

Innovative Telemedicine & Telehealth Services for the 21st Century

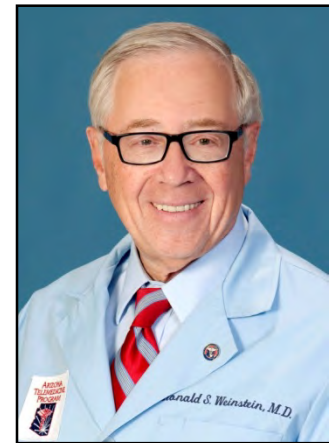
Ronald S. Weinstein, MD, FCAP, FATA

Director, Arizona Telemedicine Program

Professor, Colleges of Medicine, Pharmacy
and Public Health

The University of Arizona

Tucson, Arizona



Massachusetts General Hospital- Logan Airport Medical Station

1968-1975 Kenneth T. Bird, M.D.



Where it all started – Logan Airport Gate 23

1968



1968

Nurse
aiming
"portable"
camera



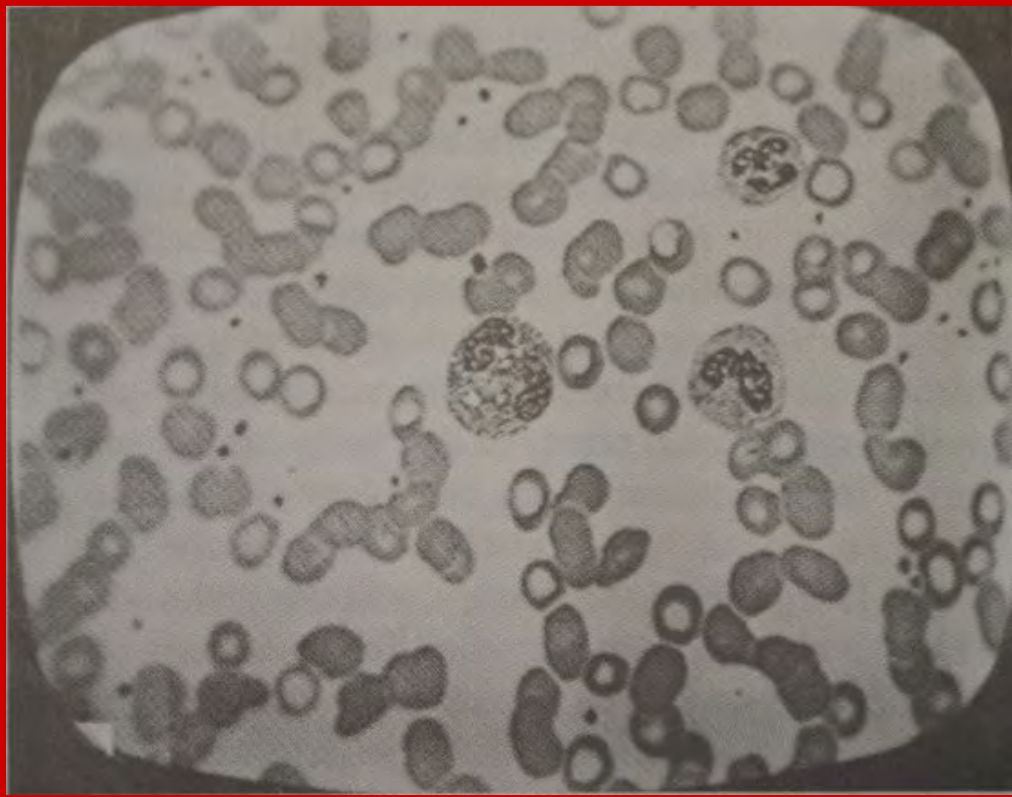
Boston Logan Airport Medical Station – Connecting to the Massachusetts General Hospital

