The Power of Telemedicine (remote patient monitoring)

*a Triple Aim based tool in medicine*

Andrew R Watson, MD MLitt
Vice-President, UPMC International
Division of Colorectal Surgery
President-Elect, American Telemedicine Association
Colorectal surgery
“The Precedent”
“The Precedent”

endpoints

video

internet
A “routine” for physicians
Disruptive Innovation Clay Christenson

One of the most consistent patterns in business is the failure of leading companies to stay at the top of their industries when technologies or markets change. HBR 1995 Jan – Feb Issue
Current transformation pressure transcends medicine

• Economist April 2017: “In February of this year, 29% of people said they or a family member had struggled to pay a medical bill.”

• Don Berwick “Escape fire” 2012: “Can we please stop and make sense of the situation and think about the situation and try to get our way out of it.”
Current transformation pressure transcends medicine

- Health Affairs May 2017: “Three-Year Impacts Of The Affordable Care Act: Improved Medical Care And Health Among Low-Income Adults.”

- NEJM April 2017: “The CBO report on the AHCA, which projected that it would increase the uninsured population by 24 million, was devastating.”
Consumer Electronics Market

Google
Apple
Microsoft
Verizon

Are...
Wirelessly Connecting
Training
Speech enabling
Video linking
Analyzing

OUR VERY PATIENTS
Origins of “Tele-” medicine

Wirelessly Connecting
Training
Speech enabling
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Analyzing
OUR VERY PATIENTS

Evolution

Consumer Electronics Market
Healthcare

2001
Time
a strange drive to work July 2017
It is not about us - the question is: Can we keep up with the patients?
Focus on what the patient wants
Starbucks in Presbyterian
So – a tripartite collision
a “tele” quantum leap

• Consumer electronics
• Patient expectations
• Healthcare transformation
Telemedicine
Three Telehealth Types

- **Synchronous to consumer** (Epic / Vidyo AmWell)
- **Asynchronous to consumer** (remote patient monitoring)
- **Traditional** (live, rural clinics, rounding, emergent)
Telehealth Types

- **Traditional** (live, rural clinics, rounding, emergent)
- **Synchronous** to consumer (Epic / Vidyo AmWell)
- **Asynchronous** to consumer (remote patient monitoring)
First type - car
In a Rural Hospital
A Routine Blended Clinic
eICU at Avera (South Dakota)
Avera eCARE’s Virtual Health System: Transforming Healthcare Delivery

- 235+ Employees
- 176 Hospitals
- 84 Clinics
- 67 Senior Care Communities
- 18 I.H.S Facilities
- 9 Schools
- 4 Correctional Facilities

Serves 13% of Critical Access Hospitals (170/1332)

13 States

Sioux Falls, SD
Our mission is to make a positive impact in the lives and health of persons and communities by providing quality services guided by Christian values.

31 Hospitals
21 Nursing Homes
2,000,000 Outpatient & Clinic Visits
110,000 Home Health Visits
1,000,000 People Covered
2 Health Plans
Second type - phone
AmWell / EpicVidyo

Experience the most convenient way to see a doctor.
Physicians are Consumers Too
Live synchronous video - 2 key aspects

• **Connect** with patients
  – Scheduling
  – HIPAA compliant
  – Waiting room
  – Mobile device based
    (both MD and patient)

• ”**Find a doc”** **(uber)**
  – Peer to peer referrals
  – Load networks of physicians
  – Availability easily changed
Third type — radar — remote patient monitoring

Survey questions
(post-acute, research)

Educational videos
(PEC, pre-surgical clinics, new stoma)

Help button
(I need a call back)

Entered data
(pain, weight, finger stick, BP....)
Remote patient monitoring

what the patient sees

Asynchronous at home

Tablet
Peripherals

Tablet
Only

BYOD
Patient Enters

Custom-Tailored for Each Patient
Data from the front lines of medicine

Data from home to your EHR

Condition Specific
- Over 350 educational videos
- Premium 3D content
- In 18 different languages
- Improves self-care and outcomes
The radar. So.....?

