

# Arizona Telemedicine Program

ARIZONA  
TELEMEDICINE  
PROGRAM



**Janet Major, B.S.**  
**Associate Director for Education & Facilities**  
**Distance Learning Outreach**  
**Arizona Telemedicine Program**  
**Southwest Telehealth Resource Center**  
**Board Member ATIC**  
**Chair of USDLA**  
**United States Distance Learning Association**



ARIZONA  
TELEMEDICINE  
PROGRAM



# Trends and Hot Topics in Telehealth

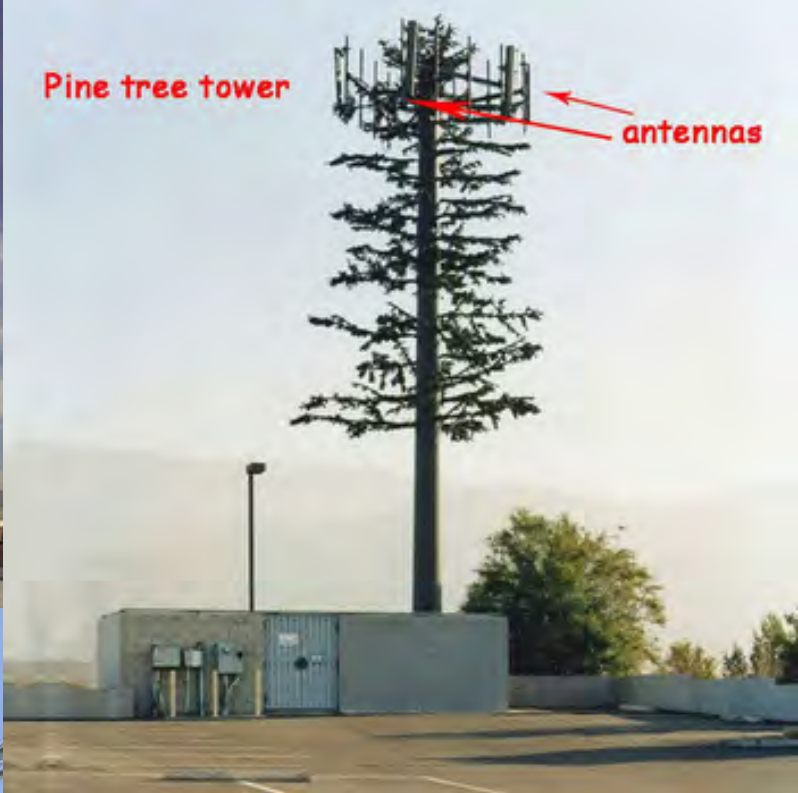
# How to put the TELE into Telehealth for Educational & Clinical Applications



