

SPARK REPORT

Online Healthcare

Connecting Patients
to the Care They Need
Through Telemedicine



October 2017 The delivery of care via telecommunication technology can strengthen both the state's healthcare workforce and healthcare delivery system. It can ensure that Arizona's communities receive more of the care they need when and where they need it.

An Introduction

In 2003, an 18 month old was severely wounded in a fatal car crash in Sonora, Mexico. She was in critical condition and desperately needed help. However, the physician who received this patient in Douglas, Arizona lacked the expertise to treat her. She didn't know where to start. The trauma surgeon on the case later recalled the situation. "I realized why she was visibly shaken. She had a little girl dying in her hands."¹

Luckily, after 45 long minutes and the help of the trauma specialist, the child was resuscitated and stabilized. The young physician was indebted to the skill and knowledge of her colleague. "Without you, this child would have died." She was also indebted to the technology that allowed the trauma specialist to help her. For those crucial 45 minutes during the child's stabilization, the specialist was never in the same room as the patient or physician, but 120 miles away at Banner University Medical Center (UMC) in Tucson, Arizona.¹ That day, telemedicine, remote medical care delivered through telecommunication technology, saved a child's life. This case is one of the earliest from the Southern Arizona Telemedicine and Telepresence (SATT) Program at the University of Arizona, a regional inter-hospital link that provided rural Southern Arizona hospitals immediate access to expert guidance at Banner UMC. Telemedicine programs like SATT save lives by connecting expert care to patients hundreds or even thousands of miles away via telecommunication technology.

This report serves to provide an overview of the various ways by which telemedicine is being used to transform healthcare

delivery, improve patient care, and address healthcare workforce shortages. It highlights promising practices occurring statewide and nationally, explains challenges faced by the industry, and offers various opportunities to advance telemedicine in Arizona. Such opportunities include, but are not limited to, the following:

- **Expanding health insurance coverage of telemedicine and refining current parity laws** can increase the number of patients in Arizona that receive needed care through telemedicine. Many telemedicine leaders and providers in and outside of Arizona agree the state telemedicine statute (ARS § 20-841.09) needs improvement.
- **Expanding broadband connection across the state** will help improve connectivity not only for rural providers and patients, but for those in urban areas as well. Greater internet connectivity means greater access to care.
- **Capitalizing on the potential of the Interstate Medical Licensure Compact** will enable residents in Arizona to more easily connect to telemedicine experts in other states, and allow Arizona-based practitioners to virtually export care delivery across state lines to maintain continuity of care with their patients who travel or live out of state for periods of time. The Compact will also expedite the process for physicians to obtain licensure in Arizona.

By taking advantage of these opportunities, Arizona can increase the delivery of telemedicine, improve access to care for residents, and create a stronger Arizona healthcare workforce.



What is Telemedicine?

Simply put, telemedicine is not a new medical specialty, but rather the delivery of care via telecommunication technology. This includes video or digitally enabled medical equipment, like otoscopes for assessing sore throats and earaches, storing and forwarding of health data such as photographs of skin conditions and x-ray images, remotely monitoring patients in the ICU from an outside facility, mobile health apps and transmission of sensor-acquired data like heart rate and weight, and live consultations via video conferencing. In practice, a patient might use a smartphone to capture and transmit an image of a worrisome rash, a clinician may present a complex case over videoconference to a group of expert specialists, or a burn expert could give guidance to an EMT treating a patient across the state.

The variety of ways that telemedicine can be used to treat and care for patients presents a unique opportunity to increase access to care for essentially every Arizonan. By its very nature, telemedicine is adaptable. Every community and resident in the state faces unique challenges that keep them from receiving the care they need. Telemedicine enables patients and physicians alike to adapt to these barriers and improve care.

