

ARIZONA
TELEMEDICINE
PROGRAM



Telemedicine Applications (Part 2): “Advanced” Applications

Ronald S. Weinstein, MD
Director, Arizona Telemedicine Program

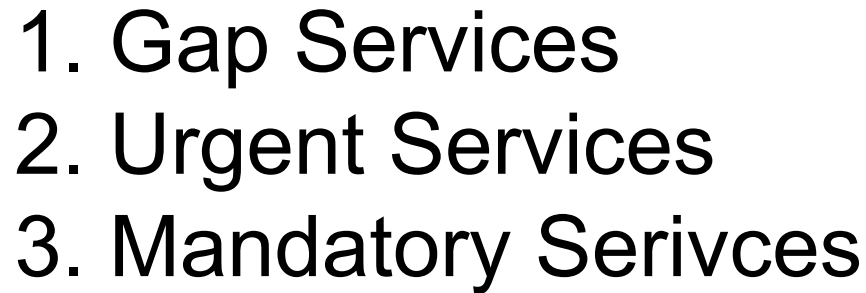
Lecture #2



**Specialty Services
Telemedicine
(Direct-to-Hospital)**



Telemedicine & Telehealth Services

- 
1. Gap Services
 2. Urgent Services
 3. Mandatory Services

Specialty Services
Telemedicine

4. Mobile Telehealth
5. Direct-to-Consumer Telehealth
6. Cloud Computing Applications

Telemedicine & Telehealth Services

1. Gap Services
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<https://ihealthlabs.com/wireless-scales/ihealth-core/>

Images intended as examples of technology and not as an endorsement of companies or products.

Mobile Telehealth

TELE-HOME HEALTH CARE:

‘Care Beyond Walls and Wires’ Enhances Life for Patients with Congestive Heart Failure



Case Study

More than 5 million people in the U.S. suffer from congestive heart failure (CHF), a Disease Control and Prevention (CDC). The annual cost is estimated at more than \$10 billion in medications, and lost earnings, the CDC says. Northern Arizona Healthcare's "Care Beyond Walls and Wires" can improve CHF patients' health and reduce health care costs.

Woody Smith and his daughter, Rita Yazzie, used to drive as often as twice a month from their home on the Navajo Reservation to Flagstaff Medical Center, nearly two hours away. Mr. Smith is living with congestive heart failure, with symptoms so severe he required frequent hospitalizations.

But Mr. Smith can now stay at home for months without having to go to the hospital. His condition has resulted from congestive heart failure, a condition called Care Beyond Walls and Wires, a telemedicine-enabled program that helps improve the health of patients with congestive heart failure.

The program allows for room visits and readmissions, a stay for those who are discharged.

"It's phenomenal," says a registered nurse for Flagstaff-based Northern Arizona Healthcare, which runs the Walls and Wires program at Flagstaff Medical Center.

Ms. Yazzie says the program "is the best thing for my dad. It's saved me two hospital readmissions and the program more than paid for itself."

And at 90, Mr. Smith has been able to return to his favorite activity: riding his horse.

Care Beyond Walls and Wires provides patients with a backpack containing the equipment they need to check their blood pressure, measure their oxygen level, and check their weight daily; the latter because patients with CHF can gain and drop weight suddenly. The data are automatically

transferred to a smart phone that transmits the information to Northern Arizona Healthcare's care coordination office, which provides the smart phone, monitoring equipment and backpack to every patient enrolled in Care Beyond Walls and Wires.

Some of the program's patients have no electricity at home, so they also are given

The San Diego telecommunications company Qualcomm was chosen to lead the project, with Maryland-based Zephyr Technology and Verizon providing software, smart phones and remote-monitoring hardware.

Northern Arizona Healthcare agreed to conduct a pilot project involving 50 patients. The project got under way in

"Care Beyond Walls and Wires is the best thing ever for me, and the best thing for my dad."

Rita Yazzie

the study if you lived in a rural area. Ms. Yazzie could live in Supai (in Navajo Canyon) or on the reservation. Our patients are Hispanic, and white, and in their early 90s."