1968



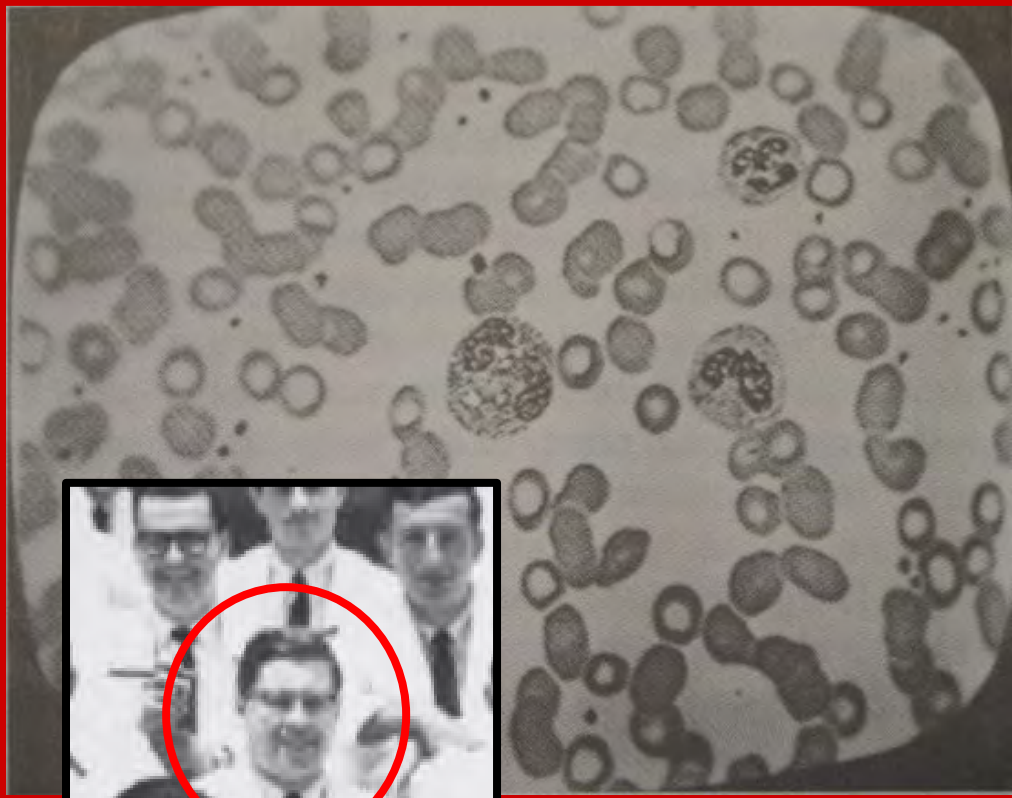
1968

Telemicroscopy at the
Massachusetts General Hospital
Boston, Massachusetts, USA



1968

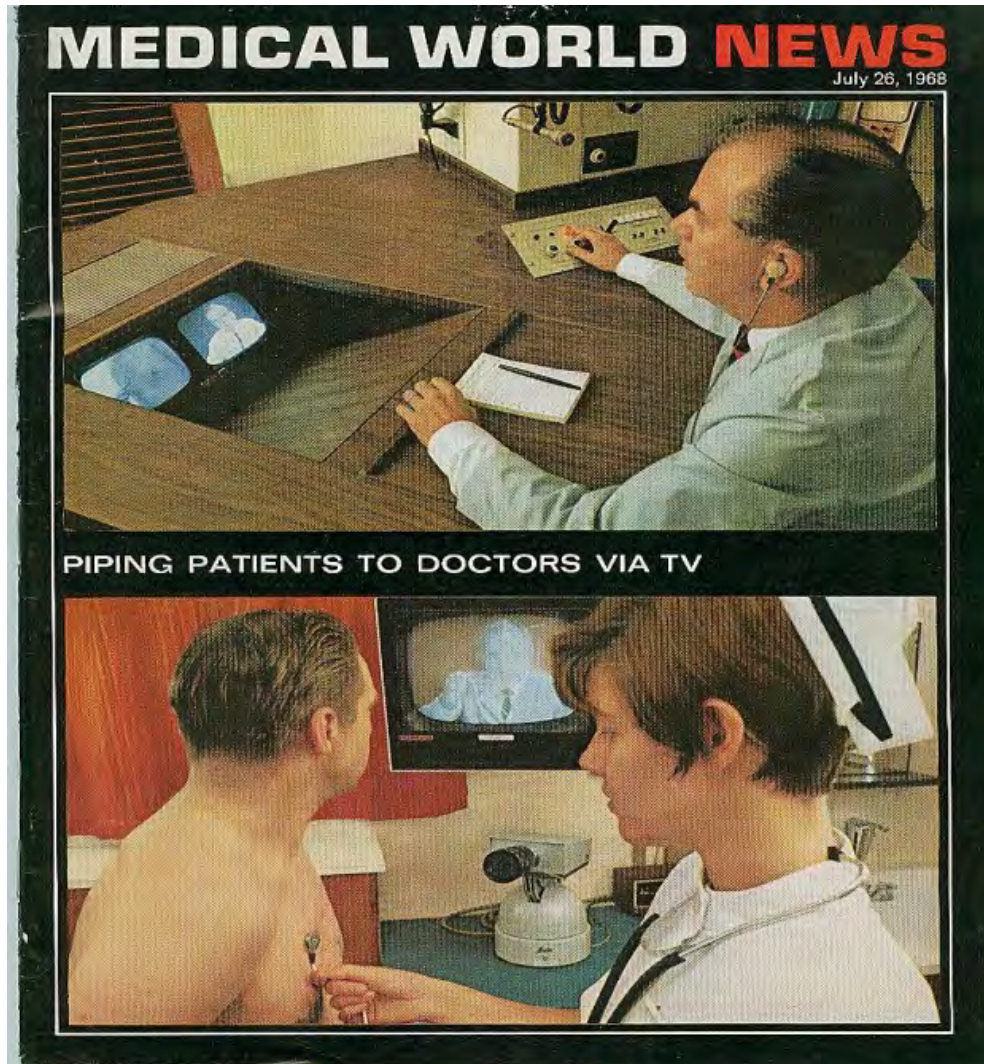
“Television microscopy” at the
Massachusetts General Hospital
Boston, Massachusetts, USA



The Press Takes Note

1968

Medical World News
July 26, 1968



Arizona



1972

Space Technology Applied to Rural Papago Health Care Program
(Lockheed Missile Space Company)

