powered by Amazon Web Services (AWS), Addison provides health monitoring at home with wireless devices, such as a weight scale, non-contact thermometer, glucose meter, and blood pressure cuff or pulse oximeter. The Addison avatar reminds patients when it is time to check a vital, and can show patients how to use a device, and they connect automatically. Continuous physician support is available, in addition to alerts that signal the first sign of change in gait. Addison has the visibility of the residential environment to assess and give feedback to reduce fall risk and proactively prevent accidents.

TeleDentists – Provides a solution to the more than two million annual patient visits to the ER for oral pain.

The TeleDentists provide diagnosis and prescribe corrective action for dental problems through virtual consultations. Through
these interactions, antibiotics and medication e-scripts can be provided, along with follow-on appointments to see a nearby
dental provider. This service facilitates scheduled dentist visits rather than costly and unnecessary visits to the emergency room
or Urgent Care.

NeuroFlow - Enables remote monitoring and behavioral health integration across the continuum of care, including psychology, primary care, and pain management settings.

 Neuroflow is interoperable with electronic health records and can be automated across consumer devices with customizable templates. The system is designed to keep patients engaged between appointments through remote monitoring and redeemable rewards. Evidence based assessments are provided to inform providers with timely reports and severity scores.

The role of retailers, behavioral economics in telemedicine

Are retailers the future of healthcare?

Of course, according to Keisuke Nakagawa, MD at UC Davis Health. Retail is the missing piece of healthcare. There is an ongoing convergence of healthcare and consumer data that will enable activity such as:

- · Buying a cold medicine for a cold which triggers a free tele-consult, and
- The tele-consult using image recognition video algorithms to analyze items in the residence that may be used in the future to form new behavior assumptions as part of care delivery. This may also be paired with spending patterns.

Merger and acquisition activity between retail and healthcare has been dynamic, including Amazon and PillPack, CVS expanding same day prescription delivery, Amazon Alexa becoming HIPAA compliant, and Apple watch with EKG features to name a few. However, a new regulatory framework is needed. When HIPAA was written, the cloud was not a significant factor in healthcare delivery.



Paul Cohen from One Medical discussed the more sophisticated use of behavioral information. One Medical is a membership-based practice focused on making quality care more accessible and enjoyable, which includes less time in waiting rooms, longer consult times, and simplified/coordinated care. The three key elements that One Medical focuses on when designing tools to navigate their members include:

- Active choice Requiring a choice (that didn't exist before) can increase consideration of choice alternatives.
- Identifiability People do things for other people (vs. groups or nameless entities).
- Consistency We like to maintain our identity, so we try to be consistent with our former and ideal selves.

Recent M&A activity:

- Jan 2018 BayCare and Publix
- Jan 2018 Berkshire, Chase, Amazon – Haven
- March 2018 Humana and Walmart
- June 2018 Humana and Walgreens
- June 2018 Amazon and PillPack
- July 2018 InTouch Health and Rite Aid
- July 2018 Albertsons and Rite Aid
- August 2018 CVS Health
 and Teladoc
- August 2018 Anthem and Walmart
- Sept. 2018 Cigna and Express Scripts
- Dec 2018 Aetna and CVS Health

The ethics and regulations of artificial intelligence

More questions than answers...

The industry still needs to determine if AI is a medical device or a medical service, a simple question that has not been answered. There were more questions than answers from the panel which included Sarvram TerKonda (MD, Mayo Clinic), William Cheshire (MD, Mayo Clinic), and Alexis Gilroy (JD, Jones Day). Among the questions posed:

- When an error occurs who is responsible?
- Is the error from data supplied to the algorithm (a population-based error)?
- Is it possible to really have informed consent?
- What if a patient opts in initially but then wants out? Can their data be removed?

