Telehealth – Theory, Practice, and Potential

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SOA Spring Health Meeting – June 13, 2017

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- □ Theory and Practice
- Study Review and Plan Considerations
- Regulation



Telehealth – Theory and Practice



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Discussion overview

- What is telehealth?
- What's the theory behind it?
- □ How is this being used in practice?
- Going beyond the *Contingencies* article a deeper look at some cases in developing and developed countries
- Barriers to implementation
- The future



What is telehealth?

World Health Organization (WHO) Definition:

"The delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of health care providers, all in the interests of advancing the health of individuals and their communities."



What's the theory behind it?

Theory is <u>better health</u>, <u>more efficient care</u>, and <u>less expensive care</u>.









The long sought-after silver bullet??

Better Health

- 1. Remote monitoring allows for quicker detection of potential health problems.
- 2. Proactive wellness and biometric screenings
- 3. Faster response in case of issues
- 4. Ability to connect to experts regardless of physical locale.

More Efficient

- Avoids the long wait times of physician offices or emergency rooms
- 2. Electronic relay of information allows for near instantaneous communication
- 3. Care where needed not centralized. No need for commuting costs

Less Expensive

- Telehealth care can be delivered for a fraction of the cost of in-person care at an office or facility
- Keeping people healthier more continuously lessens the chance of major health issues later ("the wellness adage")
- 3. Lost wages during time away from work ¹
- 4. Room & board ¹



But that's just theory – right??

 Jury is out on whether telehealth is THE answer going forward. However...

- Prevalence of electronic communication looks to be a strong harbinger of rapid development and growth into this area; and
- There are many cases of telehealth being put to good use in the world today.
- Right now, the central issue seems to be:
 ACCESS, and the RURAL DIVIDE



How is this being used in practice?





Deeper look at some specific countries

Developing Countries

- India
- China
- Mongolia

Developed Countries

Israel

United States



Developing Countries





Distance Healthcare Advancement (DISHA)

Growth / Hub-and-Spoke Approach



India - General lay of the land

□ A confluence of several factors interacting poorly: ²

- 72% of India's populace live in villages
- Most specialists don't want to practice in rural areas
- 80% of physicians, 75% of dispensaries and 60% of hospitals are in <u>urban</u> areas!
- According to a PwC India consultant: "When it comes to healthcare, India gets divided in two. Urban India has healthcare centers of excellence, while much of rural India has no access to basic healthcare." ²



India - Distance healthcare advancement (DISHA)

- Launched back in 2005
- Mobile Teleclinical Van
- High-quality, low-cost diagnostics
- Low income, rural communities
- □ Three-pronged delivery partnership ³
 - Apollo hospitals doctors for free consultations
 - Electronics Corporation of India supplies satellite dish
 - Indian Space Research Organization puts the satellite in orbit



India - Distance healthcare advancement (DISHA)

- 4,070 patients screened in the first 18 months of the pilot project
- Satisfaction among the villagers was high.
- □ However...
- Connectivity problems
 were encountered from/to the van ⁴



India - Growth / hub-and-spoke approach

- □ Glocal healthcare and CSC eGov agreement: ⁵
 - Will provide video consultations to people living in rural areas
 - Expected to benefit 28% of the population with essentially no access to physicians.
 - Also 70% of rural populace with spotty access to quality medicine.
- □ Hub-and-Spoke approach: ¹
 - Spokes are gateways to access "hub" technology and expertise
 - Read medical images remotely
 - Discuss findings with patients



The Hub-and-Spoke Approach to Healthcare¹

The model, which was primarily developed in rural India, is as affordable as it is effective – and could even serve as a model for industrialized countries.

Better channeling of patients

The network makes it possible to treat many patients close to their homes and prevent excessive journey times, which in turn lowers costs. At the same time, patients who need specialized treatment can be filtered out from a large catchment area. This increases the volume of patients in the main facilities and leads to better utilization of the equipment pool.

Use of expertise

The hub-and-spoke model makes it easier to access expert knowledge from the periphery. One example in industrialized countries is expert telemedicine consultations in pathology and radiology.

One central hospital – many small outreach centers

A well-equipped hospital with specialized departments and doctors provides first-class medicine at an international level. Small clinics in rural areas serve as points of contact for patients who would otherwise be cut off from medical care.

Structures that complement each other

The hub-and-spoke network aims to allocate tasks and focus resources instead of unnecessarily duplicating structures. Less specialized doctors and medical staff can make many diagnoses and provide routine treatment in the outreach centers, thus easing the burden on the hub.

Opportunities for training and specialization

The network's vast reach and the large number of patients allow doctors in training to gain broad experience and also specialize in rare diseases. For their part, staff at the outreach centers benefit from regular training programs.