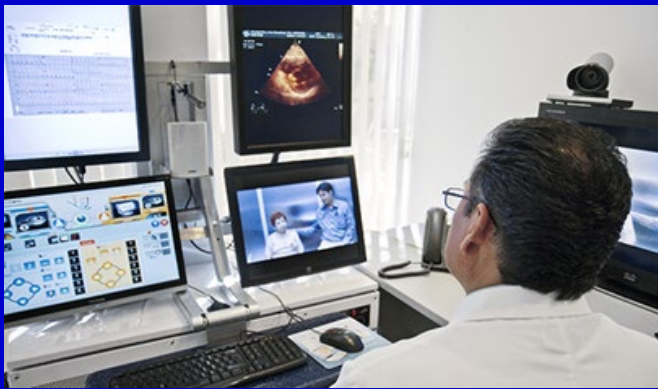
Care Beyond Walls and Wires ended on November 1, 2010. Northern Arizona Healthcare is continuing the program.

The program cost around \$650,000, Ms. Sorenson says, including phone charges.

"With the investment," she says, "patients benefiting, and it penalizes hospitals for readmissions, including those who are readmitted and discharged."

"It's a tremendous patient benefit," she says. "Patients like the feeling that they have more control over their health," Ms. Sorenson says. "We couldn't have asked for anything more. It's a global win."

perspective, the idea for Care Beyond Walls and Wires originated with the National Institutes of Health Office of Public and Private Partnerships, which was looking for better ways to monitor patients with CHF who live in rural areas. The goal was to provide better care while keeping the patients out of the hospital, thus reducing health-care costs.



**Direct-to-Consumer
Telemedicine**

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ARIZONA TELEMEDICINE PROGRAM



TMC NOW

TALK TO A DOCTOR NOW

Talk to a doctor anytime, anywhere, your request to be

Prescription treatment, medication and back in 30 minutes

A network of doctors that can treat every member of the family

Access care anywhere, any place, any time. The TMC Now app gives you 24/7 access to physicians that are licensed to practice in Arizona through the convenience of phone, video or mobile app visits. It's an affordable option for quality medical care.

Talk to a doctor for only \$49. Use promo code **STAR10** for 10% OFF your first visit. Expires 2/28/19. One code per person.

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Tucson Daily Star January 6, 2019



Access care anywhere, any place, any time. The TMC Now app gives you 24/7 access to physicians that are licensed to practice in Arizona through the convenience of phone, video or mobile app visits. It's an affordable option for quality medical care.

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GET THE CARE YOU NEED

Our doctors can treat many medical conditions, including:

- Cold and flu symptoms
- Allergies
- Pink eye
- Ear infections
- Sinus problems
- Skin problems
- ... and more



TMC NOW DOWNLOAD THE APP FREE TODAY!

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- **GET GREAT CARE YOU NEED**
- Cold & flu symptoms
- Allergies
- Pink eye
- Ear infections
- Respiratory infection
- Sinus problems
- Skin problems
- ... and more

Tucson Daily Star

February 24, 2019



Talk to a doctor
anytime, anywhere
you happen to be



Prompt treatment,
median call back in
10 minutes

A network of doctors
that can treat every
member of the family


TALK TO A DOCTOR NOW

Access care anywhere, any place, any time.
The TMC Now app gives you 24/7 access to physicians that are licensed to practice in Arizona through the convenience of phone, video or mobile app visits. It's an affordable option for quality medical care.


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Use promo code **FESTIVAL10** for **10% OFF** your first visit.
Expires 3/31/19. One code per person.



tmcaz.com/tmcnow



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FREE TODAY!



Tucson Medical Center

GET THE CARE YOU NEED

Our doctors can treat many medical conditions, including:

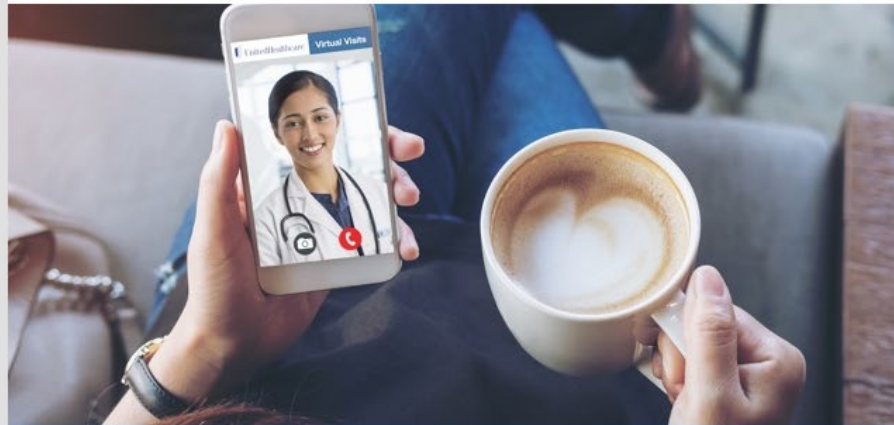
- Cold and flu symptoms
- Allergies
- Pink eye
- Ear infection
- Respiratory infection
- Sinus problems
- Skin problems
- ...and more.