# BYOD plus BYON – Bring your own Network

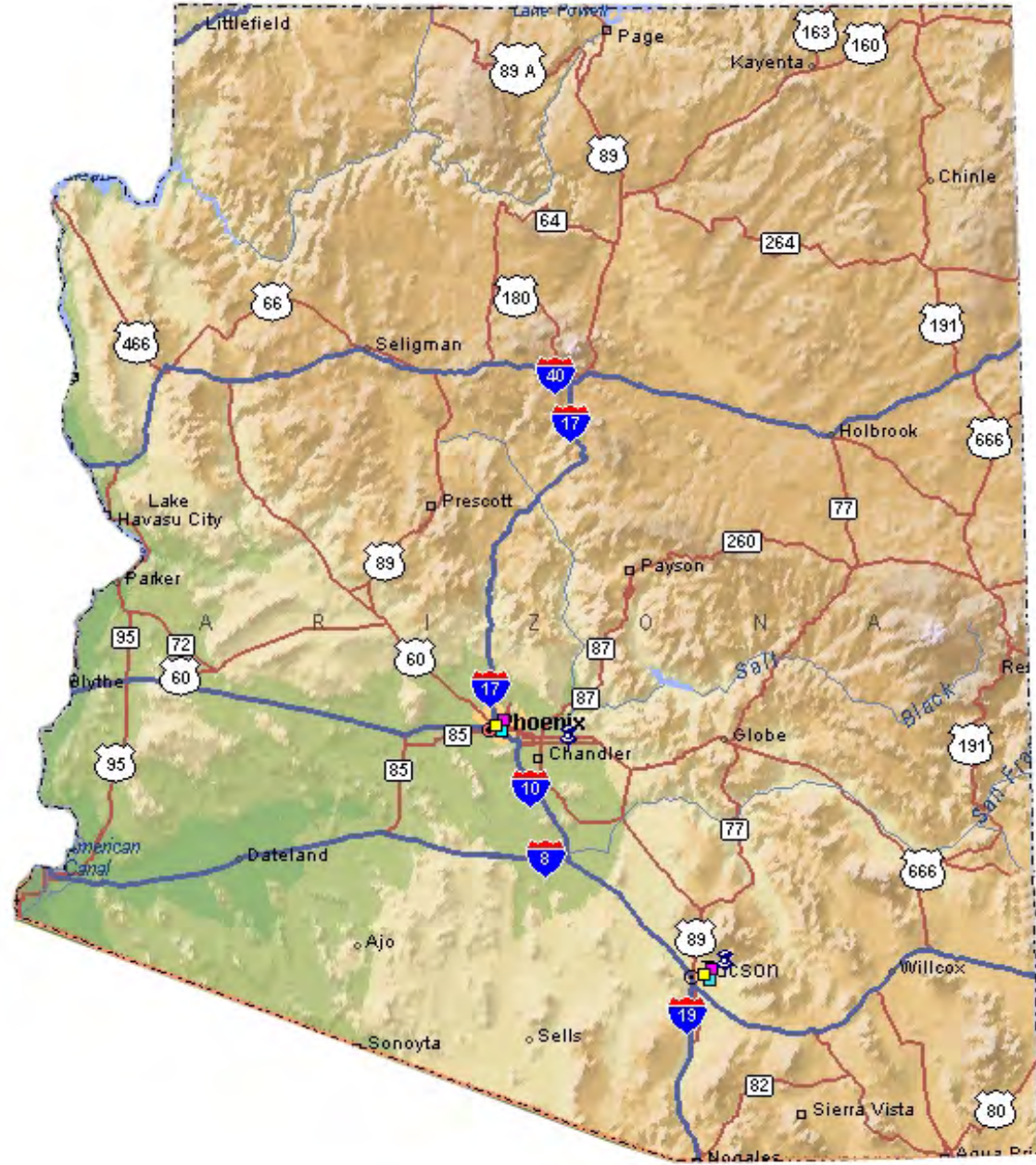


**Technology**  
**+**  
**Telecommunications**  
**=**  
**Telehealth/Telemedicine**



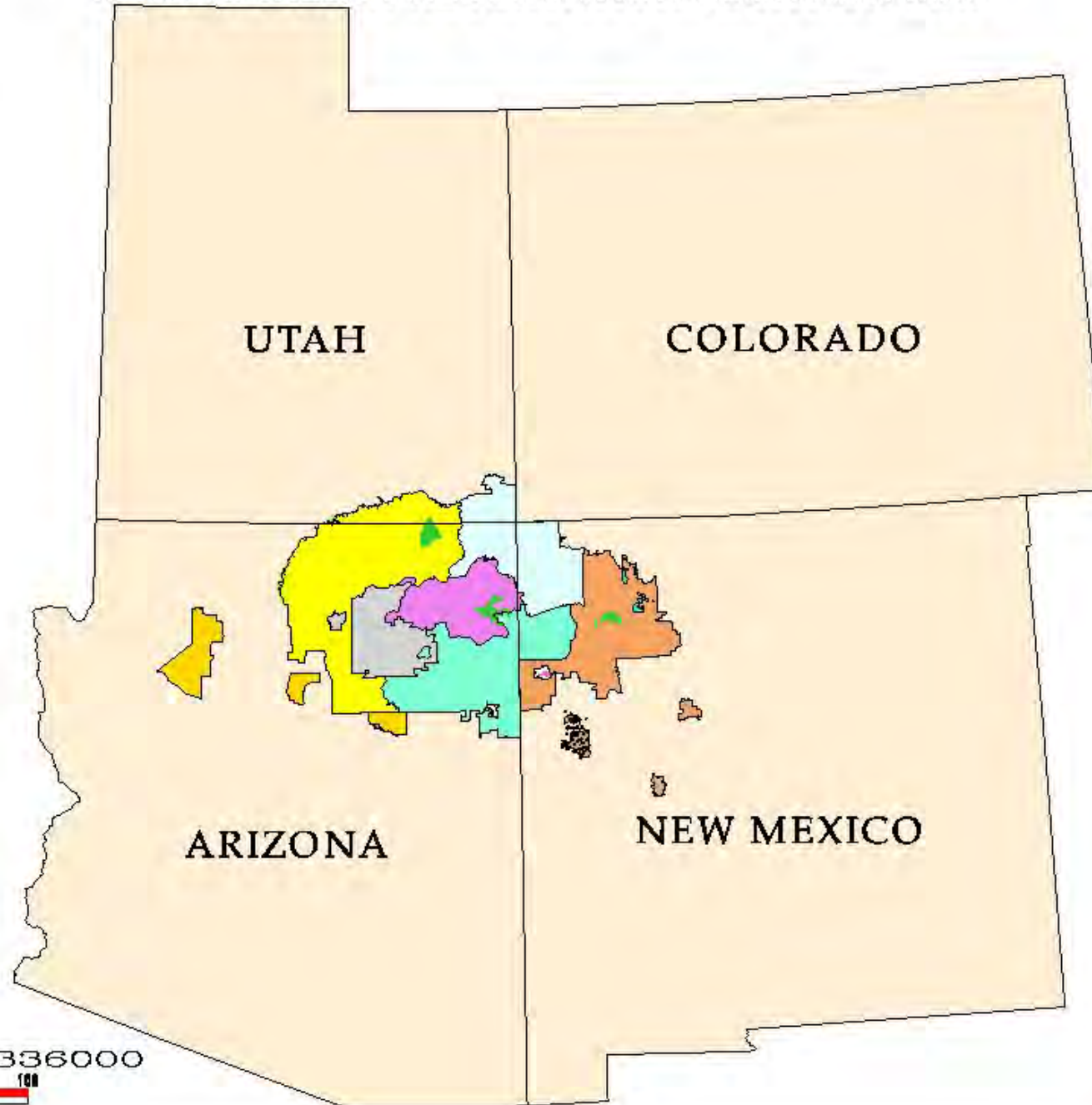
The background of the image is a close-up of a colorful feather, likely from a bird. The feather's barbs are densely packed and exhibit a vibrant iridescent pattern of colors, including shades of green, blue, yellow, and orange. The colors transition smoothly across the surface, creating a shimmering, multi-hued effect. In the lower right quadrant, there is a distinct, darker blue patch that contrasts with the surrounding iridescent colors. Centered over the middle of the image is a semi-transparent light blue rectangular box containing the text.