• Can I SMS each post-discharge patient daily for 5 days to prevent readmissions?
• Can I ping my high-risk patients weekly to check their status?
• Can we push research questions to patients?
• Can we push pre-op videos / PEC education?
Telehealth Types

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+ Telementoring
# Business and operational models

<table>
<thead>
<tr>
<th></th>
<th>Live video</th>
<th>Direct to Consumer</th>
<th>Remote patient monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>First launched</td>
<td>1990</td>
<td>2015</td>
<td>now</td>
</tr>
<tr>
<td>Theme</td>
<td>Digitize what we do</td>
<td>Mobile access</td>
<td>Information from home</td>
</tr>
<tr>
<td>Technology</td>
<td>Expensive, installed, peripherals for exam, in hospitals / clinics</td>
<td>Mobile phone, tablet, PC, at home</td>
<td>Tablet or cell phone, +/- peripherals for data</td>
</tr>
<tr>
<td>Patient experience</td>
<td>Live video – drive to local facility</td>
<td>Live video – at home / your phone</td>
<td>Asynchronous – home / your phone or tablet</td>
</tr>
<tr>
<td>Clinical application</td>
<td>Replace MD driving, expand clinic geography, HCAPS</td>
<td>See patients at home, less post-ops, 2\textsuperscript{nd} opinions</td>
<td>“Doppler” home radar, post-acute, research, quality</td>
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</tbody>
</table>
State of Telehealth

E. Ray Dorsey, M.D., M.B.A., and Eric J. Topol, M.D.

Telehealth is the provision of health care remotely by means of a variety of telecommunication tools, including telephones, smartphones, and mobile wireless devices, with or without a video connection. Telehealth is growing rapidly and has the potential to transform the delivery of health care for millions of persons. Although several reviews have examined the historical use and effects of telehealth, few articles have characterized its current status. Here we examine the trends of telehealth, its limitations, and the possibilities for future adoption.

Current Trends

Three trends, all linked, are currently shaping telehealth. The first is the transformation of the application of telehealth from increasing access to health care to providing convenience and eventually reducing cost. The second is the expansion of tele-
An Amazon for telehealth? American Well unveils new doc marketplace

The change is a sign the industry is maturing, experts say

AM - May 18, 2016

The healthcare company American Well is partnering with the specialty clinic and Nemours Children’s Health System to let patients choose which doctors they see virtually.

American Well offers telehealth services directly and also white-label telehealth services. For instance, its LiveHealth Online service is powered by American

End users use telehealth services, they typically don’t

June 2016
Integrated, secure provincial network
- Clinical events: 712,298
- Clinical home visits: 21,428
- Learning events: 21,317

One-stop shop for products and services
- OTN Hub users: 26,125
- Physician OTN Hub users: 8,759
- Active eConsult referrers: 3,325

Focused on patients and caregivers
- COPD/CHF patients enrolled in in-home monitoring: 3,894
- Hospital visits avoided by patients enrolled in in-home monitoring: 3,248
- Est. annual savings from NHTG diversion: $73M
Mercy Virtual
ARW Personal Experience

- Total telemed visits – 499
  - Bedford 202
  - Telerounding to MUH 175
  - Monroeville 75
- From
  - USX 134
  - Scaife 54
  - DDC 42
  - Monroeville 16
- Diagnoses
  - 115 Crohn’s
  - 51 Diverticulitis
  - 29 Cancer
  - 22 UC
- 14 different technologies
- 93% satisfaction
- Driving – patients / me
A Diverse and Fast-Growing Eco-System

American Well – Live mobile video

>30 payers
>40 Health Systems
>1600 Employers
>3M DTC Members
Remote Patient Monitoring

CHF - 929
AIC - 72
TTS - 92
IBD - 8

1101 Total Patients

Total Alerts through June 2017

- Red Alerts: 27155, 28%
- Yellow Alerts: 6777, 72%
- Total Alerts: 96,926

FY17 Enrollment Growth

- 1,101 patients
- 929 Med Recs
- 46,739 Phone Calls
- 96,926 Alerts managed
- 1,046 Video calls
- 505,210 Survey questions
Only when the tide goes out do you discover who has been swimming naked.

Warren Buffett
WG Watson, MD
World War 2 - 1943 – South Pacific

AR Watson MD
November 4, 2015 – Pittsburgh PA
Clinical Continuum

telemedicine value

- Live
- Mobile
- Remote Monitoring

Referrals  Inpatient  Post-acute  Long-term
Research  Education

UPMC LIFE CHANGING MEDICINE