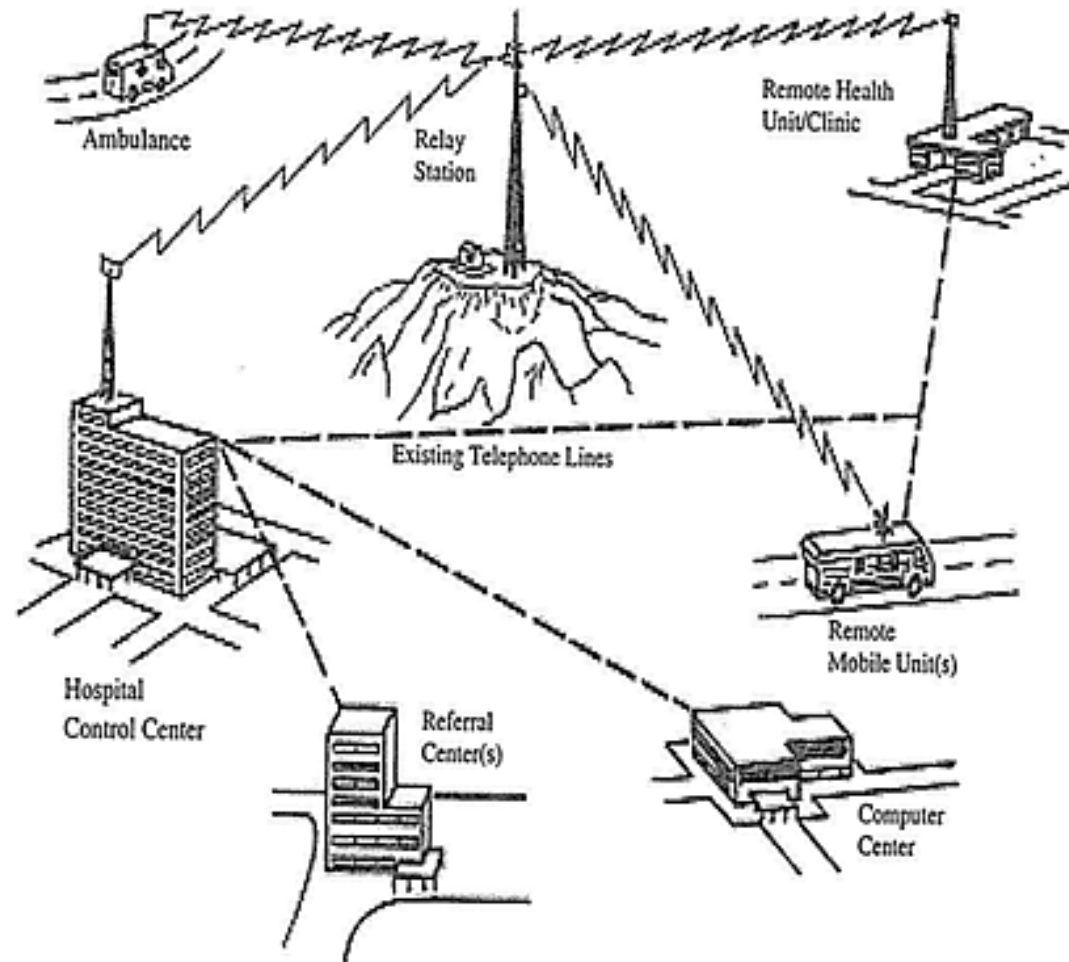


Arizona Story

1972-1975

Regional Telemedicine Program

**NASA
IHS
Lockheed
(1972-1975)**



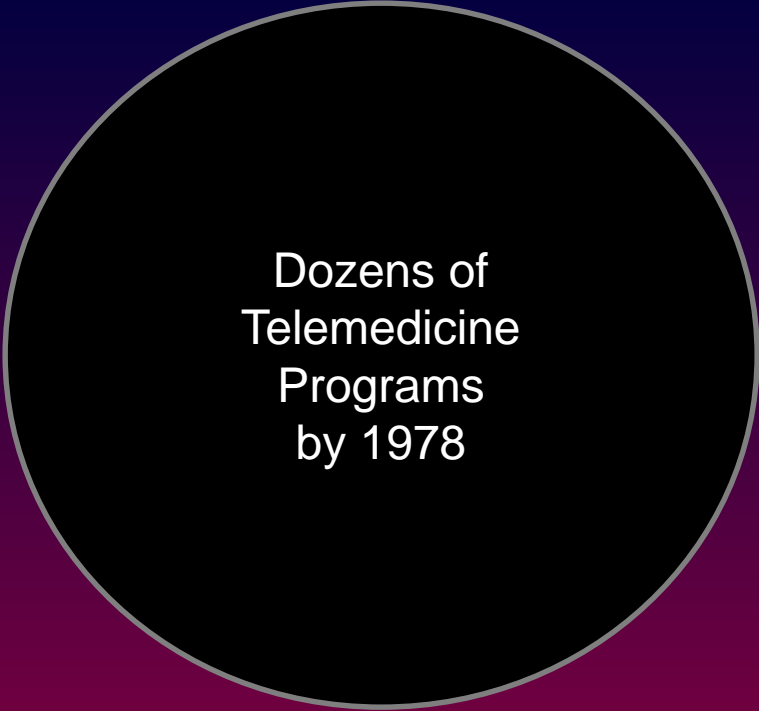
STARPAHC Project: Sells, Tucson & Phoenix, AZ