# **Telehealth Networking**





# NAVAJO INDIAN RESERVATION LOCATION MAP



SCALE 1:6336000



February 28, 2003

NAVAJO LAND DEPARTMENT

NAVJO NATION  
SHERIFF'S OFFICE  
GEOGRAPHIC INFORMATION SYSTEMS SECTION  
P.O. BOX 1000  
TUCSON, ARIZONA 85724

# SWTRC since 2007



<https://southwesttrc.org/> = SWTRC

## Resources

Arizona

Colorado

Nevada

New Mexico

Utah



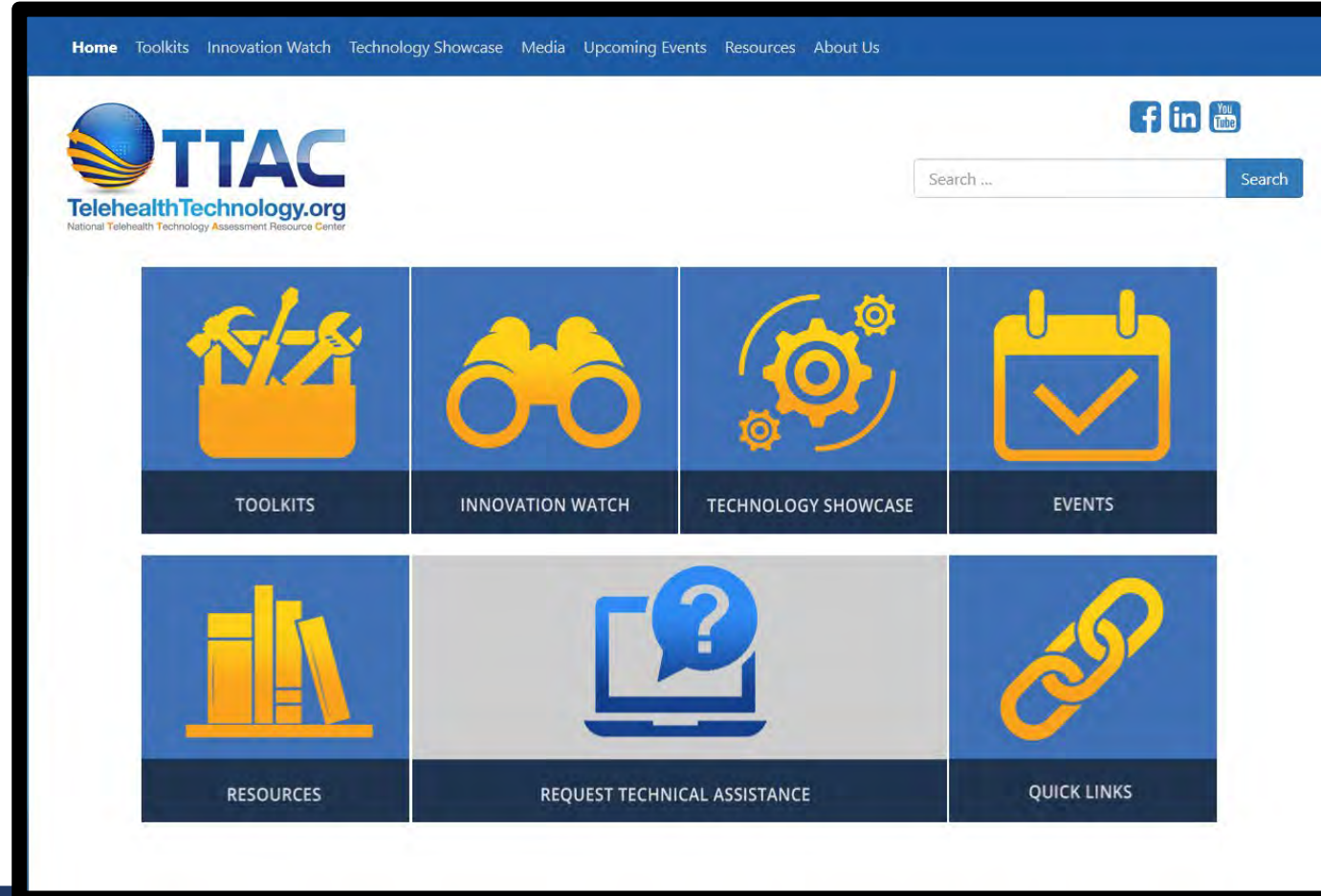
- Telemedicine & Telehealth Service Provider Directory
- Business & Finance
- Form Templates
- Policy & Sustainability
- Standards & Guidelines
- Telemedicine Information
- Tools & Tips
- General


National Consortium of Telehealth Resource Centers (NCTRC) - Find your TRC


# www.telehealthresourcecenter.org



# TTAC National Telehealth Technology Assessment Center telehealthtechnology.org






**AMERICAN  
TELEMEDICINE  
ASSOCIATION**

PRACTICE GUIDELINES FOR  
**DERMATOLOGY**

April 28, 2016





## Telehealth Technology Resources

Arizona Telemedicine Program	<a href="http://www.telemedicine.arizona.edu">www.telemedicine.arizona.edu</a>
Telemedicine & Telehealth Service Directory	<a href="http://telemedicine.arizona.edu/servicedirectory">http://telemedicine.arizona.edu/servicedirectory</a>
Southwest Telehealth Resource Center	<a href="http://www.southwesttrc.org">www.southwesttrc.org</a>
National Telehealth Resource Centers	<a href="http://www.telehealthresourcecenter.org">www.telehealthresourcecenter.org</a>
ATA American Telemedicine Association	<a href="http://www.americantelemed.org">www.americantelemed.org</a>
USDLA United States Distance Learning Association	<a href="http://www.usdla.org">www.usdla.org</a>
University of New Mexico Center for Telehealth	<a href="http://hsc.unm.edu/community/telehealth/">http://hsc.unm.edu/community/telehealth/</a>
Project ECHO	<a href="http://echo.unm.edu/">http://echo.unm.edu/</a>
ATP Project ECHO	<a href="http://telemedicine.arizona.edu/echo/">http://telemedicine.arizona.edu/echo/</a>
UNR Project ECHO	<a href="https://med.unr.edu/echo">https://med.unr.edu/echo</a>
CO ECHO	<a href="https://echocolorado.org/">https://echocolorado.org/</a>
TTAC Telehealth Technology Assessment Resource Center	<a href="http://www.telehealthtechnology.org">www.telehealthtechnology.org</a>



## DIRECTORY OVERVIEW

**Welcome** to the Telemedicine & Telehealth Service Provider Directory, a service of the Arizona Telemedicine Program. The directory is a resource for hospital and healthcare administrators and other decision-makers who want to expand or improve their healthcare services to their patients, employees, clients, etc. The directory lists companies providing medical specialty services (such as radiology, rheumatology, neurology, psychiatry) and ancillary services (such as patient education and language interpretation) through telemedicine to healthcare providers such as hospitals, clinics, nursing homes, private practices and urgent care centers.