China

- Issue is partly urban-vs-rural, but also a long-running lack of funding for primary care
- □ If limited primary care, where to go to seek care?
- Hospital
 - (Not the best long-term solution)
- Telehealth is seen as a way to divert care away from the overcrowding and overtaxing of hospitals and their resources.



China

- Growing mobile connectivity and economic growth are making this possible.
- What percent of China's populace access the web through a smartphone?⁶
 - **83**%
- What percent of provincial level hospitals have their own telehealth center?⁷

50%



China - Cloud-based hospital

- □ Things are getting there!
- "Ningbo Cloud Hospital" 8
- Open platform connecting with hospitals, primary healthcare, specialists
- Safe and standardized information system
- Dynamic health record for each citizen in Ningbo
- Cloud Hospital App



China - Cloud-based hospital

- "Cloud Diagnosis Rooms"
- Hypertension
- Diabetes
- Psychological
- General Practitioners





Mongolia

- □ Most sparsely populated country in the world. ⁹
- Here the rural divide is enormous
- Local doctors able to consult with experts in realtime without having to leave the exam room
- Also an online learning platform which includes training materials and current clinical guidelines



Mongolia

- Personal testimony from a mother who has benefited:
- "We are very happy this technology is available in our hospital, as it's something we really needed. ... It's comforting to know we can receive quality care in Altai without having to travel to Ulaanbaatar."⁹





Mongolia



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Developed Countries



Israel

- □ Access is an issue here, as well.
- Israel is developed, but 40% of its 9 million populace is concentrated in a geographical area less than 10% of the country!
- □ Pediatrics ¹⁰
- Remote consultation by pediatric specialists





Israel – Pediatrics

- Goal is after-hours care
- Physicians have protocols concerning emergencies and common conditions
- Able to access electronic medical record, including imaging and previous facility visit history.
- Emphasis is triaging immediate need vs. able to wait until clinic hours



Israel – Pediatrics

High satisfaction (9.8 / 10) and 82% of sampled patients reported a medical improvement in the next day.



Israel – Pediatrics

- Most interesting is a comparison of stress levels of parents in face-to-face emergency room vs. telehealth:
- Findings were that telehealth helps reduce both distress, as well as the need for face-to-face counseling
- □ Why??
 - Phone conferencing: Sense of receiving attention and being understood
 - Video conferencing: Sense that the provider is aware of the patient's presence.



United States

- Mental Health initiatives
- □ Tele-ICUs
- Virtual general practitioner visits



United States - Telepsychiatry

- North Carolina Telepsychiatry Network
 - Adopted January 2014
- Even in a country as developed as the U.S., there is the rural divide and the <u>access</u> issue
- Access to mental health care is the biggest barrier to recovery for many people living in rural North Carolina ¹¹



United States - Telepsychiatry

- Portable cart equipped with monitor, camera and microphone is rolled into patient's bay or room.
- Establish secure videoconferencing link to psychiatric provider site.
- Intake specialist explores patient's situation and discusses with other members
- Psychiatrist then interviews the patient makes recommendations to the referring physician. ¹¹





Barriers to Implementation



Barriers to Implementation

Technology

Competing companies
 Need for high-speed internet connectivity

- System
 - Initial investment / ramp-up time
 - Providers not educated for new technology, or for rapid change



Barriers to Implementation

Culture

Need provider buy-in of effectiveness

■ JAMA Dermatology study and telehealth shortcomings ¹²

Legislation and Regulation

- All of telehealth's current challenges (privacy, security, provider responsibility, transparency, reporting) require re-working of legislation.
- Potentially dealing with multiple state and federal regulatory authorities.







The Future

Continual monitoring

- Potentially identifying medical conditions early, and preventive treatment
- Every hospital/provider may have a person's whole medical history
- Population health management
 - Slowing the spread of diseases such as West Nile
- Public Education
 - Personalized outreach directly to consumer
 - Ability of technology to interact in multiple languages ¹³



References

- "Delivering World-Class Health Care, Affordably"; Harvard Business Review; November 2013
- ^{2.} "Telemedicine takes world-class healthcare to rural India"; *ZDNet*; June 25, 2008.
- 3. *"Unleashing India's Innovation: Toward Sustainable and Inclusive Growth"*; edited by Mark Dutz; World Bank Publications; October 15, 2007
- 4. "Telemedicine in India: Apollo Story"; *Telemedicine and e-Health*; July/August 2009
- 5. "Glocal healthcare & CSC eGov join hands to take Telemedicine to rural India in a big way"; *The Economic Times*; January 28, 2017