The ATA is working with the Consumer Technology Association (CTA) and the American Medical Association (AMA) on these issues, and the AMA's first policy recommendation states that the AMA will:

- Leverage its ongoing engagement in digital health and other priority areas for improving patient outcomes and physicians' professional satisfaction to help set priorities for health care AI.
- Identify opportunities to integrate the perspective of practicing physicians into the development, design, validation and implementation of health care AI.
- Promote development of thoughtfully designed, high-quality, clinically validated health care AI.
- Encourage education for patients, physicians, medical students, other health care professionals, and health administrators to promote greater understanding of the promise and limitations of health care AI.
- Explore the legal implications of health care AI, such as issues of liability or intellectual property, and advocate for appropriate professional and governmental oversight for safe, effective, and equitable use of and access to health care AI.

AI exhibitors:

- AiTmed Inc. (virtual consults)
- Doxiva (physician virtual asst.)
- Eko (cardiology)
- Eyenuk Inc.(eye screening)
- Intelligent Retinal Imaging
 Systems
- MediOrbis (virtual consults)
- MetaOptima Technology (dermatology)

Investing in telehealth

What's Next?

Investment in digital health appears to be slowing for 2019 as compared to 2018, but the panel discussing investment was uncertain of impact on telehealth-specific investment at this point. The panel consisted of Indu Subaiya (MD, Health 2.0, HIMSS), Jon Gordon (New York-Presbyterian), and (Emma Cartmell, Cartmell LLC).

Key takeaways from the discussion:

- New companies should stay focused on efficacy of their products, and ensure the business model allows for affordable products and services whether B2B or B2C. As such, it may be a good idea to find an angel investor or family investment office where the goal will not be to achieve billion-dollar evaluation which will require high margins and rapid scale.
- New York-Presbyterian is on track to do 500k virtual visits this year. RPM is still in early days and devices tend to be 'clunky', and providers still don't know what to do with all of the data. As an investment, they are looking at virtual reality (to address opioid epidemic) but not sure how it fits into the clinician workflow.
- Cartmell is looking at investing in avatars for elder care, 50% AI and 50% human touch. Humana and Kaiser are among those showing early interest.

From the Mercer National Telemedicine Survey - Changing behavior is hard, and changing healthcare behavior seems especially hard. Most employers with at least 500 employees report that their employees have access to telemedicine services (71%), either through their health plan or through a specialty vendor contracted outside the plan. But in most organizations, employee utilization rates remain frustratingly low at only 7% uptake. To encourage use, higher utilization is associated with lower copays. Among employers reporting utilization rates of 10% or higher, the median copay for telemedicine was \$15. But in the group with below average utilization rates -- 6% or less -- the median copay was \$30. While the incremental price difference is small, consumers know that a possible outcome of the call is being told that an office visit is necessary after all – in which case the telemedicine visit is an additional cost.

The FDA and technology innovation

The FDA's 'New Approach to Digital Health' involves regulation of software as a medical device. This poses challenges, as described by Aaron Josephson of ML Strategies:

- Reviewing software code does not yield any information about safety.
- The impact on patients may be indirect, and difficult to measure.
- Software has rapid innovation cycles as compared to hardware.

As such, the new proposed framework for evaluation involves regulation of the product developer, after which each product from that developer has a streamlined path to market – which may not require any government review at all. Developers are certified based on a culture of quality and excellence principles, and real world performance data will play a more important role.

The streamlined premarket review process involves:

- Understand the product.
 - The FDA works with developer iteratively to understand details of software functions through interactive demonstration.
- Premarket review.
 - Assess analytical performance, clinical performance, safety measures through screen sharing; access to development environment; testing logs

Excellence principles:

- Patient safety
- Product quality
- Clinical responsibility
- Cybersecurity responsibility
- Proactive culture

A risk here is heavy reliance on post market monitoring to identify trouble spots but there is an immature post market data collection and surveillance apparatus.

The FDA and technology innovation – applicability to telemedicine

Applicability to telemedicine (excerpt from the Federal Food, Drug, and Cosmetic Act)

The term device...shall not include a software function that is intended...