**Service Providers:** [List your company here.](#)

## Search the Directory

**Company Name (or part of)**

<b>Services In</b> Alabama Alaska Arizona Arkansas California Colorado Connecticut Delaware	<b>Tele-services</b> Pulmonary medicine Radiology Rehabilitation Rheumatology Sleep medicine Sonography Speech language pathology Stroke	<b>Customers</b> Accountable Care Organizations Assisted living facilities Community mental health clinics Correctional facilities Educational institutions Employers FQHCs Government agencies	<b>Ancillary Services</b> Continuing education Continuing medical education Distance education Health call center Language interpretation services Patient education Patient engagement Support groups
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**Items per page**  
20

**17 record(s) found, scroll down to see results. Page 1 of 1 page(s); up to 20 displayed per page.**

## Directory Listings

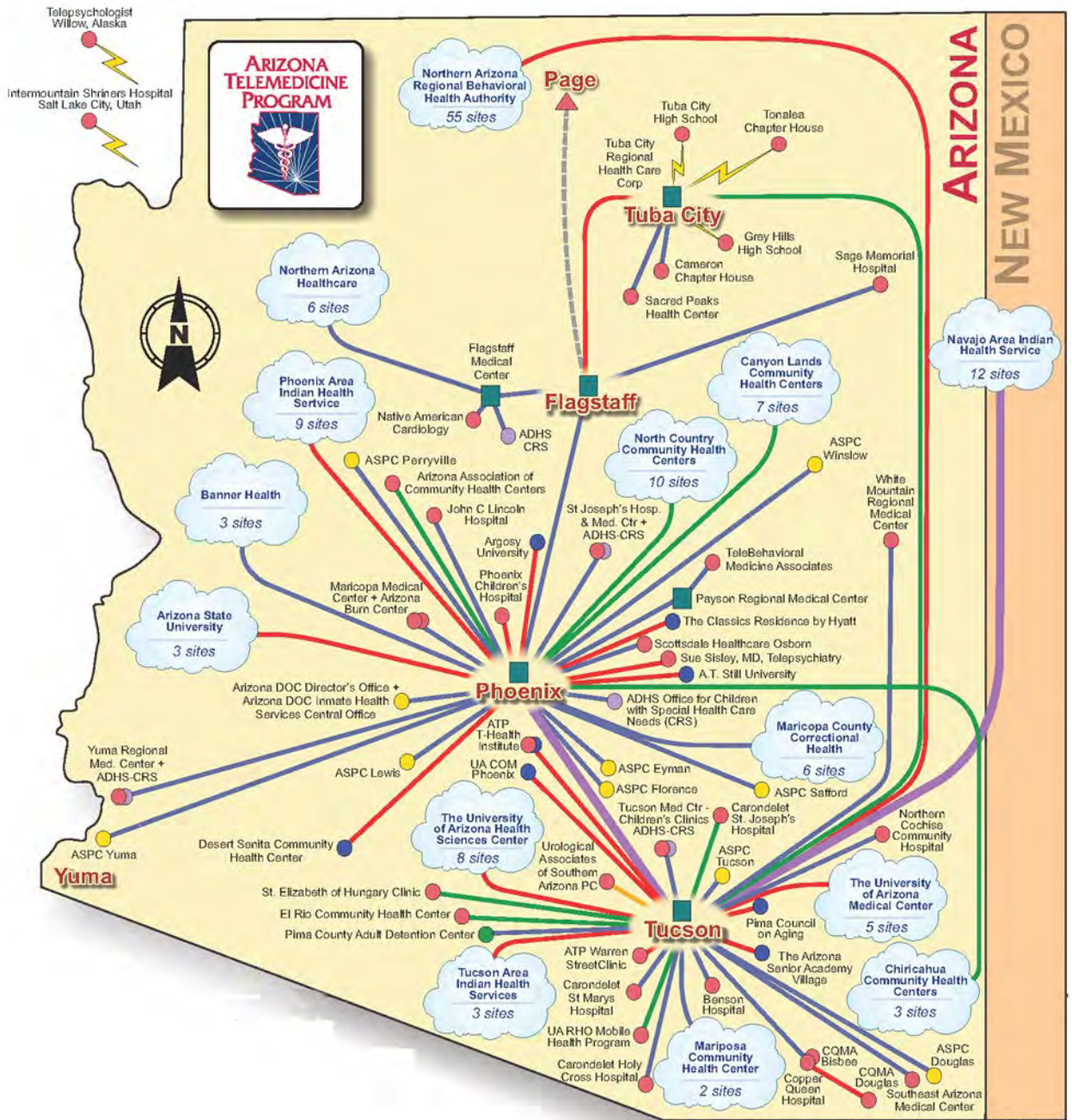
Scroll to view company dashboard listings in alphabetical order.

**Click on company name or logo to see more detailed information.**





# ARIZONA TELEMEDICINE NETWORK



Map is not to scale and is not geographically accurate due to limited space



# TeleCon 1997



**TeleCon XVII**  
THE SEVENTEENTH ANNUAL TELECONFERENCING USERS CONFERENCE AND TRADE SHOW  
**The New World of Conferencing:  
The Integration of Telephony, LANs and IP Networks**  
November 5, 6 and 7, 1997  
Anaheim Convention Center • Anaheim, California

VIDEOCONFERENCING • DISTANCE LEARNING • DATACONFERENCING • TELEMEDICINE

**TeleCon XVII**, the world's largest conference and trade show on teleconferencing, videoconferencing and their application in collaboration, distance learning and telemedicine.  
For information or to register, in the U.S. and Canada call **1-800-829-3400**.  
International call +1-310-606-5150. Online registration: [www.usdla.org/telecon.html](http://www.usdla.org/telecon.html)

Produced by: Allstate Business Telecommunications  
Sponsored by: **USDLA** (United States Distance Learning Association), **CSU CALIFORNIA STATE UNIVERSITY**, **CORPORATE UNIVERSITY REVIEW**, **AT&T** (Worldcom), **ATA** (American Telemedicine Association), **CTI** (The Industry To Connect), **UNIVERSITY OF CALIFORNIA**

**FREE EXHIBIT PASS ENCLOSED**





# “WallDoc” from ATA 2014





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

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

# The Best Telemedicine Apps of 2020

[MDLIVE](#) | [Lemonaid](#) | [LiveHealth](#) | [PlushCare](#) | [Doctor on Demand](#) | [Amwell](#) |  
[Talkspace](#) | [Teladoc](#) | [BCBSM Online Visits](#) | [Spruce](#) |  
[Telehealth by SimplePractice](#) | [DocsApp](#) | [oladoc](#)





# IPads

## UA Nursing Professor Receives Telemedicine Grant to Study Tablet Use by Home Hospice Patients to Communicate with On-Call Nurses

Arizona Telemedicine Program Equipment Grant to provide technology for real-time visualization between the nurse and the patient and their caregiver.