References

- 6. "China Bets on Telehealth to Solve Its Healthcare Woes"; Yahoo Finance; 2015.
- 7. Research on China Telemedicine and Online Healthcare Industry, 2015; Chisult Insight Co.; 2015.
- 8. "China's First Cloud Hospital 'Ningbo Cloud Hospital' Founded"; *Neusoft Corporation*; March 13, 2015
- 9. "In remote Mongolia, telemedicine connects pregnant women to faraway care"; United Nations Population Fund; June 19, 2015.
- 10. Waisman, Y. "Telemedicine in Pediatric Emergency Care: An Overview and Description of a Novel Service in Israel"; *Journal of Intensive & Critical Care; 2016*



References

- ^{11.} "Telepsychiatry in North Carolina: Mental Health Care Comes to You"; North Carolina Insight; March 2014
- "Review of telemedicine finds misdiagnoses of skin conditions"; UPI;
 May 17, 2016.
- 13. "Public Health Education for Young Students Aided by Technology"; Journal of Telehealth and Telecare; April 2009.



Telehealth – Study Review and Plan Considerations



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Discussion Outline

Review of Studies

- VHA
 - Audit of The Home Telehealth Program
- Alliance for Connected Care
 - Assessment of the Feasibility and Cost of Replacing In-Person Care with Acute Care Telehealth Services
- RAND
 - Direct-To-Consumer Telehealth May Increase Access To Care But Does Not Decrease Spending
- Plan and Pricing Considerations



Review of Studies



VHA – The Home Telehealth Program

Care to veterans through the use of monitoring devices placed in veterans' homes. Devices measured vital signs (blood pressure, pulse, and blood glucose) and transmitted data to medical staff for monitoring and intervention.

- Low Cost Alternative
- Reduction in IP Admissions (5 per 100)
- Reduction in Bed Days of Care (BDOC)

Class	Average 6-Month Reduction in BDOC
NIC	1.4
ССМ	0.3
HPDP	0.4

NIC – Non-Institutional Care Patients

CCM – Chronic Care Management Patients

HPDP – Health Promotion/Disease Prevention



Alliance for Connected Care

Assessment of the Feasibility and Cost of Replacing In-Person Care with Acute Care Telehealth Services

Study approach included the collection of utilization data and comparison of average cost of telehealth services to the estimated costs of care delivered in other settings

- Average cost of telehealth visit \$40-\$50
- Commercial Savings of \$126 per visit
- Low Induced Utilization

Alternative Site of Care	Distribution of Alternative Care
ER	5.6%
Urgent Care	45.8%
Physician	30.9%
Other	5.4%
Do Nothing	12.3%



RAND

Direct-To-Consumer Telehealth May Increase Access To Care But Does Not Decrease Spending

Study approach included claims and enrollment data from CalPERS Blue Shield of California health maintenance organization plan enrollees

- Average cost of telehealth visit is \$79
- Telehealth visits are less expensive per episode but...
- High Induced Utilization

Alternative Site of Care	Distribution of Alternative Care
ER/Physician	11.8%
Do Nothing	88.2%



Plan and Pricing Considerations



Plan and Pricing Considerations

Benefit design

- Copays
 - Higher copays may be warranted despite lower allowed costs
- Careful consideration to prevent induced utilization

Services to include/exclude

- Acute, self-limiting diseases may not be best candidate
- May have greater value in care management (diabetes, chronic care management)



Plan and Pricing Considerations

Member Education

- Members
 - Understand new benefits and optimal situations
 - Consider targeting certain populations

Provider Education

- Providers
 - Engage to promote benefits
 - Aid in identify targeted populations





VHA

https://www.va.gov/oig/pubs/VAOIG-13-00716-101.pdf

Alliance for Connected Care

http://www.connectwithcare.org/studies-reports/

RAND

J. Scott Ashwood, Ateev Mehrotra, David Cowling and Lori Uscher-Pines Direct-To-Consumer Telehealth May Increase Access To Care But Does Not Decrease Spending *Health Affairs* 36, no.3 (2017):485-491 doi: 10.1377/hlthaff.2016.1130



Telehealth – Regulation



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Presentation Outline

- Review of Federal and State activity, the CHRONIC Care Act, ASOP 8, and applicable law
- □ State legislative process In GA overview
- State rulemaking, bulletins, directives
- Process for crafting NAIC Model Regulations

Summary



Active Federal Legislation on Telehealth

HR1027 Hallways to Health-expanding demonstration program to provide and expand school based care HR 1084 Today's American Dream

- HR 1184 FAST Act of 2017Expand telehealth access to stroke services
- HR 1152 Care Veterans Deserve Expand telemedicine at the VA
- HR 1255 CCIS1870ARE a CHBONEGIC and Act of 2017 Rayment palicies the insepted and a general of
- HR 1369 Ind chronial disease in federate and the second state of 201-Improving healthcare including telemedicine
- HR 2123 VETs act-Allows professionals to treat VA patients in any state and facility
- HR 2291 Home based Telemonitoring for CHF and COPD
- HR 766 Medicare Pilot Program -telehealth in public housing
- HR 800 New Deal Rural Broadband Rural Broadband Initiatives
- S 475 CCM- CARE act-Telehealth infrastructure for remote and underserved areas
- S 787 CMMI Telehealth Innovation in including Telehealth in Medicare reform models
- S 925 VETs act Allows professionals to treat VA patients in any state and facility
- S 1016 CONNECT Act-Expand Medicare access to telehealth
- S 356 Hallways to Health- expanding demonstration program to provide and expand school based care
- S 431 FAST Act of 2017 Expand telehealth access to stroke services