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Register for Virtual Visits now to save time later.



See a doctor whenever, wherever.

Get registered for Virtual Visits now, so you're ready for cold and flu season — and can see the doctor without having to leave home.

[Register Now](#)

Start feeling better faster.

A Virtual Visit lets you see and talk to a doctor on your mobile device,* tablet or computer. The doctor can give you a diagnosis and even write a prescription** if needed. No appointment necessary — it's available 24/7. And, with your UnitedHealthcare plan, your cost is \$50*** or less.

Direct-to-Consumer Telehealth

United HealthCare Virtual Visits

<https://www.youtube.com/watch?v=gnVmHZRSOnQ>

Direct-to-Consumer Telemedicine

American Well

<https://www.youtube.com/watch?v=sBryMAxi5tE>

Market Differentiation

Staffing Models

- Bronze – AI-driven messaging, Board certified MDs
- Silver – MDs, Nurse practitioners, PAs
- Gold – Elite MDs (graduates of top-50 US medical schools)

Direct-to-Consumer

Bronze (\$19-\$49)

- Staffing – AI-driven, board certified MDs
- Mode – “*In-app* messaging”
- Target - student health services
- Technology - smart phones
- *Example - 98point6, Inc.*
- Tucson – UA Student Health Services

TELEMEDICINE SERVICES

In app messaging

98point6

Direct-to-Consumer

- Bronze (\$19-\$49)

Silver (\$49-69)

- Staffing – MDs, nurse practitioners, PAs
- Mode – video conferencing
- Target: primary care
- *Examples- TelaDoc, Amwell, Circle Medical*
- Arizona > Tucson Medical Center, Northwest
>UA's State-Sponsored
Medical Plans

Telemedicine now available nationwide. Get preventive care, COVID-19 assess



Circle Medical

A UCSF HEALTH AFFILIATE

Doctors & Providers

Locati

Primary care doctors over video

Book video visit

Next appointment: Today at 06:00 pm

- 27 States
- 67% of the US Population

In-network with

Anthem 

aetna[®]

blue  of california

 Cigna

 Health Net[®]

 UnitedHealthcare[®]

What is primary care via telemedicine?

Establish an ongoing relationship with a primary care provider for your



Circle Medicine
UCSF HEALTH AFFILIATE

Staffing Model

- Medical Doctors
- Nurse Practitioners
- Physicians Assistants



Dr. Tom Ronay

[Play video](#)

Board Certified, Family Medicine, 9 years of experience



Caitlin Swift, FNP-BC

Family Medicine, 3 years of experience



Jennifer Herrera, PA-C

Family Medicine, 6 years of experience

“White Boarding”



Wholesale Telemedicine

“Telemedicine as a Commodity”

Direct-to-Consumer

- Bronze (\$19-\$49)

- Silver (\$49-69)

- Gold (\$75-\$99)

- Staffing – Elite MDs (top 50 medical schools)

- Target -- Preferred Patients

- **PlushCare**

Care for you, and the ones you love most.



High Quality

Our highly-skilled doctors are trained at the top 50 U.S. medical schools with an average of 15 years of experience. Our

doctors give you and your entire family the peace of mind you should expect from your healthcare provider.