It's the middle of the night. An elderly man in end-stage heart failure receiving at-home hospice awakes gasping for breath. His caregiver immediately phones the on-call nurse, but the drive could take her 30 minutes or more. The caregiver is too afraid to take action on her own, so she anxiously awaits the nurse. As the minutes tick by, the man becomes increasingly distressed and the caregiver grows more upset.

Shortness of breath (also known as dyspnea) is a common challenge faced by caregivers and patients in home hospice, and the leading cause of admissions to the emergency room for hospice patients.

Interested in shortening the time it takes to alleviate patient symptoms and caregiver anxiety, **Kimberly Shea, PhD, RN**, assistant professor at the [University of Arizona College of Nursing](#), conceived of using tablet technology with real-time visualization for patients and caregivers to communicate with on-call hospice nurses in urgent situations.

To support testing her idea, Dr. Shea recently was awarded a grant from the [Arizona Telemedicine Program](#) as part of its **Innovation Awards** for her project: "Real-Time Visualization for Reducing Symptom Severity in End-of-Life Care." The grant supports purchase of five iPad-minis with retina display.

"Previous studies evaluating tablet use in at-home hospice have been focused on overall quality of life and anxiety," said Dr. Shea, who has 15 years of experience as a home health/hospice nurse. "What makes my study different is I'm evaluating tablet use in urgent situations. Patient and/or caregiver anxiety can often lead to unnecessary emergency room admissions."

Each tablet will be equipped with real-time meeting software that allows the on-call nurse to immediately visualize important factors, such as a patient's positioning (lying down, sitting up) or breathing patterns and medications available. Accordingly, more individualized guidance can be given to the caregiver for intervening appropriately prior to nurse arrival.



<http://telemedicine.arizona.edu/blog/telehealth-valuable-addition-hands-comfort-care>

## Telehealth is a Valuable Addition to Hands-On 'Comfort Care'

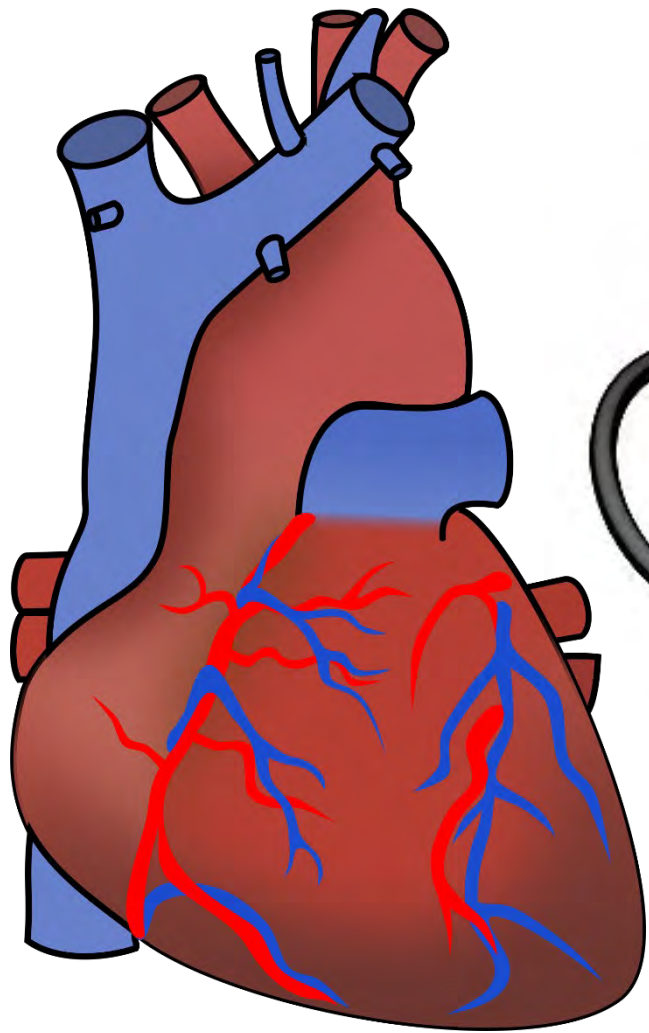
By Kimberly Shea, Ph.D., RN on Oct 15, 2015



*Dr. Shea consults with a remote hospice patient via telemedicine.*

I am an assistant professor at the University of Arizona, College of Nursing, a full-time position that includes research in my chosen field of health care systems and informatics, in which I have a PhD.

I also work one day a week as a hospice nurse, providing palliative care, which is focused on comfort and quality of life for patients nearing the end of life.





EKO





*Dr. Conrad Clemens uses real-time video conferencing and digital stethoscope technology to evaluate a child's asthma.*



<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 go months without having to go to the hospital. His condition has resulted from a program called Care Beyond Walls and Wires, a telemedicine-enabled program that has improved the health of patients with congestive heart failure.

The program also reduces room visits and readmissions, a stay for those who

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

Ms. Yazzie says the program "is the best thing for my dad." She says her father has had two hospital readmissions since joining the program more than a year ago.

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 with no family support," Ms. Yazzie says. "I could live in Supai (a small town in Navajo and Canyon) or on the reservation. Our patients are Hispanic, and white, and in their 60s to early 90s."

Care Beyond Walls and Wires ended on Nov. 1, 2014. Northern Arizona Healthcare is continuing the program.

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

"With the investment," Ms. Sorenson says, "patients benefiting, the program penalizes hospitals for readmissions and conditions, including CHF. Patients are readmitted and discharged."