Mother and newborn in **STARPHAC** mobile telemedicine vehicle



STARPAHC Mobile Telemedicine Vehicle -1975



Dozens of
Telemedicine
Programs
by 1978

Telemedicine Issues (1983)

- **Legal**
- **Regulatory**
- **Reimbursement**
- **Quality-of-care**
- **Standards-of-care**

Western Governor's Association

Telemedicine Issues (1993)

- **Legal**
- **Regulatory**
- **Reimbursement**
- **Quality-of-care**
- **Standards-of-care**

Direct-to-Consumer Telehealth

- United HealthCare Virtual Visits
- <https://www.youtube.com/watch?v=gnVmHZRSONQ>

(CLICK ONCE--)

Direct-to-Consumer Telehealth

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

<https://www.youtube.com/watch?v=S-e4PnE3eM0>

https://www.youtube.com/watch?v=hlTo_V35u8w

Telemedicine & Telehealth Services

- A. Gap Services
- B. Urgent Services
- C. Mobile Telehealth
- D. Direct-to-Consumer Telehealth
- E. Cloud Computing Revolution

CANCER SUPPORT GROUPS TELE-EDUCATION:



Providing Health and Wellness Information to Cancer Survivors and Health Care Professionals

Survival is just one goal for cancer patients. These monthly multi-site video gatherings offer patients information in Spanish and English to help them live healthier, more fulfilling lives.

Kathie McHugh is a breast cancer survivor, grateful and proud to be seven years out from the day she was diagnosed.

She also likes to describe herself as "a very thirsty information seeker," who feels her health and well-being have been greatly enhanced by monthly meetings of an educational program called *iVida!*.

iVida! — the name comes from the Spanish word for life — began with grant support from the Susan G. Komen Foundation in 2008.

"*iVida!* grew out of our work with breast cancer survivors who told us that they wanted information to help them not just survive, but to be healthy and live well," says Ana Maria Lopez, MD, MPH, who is *iVida!* director, medical director of the Arizona Telemedicine Program, and a University of Arizona Cancer Center oncologist who specializes in breast cancer.

"As patients, they need and want to be well prepared to take charge of their health."

Guided by a broad-based community advisory group, *iVida!* has been proactively addressing the information needs of patients and their families across the state of Arizona.

While *iVida!* originally began with a focus on breast cancer survivorship, the series has evolved to include topics related to lifestyle medicine, wellness, and advocacy, with the overarching goal of engaging Arizona's citizens in their own health. Recent *iVida!* sessions have covered such varied topics as young women and cancer, medicinal plants of the Sonoran Desert, the Affordable Care Act and Medicaid expansion, and breathing techniques that lead to relaxation.

"As patients and their families have repeatedly informed us, the cure to the stress and anxiety that their illness brings is knowledge and information," Dr. Lopez says.

The program offers monthly sessions developed for both patients and health-care professionals. The sessions are offered

to a local audience at the University of Arizona Health Sciences Center campus and University of Arizona Cancer Center in Tucson.

Each program is first offered to physicians and other health-care professionals, so they can be prepared to respond to questions from patients who attend the *iVida!* sessions. The sessions for professionals also offer continuing medical education credit.

All of the Arizona Telemedicine Program's 160 statewide sites are able to connect to *iVida!* via the program's telecommunications technology, which allows for fully interactive videoconferencing, or through UA Biomedical Communications, which facilitates real-time and delayed video-streaming.

All sessions are permanently stored, so patients and professionals can watch as many times as they want, at their convenience.

Both patients and health care professionals

say they appreciate the ease of learning through *iVida!*, as well as being able to interact by videoconferencing with the presenter. Patients say they feel better prepared to ask questions and learn more, and professionals say they feel better prepared to address patient concerns.

Acknowledging the diversity of Arizona communities, the patient series is offered twice on the same day: one session in English and one in Spanish.

"Over time, the groups began to connect, either lingering after one session or coming in early for the other," Dr. Lopez says. "The groups could not always communicate effectively through language, but the participants found music to be the language that could bridge them. They began to play music in between the sessions and move and dance, in Tucson, in Nogales, in Payson, and in all participating sites across Arizona.

"I think of music as the universal language," Dr. Lopez says. "Our participants now come together monthly to learn together and to celebrate health through movement!"

Ms. McHugh, who lives in Tucson, started attending *iVida!* meetings regularly in 2013, on the recommendation of a social worker who leads a support group that she attends. In addition to being a breast cancer survivor, she underwent surgery in May 2013 for what turned out to be a benign ovarian tumor — still, a frightening experience.

Last year, Ms. McHugh was asked to serve on the *iVida!* planning committee. "I was delighted to have a chance to 'pay it forward' to all the people who have saved my life," she says. Ms. McHugh leads the dance breaks.