[Our Doctors](#)

Market Differentiation

Staffing Models

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Cloud Computing Applications

(Zoom.com)

- **ECHO Programs^{*}**
- **Disease-Specific Support Groups**

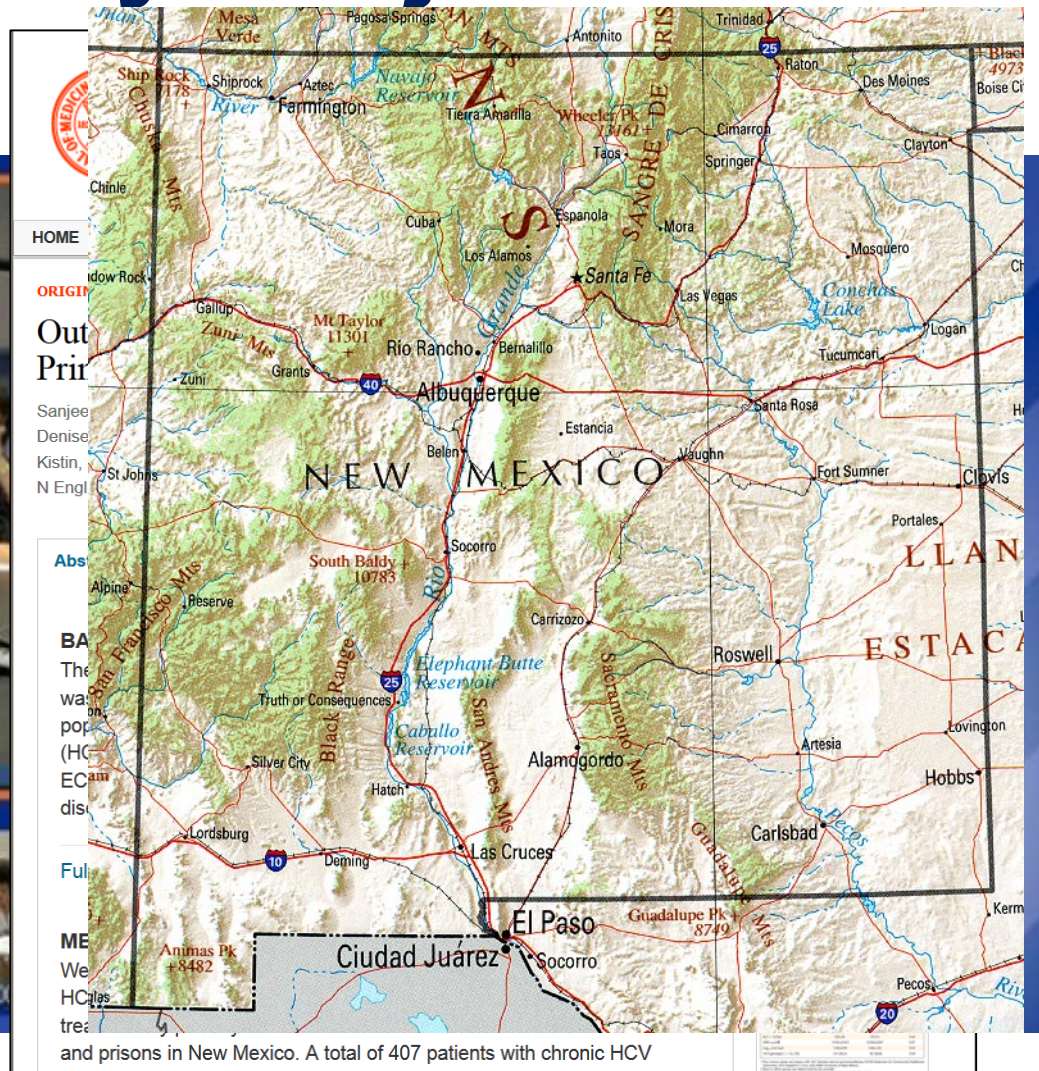
^{*} *Extension of Community Healthcare Outcomes*



Project ECHO Programs

(Extension for Community Healthcare Outcomes)

Why Project ECHO?



121,697
square
miles

ECHO Hubs and Superhubs: United States



ECHO TeleRheumatology Clinic



ECHO TeleRheumatology Clinic



Physicians in Bisbee, AZ

Attending from a rural hospital conference room



Cloud Computing Applications

(Zoom.com)

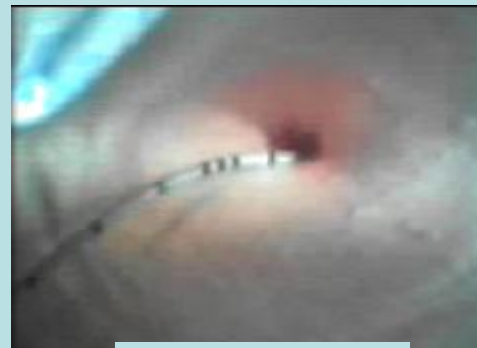
- **ECHO Programs^{*}**
- **Disease-Specific Support Groups**