Current Telehealth Provisions by State







Legislative Proposals Relating to Telehealth Broadening

Clarifying

/Expanding

Source: Center for Connected Health Policy

- As of May 2017, most states have some form of telehealth legislation.
- Some states have extensive proposals to do one or more of the following
 - develop infrastructure,
 - fund task-forces and oversight groups,
 - expand covered populations,
 - expand the list of eligible providers,
 - adopt payment methods,
 - increase participation.
- Other states are refining their telehealth regulations to include more people or clarify existing regulations, including such topics as provider credentialing, telehealth definitions, reimbursement rules.

States colored by status of telehealth provisions

Comprehensive Customary Narrow

Minimal or No Active Legislation







The CHRONIC Care Act (S.870)

- Provides more home care options by extending Medicare's Independence at Home program
- Enhances team-based care by making changes to accountable care organizations
- Allows greater flexibility for Medicare and Medicare Advantage plans to pay for telemedicine services, including stroke care



The CHRONIC Care Act (S.870)

- Allows Medicare to pay for remote stroke diagnosis and treatment
- Accountable care organizations to provide telemedicine
- Medicare Advantage plans to offer telemedicine as a supplemental benefit
- Pays for home dialysis treatment at home through telemedicine



The CHRONIC Care Act (S.870)

Other Comments

- The measure would allow patients to be assigned to ACOs at the beginning of a year and let providers pay patients \$20 to receive certain primary care services with them.
- The four telemedicine-related sections of the bill (previous slide) would increase Medicare spending by \$150 million over a decade, according to a preliminary CBO estimate.
- In the past, high CBO scores prevented similar efforts from advancing.



ASOP 8 - Regulatory Filings for Health

3.3 Applicable Law

When an actuary prepares or reviews a regulatory filing, the actuary should have knowledge and understanding of applicable law. If the actuary believes applicable law is silent or ambiguous on a relevant issue, the actuary should consider obtaining guidance from an appropriate expert. In this situation, the actuary should describe how the relevant issue was addressed when preparing or reviewing the filing.



That's a LOT of legislation!!

When might we expect to see any of this come to fruition??





State Legislative Work – Example

- This is meant purely as a high-level overview of how the legislative process works in one State (Georgia).
- While not specific to telehealth legislation, it may give some ideas of the hurdles and timeframes we might be looking at for telehealth legislation.



State Legislature in GA

- Georgia has one of the largest state legislatures in the nation
- House (180) and Senate (56), 2-year terms
- Standing/Study/Conference/Joint Committees
- Convenes Mid-January for 40 working days
- Crossover day End of February
- Sine Die adjournment Mid-March
- Link- all state schedules: <u>www.stateside.com</u>



Georgia Senate Process



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Office of the Insurance Commissioner - Georgia

- Commissioner Ralph Hudgens was re-elected to a second term in 11/2014
- 4-year terms, mid-term elections
- Bulletins (general information), Directives (industry dos and don'ts), Notice of hearings posted – subscribe to get email alerts

□ <u>www.oci.ga.gov</u>



General Insurance Regulation - GA

- NAIC model regulations might be adopted by Commissioner, if having a basis in state law, and inform legislature
- NAIC model laws OCI may recommend legislature consider and pass
- Commissioner might promulgate rules to implement a law, depending on what the law specifically allows
- Notices given in advance; public hearings held
- Secretary of State effectuates and is rulebook keeper



NAIC Process

- Subcommittees, Task Forces, Committees
- Meetings Summer: August 6-9, 2017
- Conference call calendar regulator only or open calls
- http://Naic.org
- State insurance regulators establish standards and best practices, conduct peer review, and coordinate regulatory oversight.
- Model laws, Model regulations, Model Bulletins



NAIC Model Law Development



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NAIC Model Laws







Model Regulation Development Illustrative Example: Cancer Valuation Table

- Joint AAA/SOA Cancer Claims Cost Table committee collected data, studied, submitted recommendations (took several years)
- NAIC Cancer Claims Cost Table (B) Subgroup reviewed and recommended HATF accept
- □ NAIC Health Actuarial Task Force vote to accept
- NAIC Health Insurance and Managed Care (B) Committee accept
- NAIC Executive Committee (EX)



Questions and Answers

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