Ms. McHugh has gained more than information from *iVida!*. She and Isela Macias, another participant, were volunteering together on *iVida!* when they learned they are practically neighbors. Now they are close friends. "It is amazing," Ms. McHugh says, "that the blessings that come from *iVida!* are so rich."



Left to Right: *iVida!* volunteer Isela Macias, volunteer Kathie McHugh, *iVida!* program coordinator Bettina Hofacre, volunteer Virginia Aragon

¡Vida! Program

Breast Cancer Survivor Groups

Ana Maria Lopez, MD, MPH



¡Vida!

Enhancing Communication in Health Care

Monthly Sessions (4th Friday): 1/22, 2/26, 3/26, 4/23, 5/28 & 6/25

Spanish 10:00 -11:00 am

English 11:30 -12:30 pm

Sessions at no charge

Invitation for (but not limited to):

Promotoras/ Health Promoters

Support Group Leaders

Community Health Workers

Community Health Representatives

Lay Health Workers

Health Educators

Health-Care Volunteers

Health-Care Service Leaders

“Training the Trainers”

Community Partnership Program

CPG Members

- **Douglas: Southeast Arizona Medical Center**
- **Nogales: Mariposa Community Health Center**
- **Payson: Payson Regional Medical Center**
- **Tucson: St. Elizabeth's Health Center**
- **Yuma: Yuma Regional Medical Center**

Breast Cancer Survivor Program



Courtesy of-
Ana Maria López M.D., MPH, FACP

Satisfaction Surveys

Session A: Lymphedema

Overall mean score	4.45
Handout (mean score)	4.58
Learning new information (mean score)	4.53
Information being appropriate for “my needs” (mean score)	4.40

Session B: Bringing the Mind and Body Together in Healing

Overall mean score	4.74
Most satisfied with speaker being prepared and informative (mean score)	4.81
Being able to see the presenter clearly during session (mean score)	4.67
Being able to hear the presenter (mean score)	4.65

Principal Investigator

Ana Maria López M.D., MPH, FACP



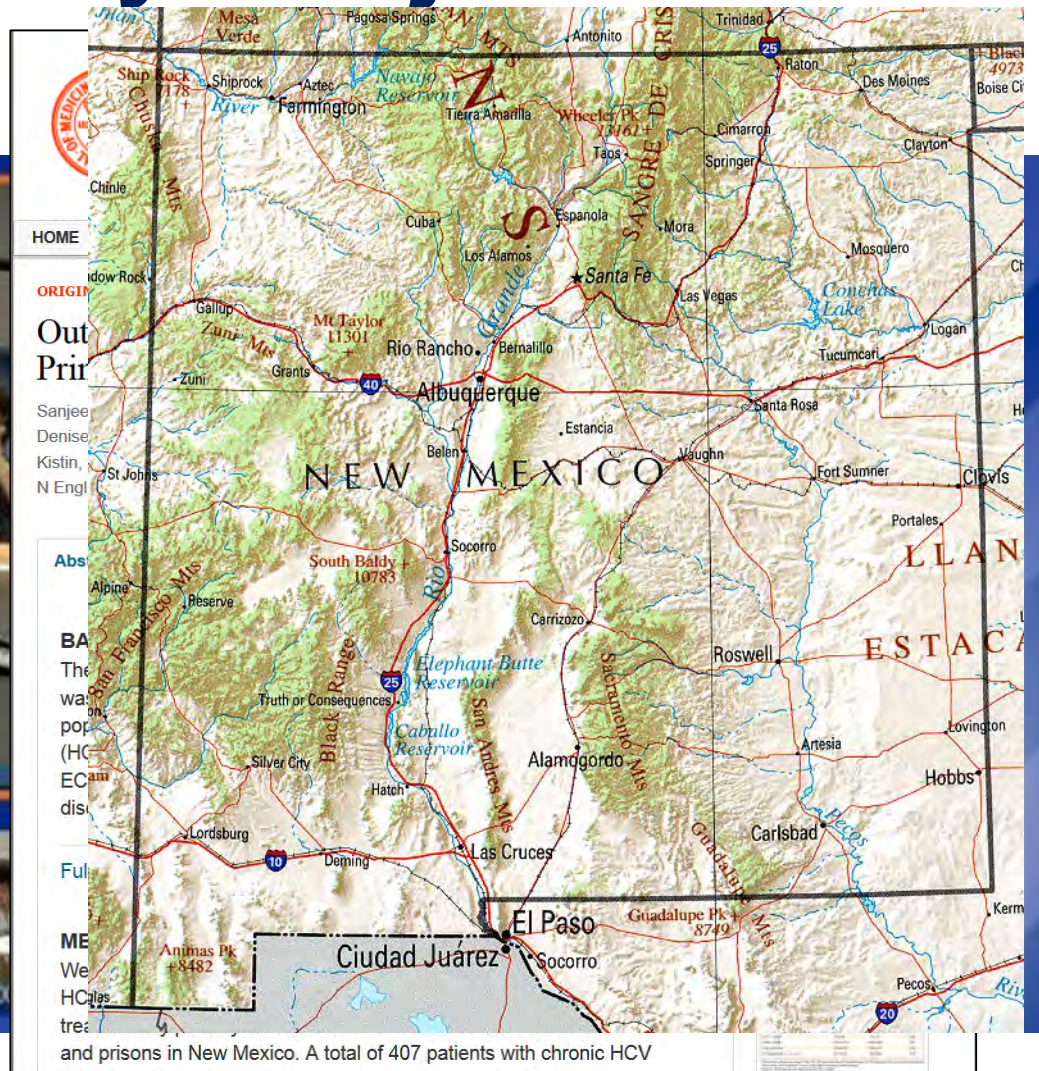
Project ECHO Programs

(Extension for Community Healthcare Outcomes)