^{*} *Extension of Community Healthcare Outcomes*

Home Health - Ostomy Care



Colostomy



Urostomy



PCORI Programs

(Patient-Centered Outcomes Research Institute)

EXAMPLE

“Ostomy Telehealth for Cancer Survivors: A Program of Collaborative Research”

Robert Krouse, M.D., FACS, Principal Investigator

In-Person Model



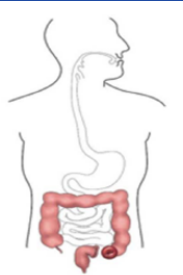
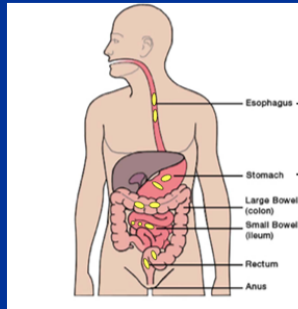
Telehealth Model



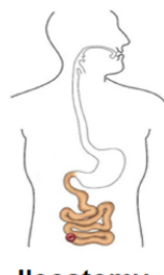
- Nurse-educators
- “PCORI Peers”
- “TeleHealth” Engineers

Ostomy Surgery

Ostomy Surgery Before & After

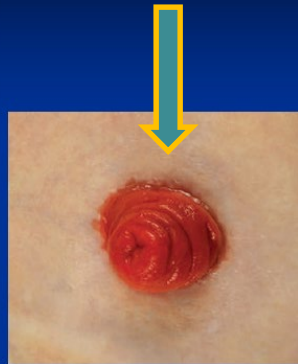


Colostomy

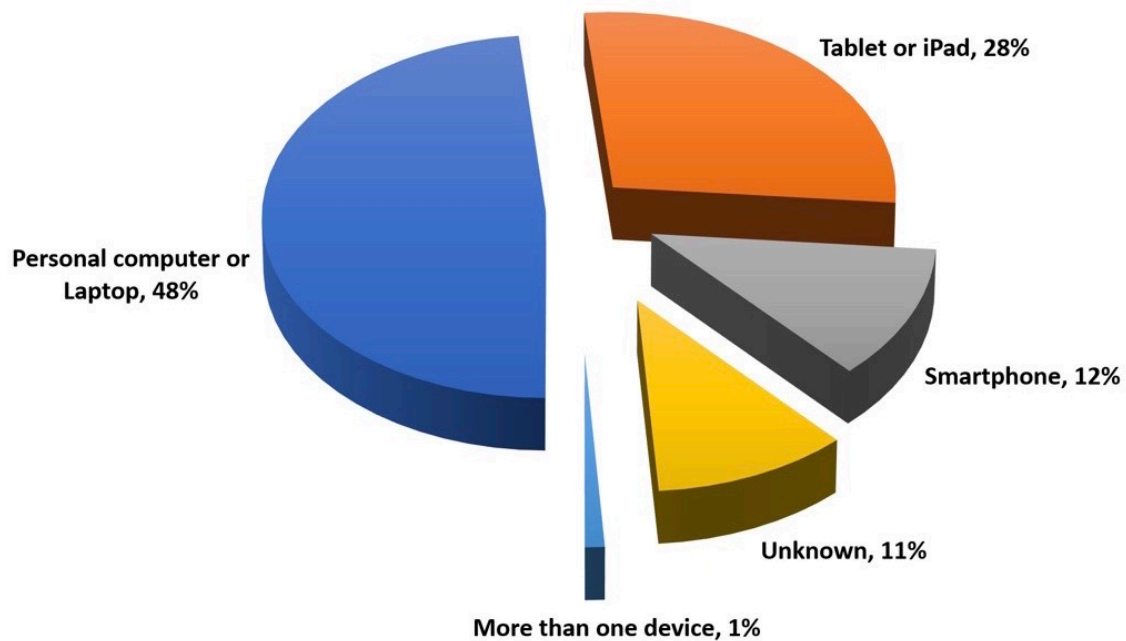


Ileostomy

Healthy versus Unhealthy Skin



Patient Video Devices



Krouse et al, *in preparation* 2020