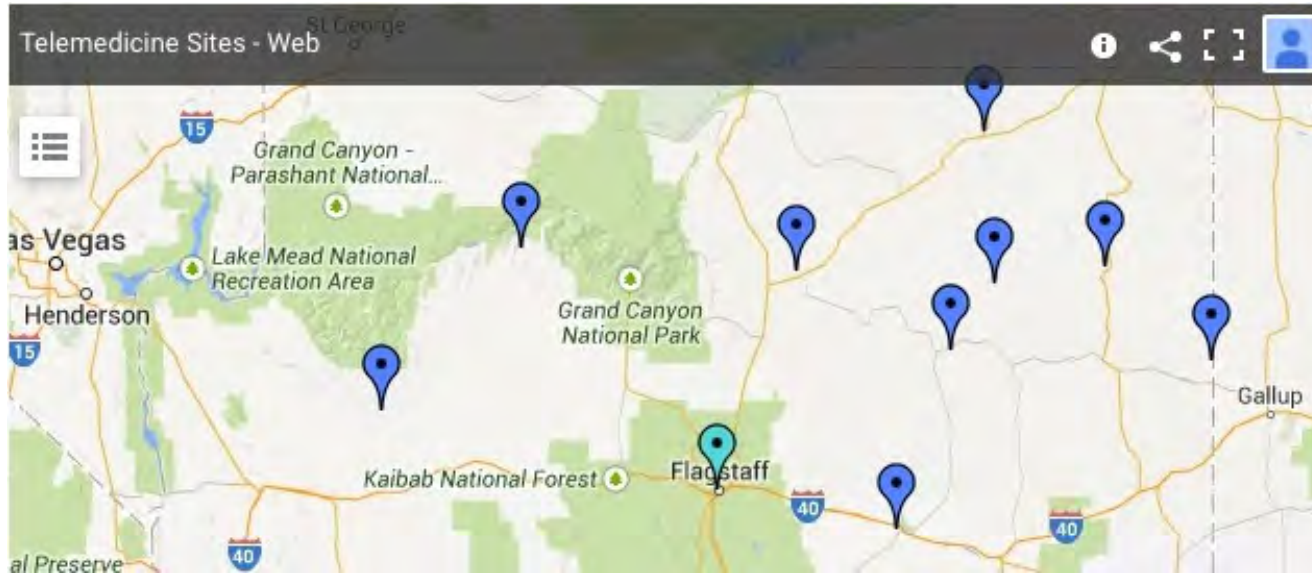
"It's a tremendous patient benefit," Ms. Sorenson says. "Patients like the feeling that they have more control over their health." Ms. Sorenson says. "We couldn't have asked for anything more. It's a global win."

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.



# Flagstaff Medical Center

<https://nahealth.com/telemedicine>



## Care Beyond Walls and Wires: In-home monitoring

Using remote monitoring tools, this program is designed to improve the quality of life for people with chronic health conditions, helping patients and families get the care they need without leaving home.

With daily access to information including blood pressure, weight and symptoms of illness, care teams and patients can co-manage treatment plans. It's also possible to detect changes in a patient's health status early on and intervene at the right time to avoid unnecessary travel and hospital care.

# “Care Beyond Walls and Wires”: In-Home Monitoring YouTube Videos @www.youtube.com

- <https://www.youtube.com/watch?v=qHXGRDtdjuc>  
Four Corners - Navajo Area
- [https://www.youtube.com/watch?v=4wvQbK\\_EPM](https://www.youtube.com/watch?v=4wvQbK_EPM)  
Winslow, AZ

# Telegenetics Counseling Training



This training was in coordination with the University of Arkansas and the University of Arizona. Participants came from Washington, Hawaii, Arkansas and Kansas. This was a two-day training session with AMA and CEU credits.

# Technology for Telegenetics

Images of document cameras

[bing.com/images](http://bing.com/images)



# LogiTech

- Logitech USB Webcam Drivers
- Logitech Webcam Install without Disk
- Logitech Webcam Installation Program
- Install Logitech Webcam Drivers
- Logitech Webcam Drivers
- Logitech Webcam QuickCam Software
- Old Logitech Webcam
- Logitech Webcam Software
- Logitech Webcam Pro 9000
- Logitech Webcam Drivers Auto Detect
- Logitech Webcam Pro 9000 Setup
- Logitech Webcam Installer No CD
- C92

Ads

 <p>20% Off \$159.99 <del>\$199.99</del> Logitech - 4K Pro Webcam Best Buy</p>	 <p>17% Off \$50.99 <del>\$64.99</del> Logitech - C920 Pro Webcam Best Buy</p>	 <p>\$99.99 Logitech - C922 Pro Stream Webcam Best Buy</p>	 <p>\$99.99 Logitech C920 HD Pro Webcam Kohl's</p>	 <p>\$69.10 Logitech C615 1080P HD Webcam Full Compass Systems</p>	 <p>\$37.99 Logitech 960000694 C2 Webcam WebstaurantStore</p>	 <p>\$65.79 Logitech 960000733 C6 Webcam OfficeWorld.com</p>	 <p>\$38.13 Logitech HD Webcam C910 Full Compass Systems</p>	 <p>\$69.99 Logitech HD Pro Webcam C910 Office Depot</p>	 <p>\$75.60 Logitech HD Pro Webcam C910 Lenovo</p>
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# Echo Cancellation Microphones

## Jabra Speak Series

Conference calls made simple; collaboration made easy.

### Speak 810

★★★★★ (200)



From \$599.00

- ✓ Meeting with up to 15 people
- ✓ Great for calls
- ✓ Stationary (USB & 3.5mm jack)
- ✓ Kensington Lock adaptor

### Speak 710

★★★★★ (115)



From \$299.00

- ✓ Meeting with up to 6 people
- ✓ Great for calls and music
- ✓ Portable (Wireless & USB)
- ✓ Up to 15 hours charge

### Speak 510

★★★★★ (2499)



From \$149.00

- ✓ Meeting with up to 4 people
- ✓ Great for calls
- ✓ Portable (Wireless & USB)
- ✓ Up to 15 hours charge

### Speak 410

★★★★★ (1199)



From \$129.99

- ✓ Meeting with up to 4 people
- ✓ Great for calls
- ✓ Stationary (USB)
- ✓ LED Indicators

# Headphones

- Jabra
- Plantronics
- JBL
- Great for private conversations!