About Project ECHO

- Project ECHO (Extension for Community Healthcare Outcomes) is a collaborative model of medical education and care management that empowers clinicians everywhere to provide better care to more people, right where they live.
- The ECHO model™ does not actually “provide” care to patients. Instead, it dramatically increases access to specialty treatment in rural and underserved areas by providing front-line clinicians with the knowledge and support they need to manage patients with complex conditions such as: hepatitis C, HIV, tuberculosis, chronic pain, endocrinology, behavioral health disorders, and many others.
- It does this by engaging clinicians in a continuous learning system and partnering them with specialist mentors at an academic medical center or hub.

Why Project ECHO?



121,697
square
miles

ECHO Hubs and Superhubs: United States



ATP Rheumatology TeleECHO Clinic



to register for the rheumatology teleECHO clinics? [Click here to](#)

Rheumatology ECHO Clinic



For More Information



A teleECHO clinic is essentially

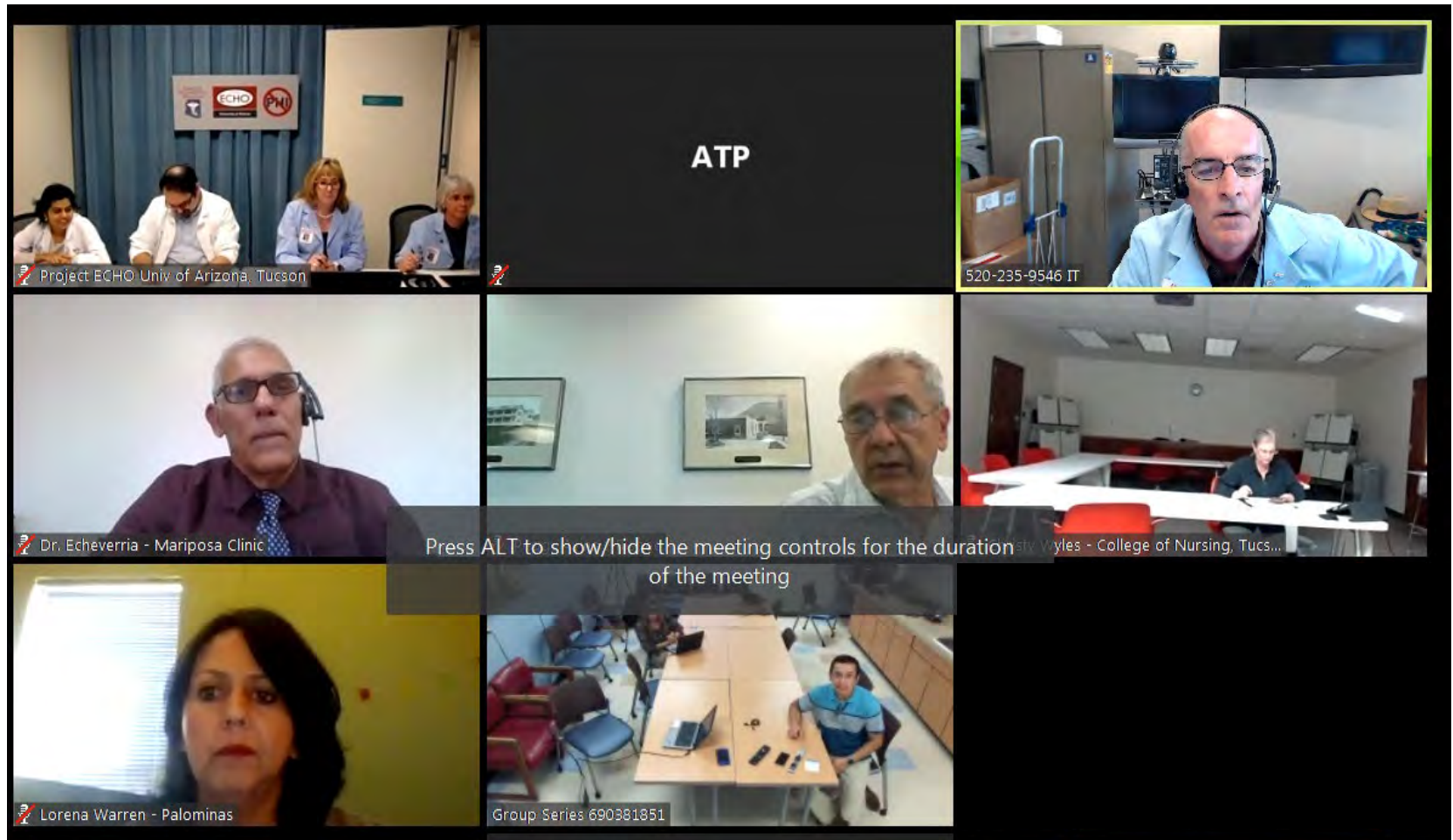
The ATP rheumatology teleECHO

Connect from your computer,

ECHO TeleRheumatology Clinic



ECHO TeleRheumatology Clinic



Physicians in Bisbee, AZ

Attending from a rural hospital conference room



PCORI Programs*

EXAMPLE

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

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

* Patient-Centered Outcomes Research Institute

Need and Effectiveness

Telehealth Resource Center's Technical Support

INTERVENTIONS

"... the Arizona Telemedicine Program (ATP), The University of Arizona, and three other institutions – the University of Pennsylvania, the City of Hope/Beckman Research Institute, and Yale University – will take part in a randomized clinical trial to see if **telehealth** can be effective in helping ostomy patients adjust to the lifestyle changes they face."