Ostomate Patient at Home

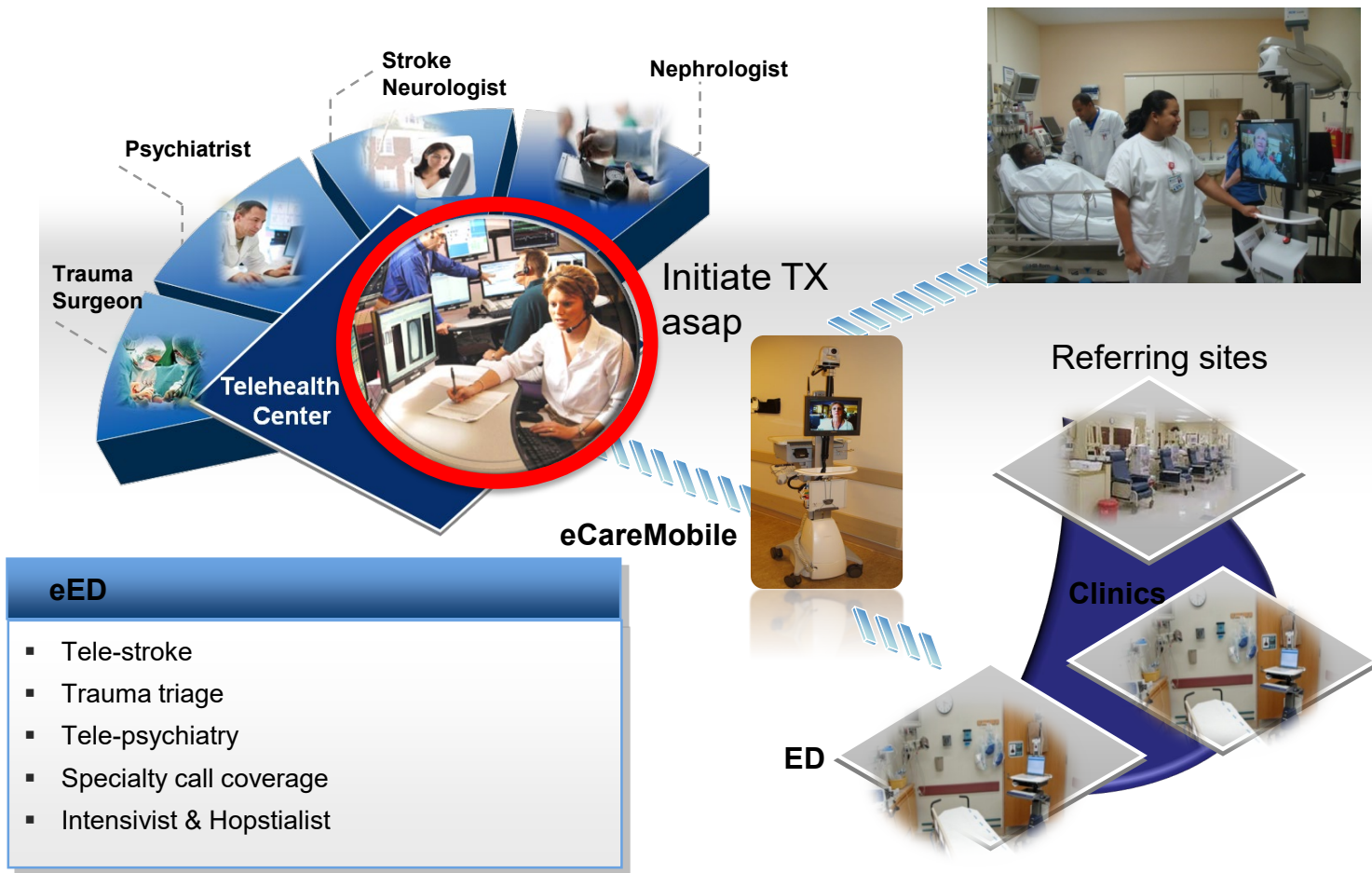


Service Providers

1. Home-based

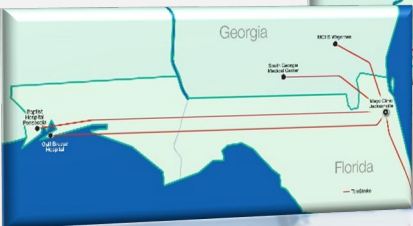
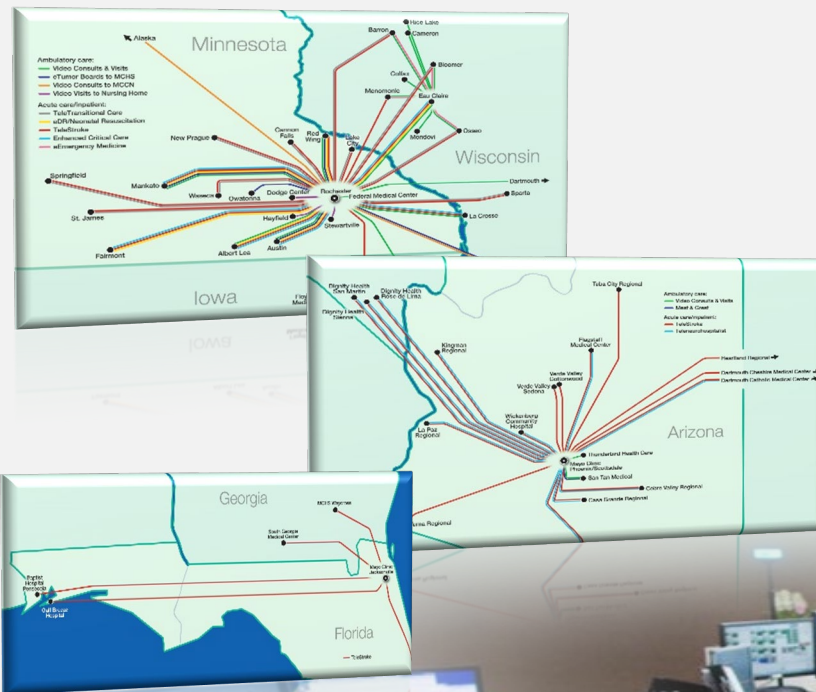
2. Virtual medical centers

-- Emergency Medicine Telehealth Center --



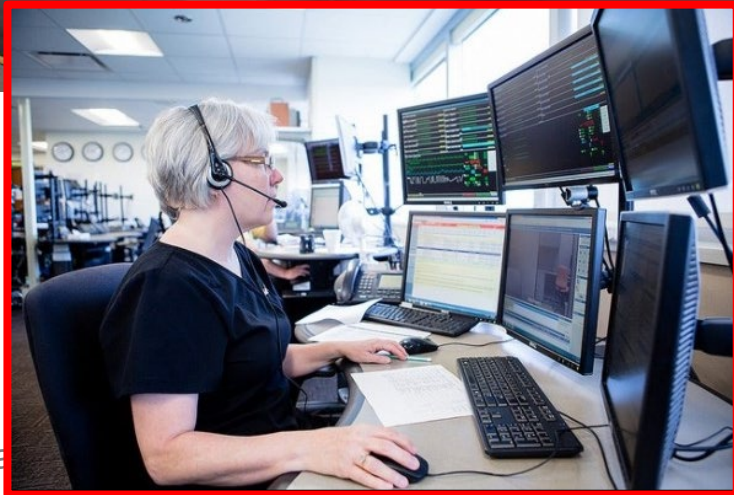
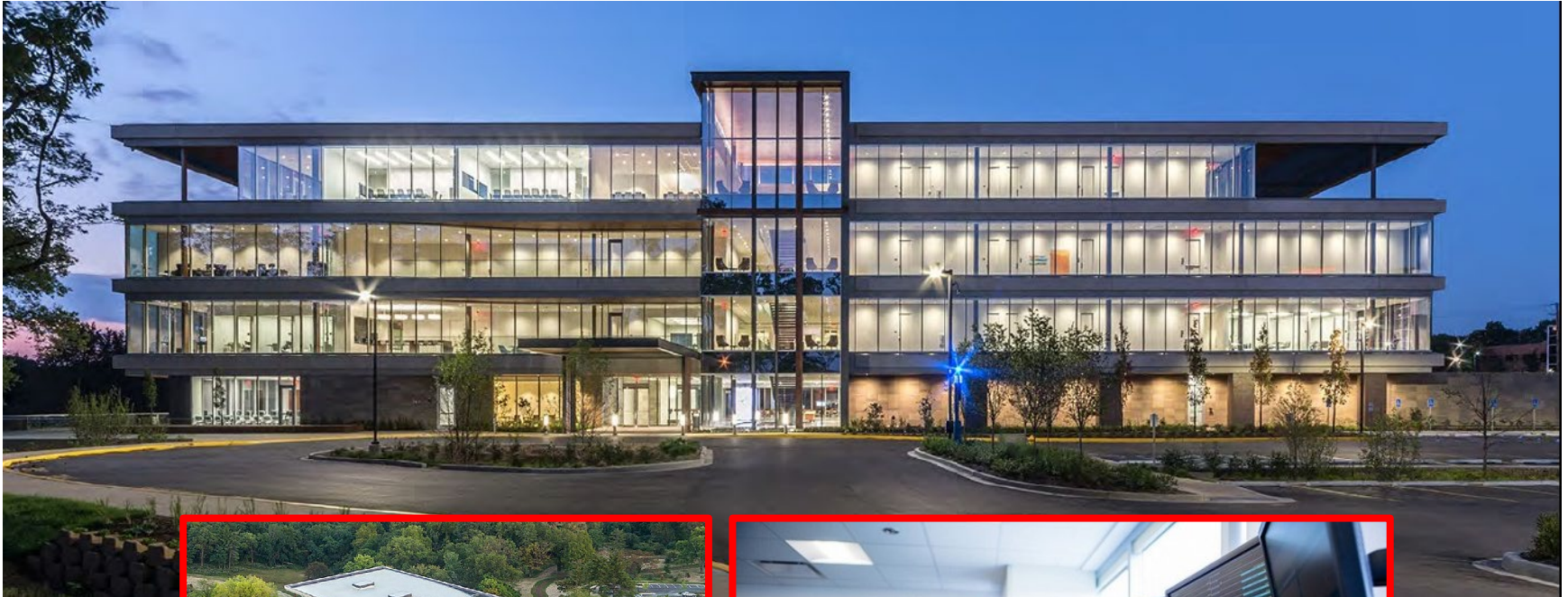
Mayo Acute Care Telemedicine