- For admin support of a health care facility (claims or billing, appointment scheduling)
- For maintaining or encouraging a health lifestyle
- To serve as electronic patient records
- For transferring, storing, converting formats, or displaying clinical lab tests or other device data and results, findings by a health care professional with respect to such data and results, general information about such findings, and general background information about such lab test or other device, unless such function is intended to interpret or analyze clinical lab test or other device data, results, and findings...
- For supporting or providing recommendations to a health care professional (CDS software)...and...enabling such health care professional to independently review the basis for such recommendation that such software presents...unless the function is intended to acquire, process, or analyze a medical image or a signal from an in vitro diagnostic device or a pattern or signal from a signal acquisition system...

When developing a product with medical device functionality it is important pay attention to what the FDA and Congress are doing to ensure compliance.

Virtual consultations in the United States

In 2017, healthcare services were increasingly provisioned through the use of virtual technologies. Certain technologies gained more traction than others, such as virtual consultations, which is now considered a legitimate channel for various health services. This resulted in nearly 50 million virtual consultations worldwide in 2017 – a number projected to exceed 200 million in 2022. The recent uptake in virtual consultations is mainly driven by the United States market due to the increasing awareness among consumers of such services. Employers and health plans are betting on virtual and actively promoting virtual consultations to their members. In addition, shifts in consumer behavior, such as lower preference for continuity in regards to routine requests, have a better fit to the value proposition of virtual consultations.

In the United States, approximately 23 million virtual consultations were conducted in 2017, which IHS Markit forecasts to reach 105 million in 2022 – growing at a compound annual growth rate (CAGR) of 35.6%. 82% of the consultations were specialty care services, with more than 95% provisioned by a healthcare provider, health network or similar, through white-label solutions from vendors such as American Well, MDLive, Teladoc and more. These vendors also offer direct-to-consumer platforms, however, the platforms are not expected to play a key role in the broader adoption of virtual consultations.

Virtual consultations in the United States cont.

Recently, several big moves were announced in the United States that will increase the use of virtual consultations. The second largest health insurer in the United States, Anthem, announced a collaboration with American Well and Samsung in July 2018, to provide easy access virtual consultations to its members. In similar fashion, CVS Health has teamed up with Teladoc to add virtual services to its MinuteClinics. Also in the first half of 2018, the Veterans Health Administration (VA) finalized 'Anywhere to Anywhere' – a nationwide telehealth program for veterans. More than 330,000 veterans used virtual consultations to connect with a physician in 2017, however, with 'Anywhere to Anywhere' health services are accessed no matter the location of the care provider or the patient. More than one billion doctor visits are conducted annually in the United States alone, and therefore growth opportunities remain significant. In addition, the virtual consultations market has evolved from an emphasis on urgent care services, to covering a wide range of specialty care services.

Virtual care and remote patient monitoring exhibitors:

- A&D Medical
- AMD Global Telemedicine
- American Well
- Care Innovations
- ChoiceMMed America
- CMI Health
- Contec
- Current
- ForaCare
- GlobalMed
- Great Call
- Hifinite
- InTouch Health
- LifeScience Technologies
- MD Live
- MobileHelp
- NeuroFlow

- Safety Labs
- TeleDoc
- The TeleDentists
- Trapollo
- Tyto Care
- Vital Connect
- ViTel Net
- Vivify Health
- Yorktel
- Zipnosis

Continued work needed to achieve scale

The business of telemedicine and telehealth continue to struggle for scale, despite knowledge that these methods of care delivery work. To address the need for achieving widespread adoption, much of the conference proceedings were about identifying value, reducing cost, and understanding a macroeconomic environment where there is no more room in the healthcare dollar for another service. As such, it is increasingly important for the industry to strategically position itself as a substitute for patients lacking access to care, and a complement when access to appropriate care requires remote connectivity. Part of this strategy needs to involve collaboration, engaging the segment of the provider community which still does not believe in the efficacy of tele-care, and part needs to focus on assisting currently engaged providers on interoperability and reimbursement issues, both of which are still limiting scale.

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