Robert S. Krouse, MD



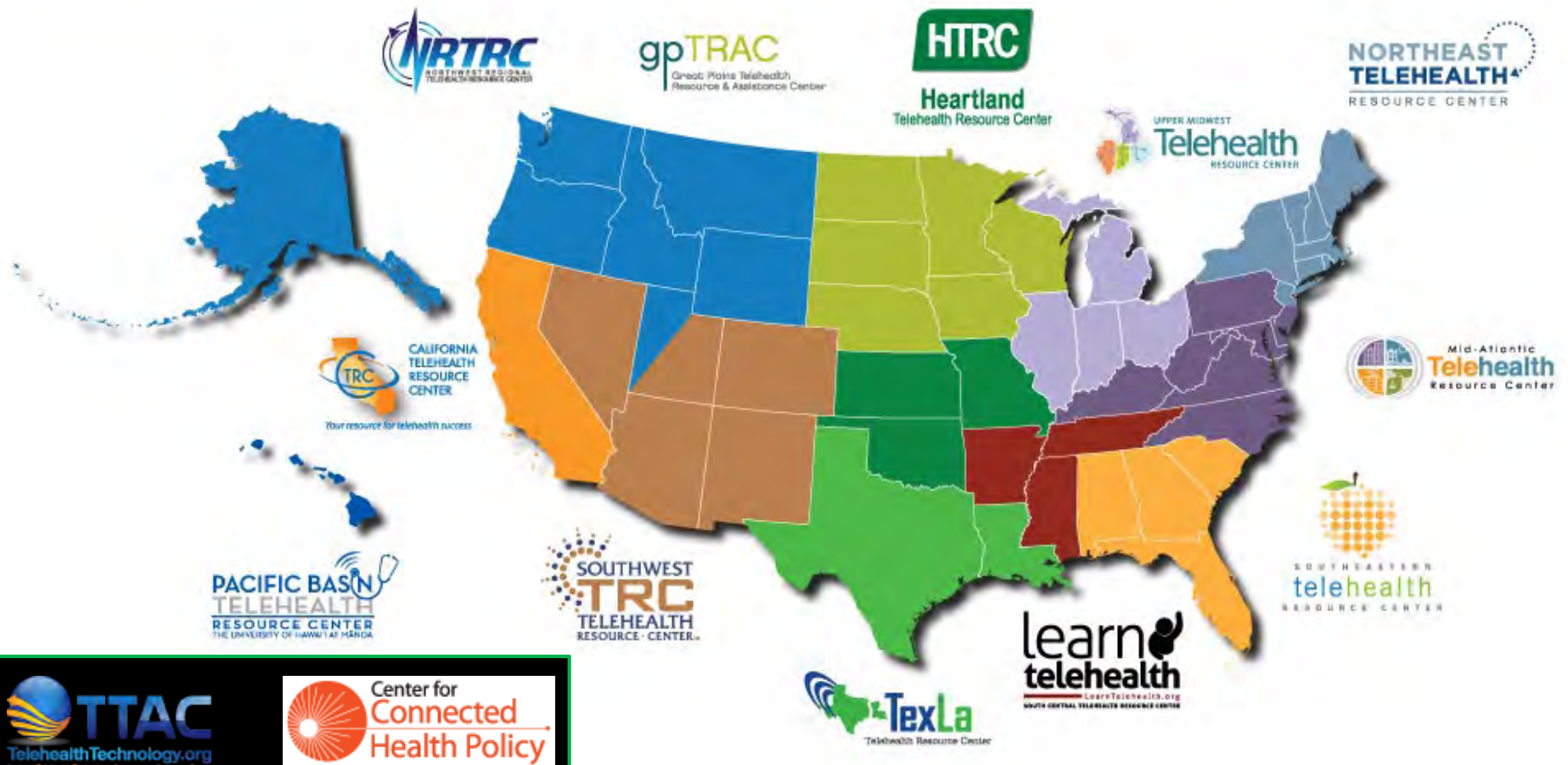
Ronald S. Weinstein, MD



Telehealth is the intervention

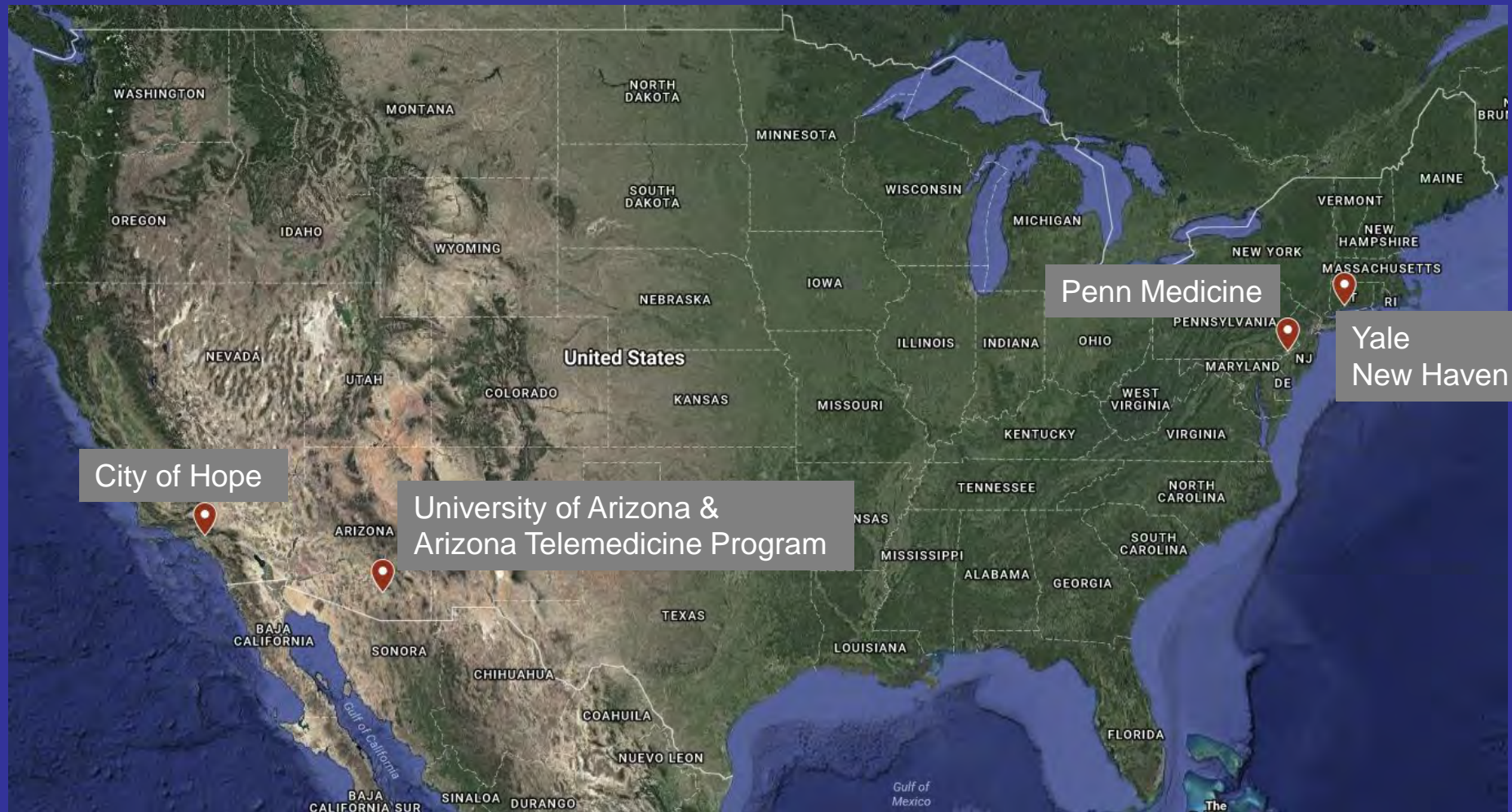
Telehealth Resource Center Network

TelehealthResourceCenters.org



Health Resources and Services Administration - HRSA

Ostomy Self-Management *Clinical Research Sites*



In-Person Support Group Setting



In-Person Support Group Setting



<https://www.reviewjournal.com/life/health/ostmate-support-groups-filled-with-stories-of-past-successes-hopes-for-future/>

In-Person Model



Telehealth Model

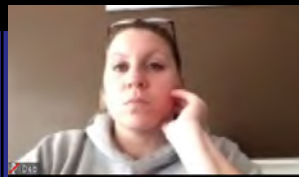


- “PCORI Peers”
- Personal Engineers

Ostomy Telehealth Patient Group Session

- Nurse Educators
- Engineer

Panel of Peer Ostomates



4-6 New Ostomates



“Social reinforcement by peers”

Take Home Lessons

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- Regulatory uncertainty is no longer slowing momentum
- Top-challenges are related to reimbursement
- EHR is frequently inadequate for telemedicine

Largest Challenges

- Identifying, selecting, contracting with, and establishing long term working relationships with, telehealth service providers
- Creating realistic outcome expectations

Telemedicine

Golden Anniversary

50 Years!

April 1968- April 2018