- 60 originating sites
- Command & Control Center
- ~3000 activations per year
- Tele Stroke
- Tele Emergency Medicine
- Tele Neonatology
- Tele Behavioral Health



Mercy Virtual Hospital

Chester, MO - 2017



Mercy Virtual



Looking Ahead

**The
New York
Times**

Telemedicine Arrives in the U.K.: '10 Years of Change in One Week'

With the coronavirus pandemic turning doctors' offices into no-go zones, family physicians are now doing many of their consultations online or by telephone.

COVID-19



Did April 20, 2020

Coronavirus ~~Should Finally~~ Smash the Barriers to Telemedicine

American physicians, insurers and regulators are pushing the rapid expansion of technologies once confined to optimistic press releases.

By [Virginia Postrel](#)
April 10, 2020, 6:00 AM EDT

1968-2020 -- 52 Years



COVID-19

BloombergOpinion

● Business ● Finance ● Economics ● Markets ● Politics & Policy
● Technology & Ideas

A thing of the past? Photographer: Andrew Harrer/Bloomberg

Copy Link

More Than Half of Kaiser Permanente's Patient Visits Are Done Virtually

by Kia Kokalitcheva @imkialikethecar OCTOBER 6, 2016, 7:15 PM EDT

Last year, patients and doctors interacted more than 110 million times in total.

“For the first time, last year, we had over 110 million interactions between our physicians and our members,” said Tyson, adding that 52% of them were done via smartphone, videoconferencing, kiosks, and other technology tools.

<http://fortune.com/2016/10/06/kaiser-permanente-virtual-doctor-visits/>

17 million TM cases in 2017 (*ATA estimate*)

39 million TM cases in 2020 (*January 2020 est.*)

250 million TM cases in 2030 (*March 2020 est.*)

Revised - ? 1 billion TM cases in 2020 (*April 2020 est*)*

July/August “AARP Bulletin”*

The background of the slide is a photograph of a desert landscape at sunset. The sky is filled with soft, wispy clouds in shades of orange, yellow, and blue. The sun is low on the horizon, creating a bright glow. In the foreground, the dark silhouettes of saguaro cacti and other desert vegetation are visible against the bright sky.

Thank you!

Ronald S. Weinstein, M.D.
rweinstein@telemedicine.Arizona.edu