# Video + Audio in one device

LogiTech CC3000e

Turn any meeting room into a face-to-face  
**video-enabled collaboration room.**



The Logitech ConferenceCam CC3000e





# **Project ECHO Programs**

**(Extension for Community Healthcare Outcomes)**

# ECHO Hubs and Superhubs: United States



<https://echo.unm.edu/>

# ECHO=Extension for Community Healthcare Outcomes

## Project ECHO: A Revolution in Medical Education and Care Delivery

Project ECHO is a lifelong learning and guided practice model that revolutionizes medical education and exponentially increases workforce capacity to provide best-practice specialty care and reduce health disparities. The heart of the ECHO model™ is its hub-and-spoke knowledge-sharing networks, led by expert teams who use multi-point videoconferencing to conduct virtual clinics with community providers. In this way, primary care doctors, nurses, and other clinicians learn to provide excellent specialty care to patients in their own communities.



People need access to specialty care for their complex health conditions.



There aren't enough specialists to treat everyone who needs care, especially in rural and underserved communities.



ECHO trains primary care clinicians to provide specialty care services. This means more people can get the care they need.



Patients get the right care, in the right place, at the right time. This improves outcomes and reduces costs.



# Project ECHO Hubs (Global)

Hub Locations



ECHO Countries	ECHO Hubs	ECHO Programs
34	253	574

Search for Hubs & Programs

Filter by Area(s) of Focus

- Ambulatory Care
- Autism
- Behavioral/Mental Health
- Business
- Cancer
- Cancer Diagnosis
- Cancer Prevention & Risk Reduction
- Cancer Screening
- Cancer Survivorship

Filter by Hub Country

 [Clear All](#)

ECHO Hub	Program Name	Area(s) of Focus	Email	Website	Hub City	Hub St./Pr./Reg.	Hub Country
National Center for Tuberculosis and Lung Diseases	Tuberculosis/TB	Infectious Disease, Tuberculosis	<a href="#">✉</a>	<a href="#">🌐</a>	Tbilisi	Tbilisi	Georgia

# ECHO TeleRheumatology Clinic



# ECHO TeleRheumatology Clinic



Physicians in Bisbee, AZ  
Attending from a rural hospital conference room



# Telerheumatology ECHO





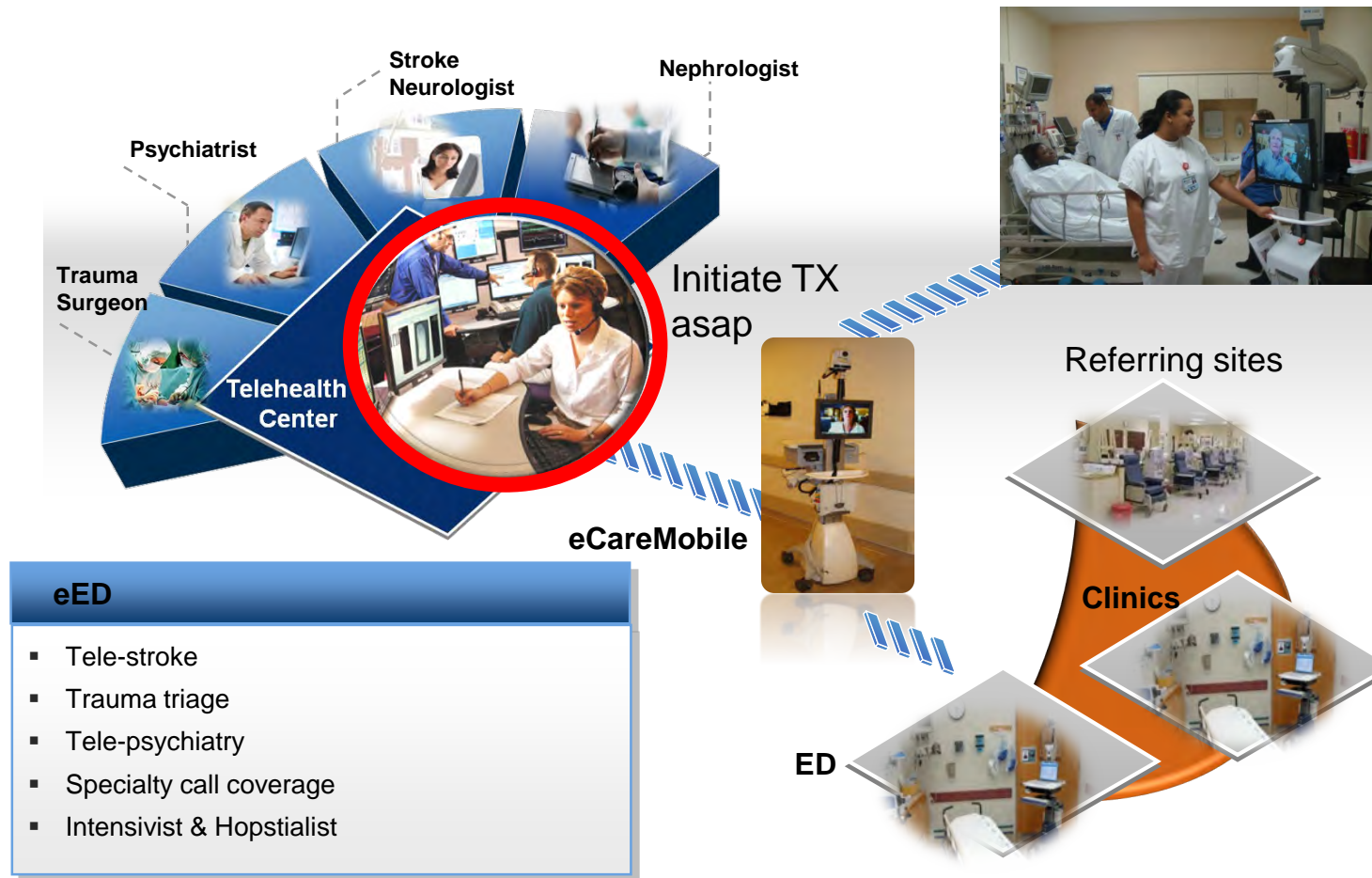
# NeoECHO



# HIPAA Health Insurance Portability And Accountability Act of 1996



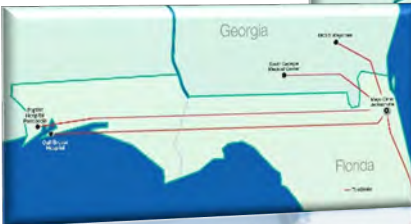
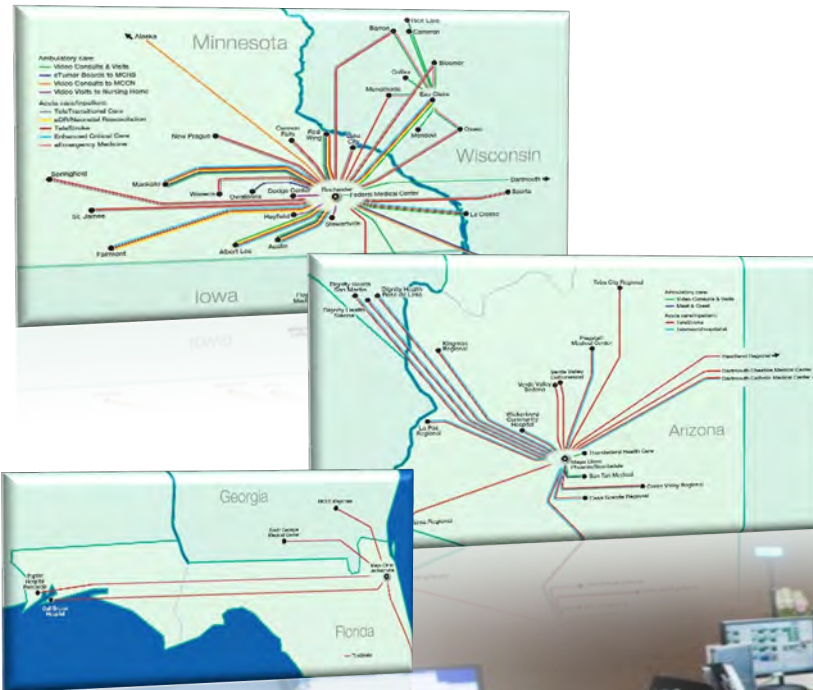
# -- Emergency Medicine Telehealth Center --



# Mayo Acute Care Telemedicine

- 60 originating sites
- Command & Control Center
- ~3000 activations per year

- Tele Stroke
- Tele Emergency Medicine
- Tele Neonatology
- Tele Behavioral Health



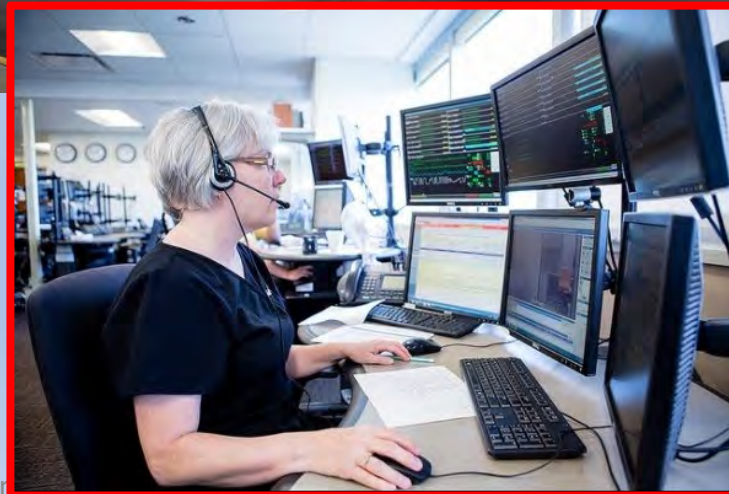


"THE SINGULARITY"



# Mercy Virtual Hospital

*Chester, MO - 2017*



# Mercy Virtual







The University of Nebraska Medical Center has broken ground on a new \$119 million facility meant to help physicians and nurses train for next-generation care delivery using emerging virtual and augmented reality technology.



The University of Arizona  
Health Sciences

## HEALTH SCIENCES INNOVATION BUILDING



▶ **The Health Sciences Innovation Building** will serve as a cutting-edge platform to build and foster collaborations among multidisciplinary teams of health professionals, students and faculty in medicine, nursing, pharmacy and public health. In addition to providing world-class spaces for simulation practice, clinical skills learning and community interaction on the University of Arizona Health Sciences campus in Tucson, this building will serve as the vanguard for inter-professional health education in the U.S. The nine-floor, 220,000 s.f. facility in the heart of the health sciences campus will welcome students and faculty in the summer of 2018.

### THE HEALTH SCIENCES INNOVATION BUILDING WILL:

- **Improve human health** by preparing "collaboration-ready" graduates who will advance medicine, nursing, pharmacy and public health
- **Foster collaboration among different disciplines** to learn, evaluate and improve critical processes in health care
- **Launch valuable public-private** partnerships to tap our cognitive diversity and expertise
- **Attract and retain the best** health sciences students, faculty, researchers and thought leaders
- **Close the gap between new technology and modern medical education** by expanding the Arizona Simulation Technology and Education Center
- **Move health care forward** by enhancing the research and development of specialized hardware and software



Tucson

# The Future is NOW!



# UAZ College of Medicine Health Sciences Innovation Bldg “Tomorrow is HERE!”



# ARIZONA TELEMEDICINE PROGRAM



**Thank You, Merci, Gracias y CIAO!**  
**[jmajor@telemedicine.arizona.edu](mailto:jmajor@telemedicine.arizona.edu)**

# Telehealth Best Practices



## Telehealth Best Practices

Video developed by the Hawaii Department of Health Genomics Section and available on the Pacific Basin TRC Website [www.pbtrc.org](http://www.pbtrc.org)