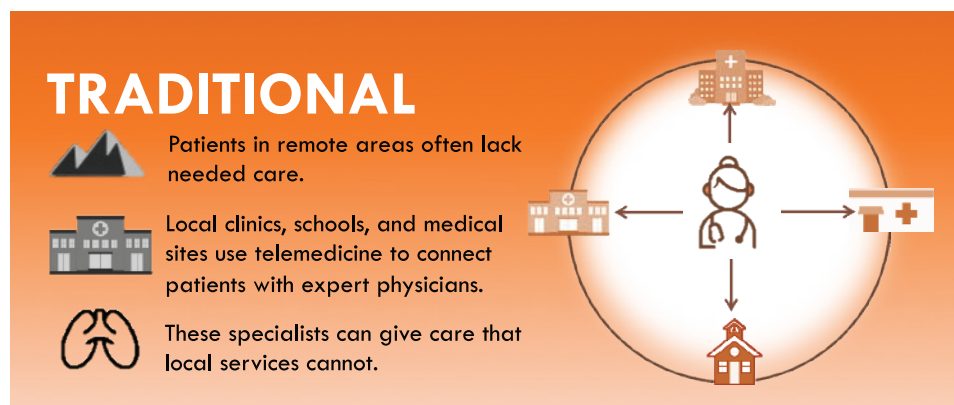
Telemedicine Models

Although telemedicine can be applied in many ways, three main service models have emerged. These include traditional, direct to consumer, and telementoring.

Traditional

Traditional telemedicine provides direct care using critical, local host sites. Typically, a provider at a local clinic, or host site, uses telemedicine equipment to connect a patient onsite with a specialist located miles away. The specialist could be at a larger hospital, an academic medical center, or one employed by a telemedicine clinical service provider company. If properly licensed, the specialist could be in a different state. In this model, host sites are spokes in a wheel and the location of the specialist, say a regional medical center, is the hub. Hubs then can

TELEMEDICINE AS DEFINED BY ARIZONA STATUTE IS "THE PRACTICE OF HEALTHCARE DELIVERY, DIAGNOSIS, CONSULTATION AND TREATMENT AND THE TRANSFER OF MEDICAL DATA THROUGH INTERACTIVE AUDIO, VIDEO OR DATA COMMUNICATIONS THAT OCCUR IN THE PHYSICAL PRESENCE OF THE PATIENT, INCLUDING AUDIO OR VIDEO COMMUNICATIONS SENT TO A HEALTHCARE PROVIDER FOR DIAGNOSTIC OR TREATMENT CONSULTATION."²



be utilized to treat patients at various spokes all over a region, while spokes can also provide consultation services to other spoke sites, expanding the simple one hub model to a network of networks.

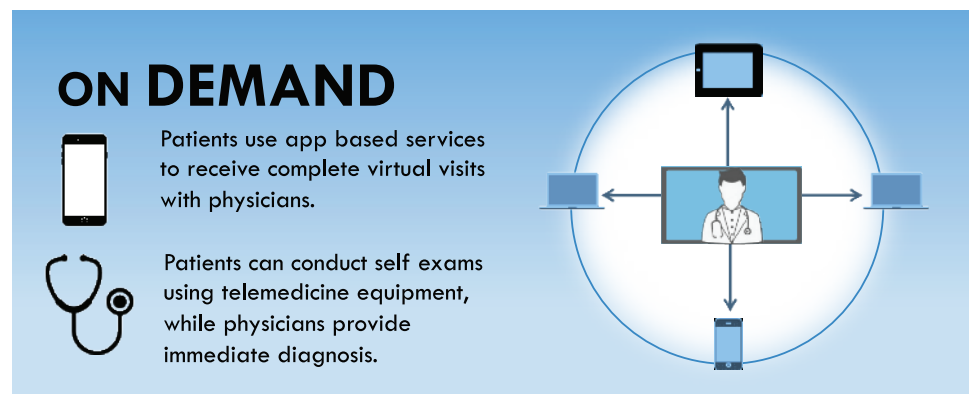
Local schools, clinics, places of business and medical practices can use telemedicine in this way to treat specialty cases that local clinicians cannot. For example, Flagstaff Medical Center is one of 11 Arizona urban hospitals that partners with Maricopa Integrated Health System Arizona Burn Center to receive expert guidance and diagnosis for burn patients via telemedicine over the Arizona Telemedicine Program (ATP) Network.³

Traditional telemedicine can be used for primary care visits as well. Clinicians conduct basic examinations with the aid of telemedicine equipment while electronic stethoscopes and blood pressure monitors send real time audio and visual feeds to physicians miles away. These physicians then provide diagnosis and recommend treatment. Other applications of traditional telemedicine include remote patient monitoring, in home services, chronic disease management, teleICU and emergency care.

Direct to Consumer

Direct to consumer telemedicine, otherwise known as on-demand care, is the result of advanced mobile technologies and patients' increased desire for convenience. This type of telemedicine replaces the local clinic with a personal tablet, internet platform or phone-based application. This allows patients to schedule and attend appointments with physicians from across the country. In many cases, the patients pay out-of-pocket for these virtual consults. In-home equipment, such as Bluetooth enabled blood pressure cuffs and scales, enable comfortable and timely personal examinations. Thus, visits can be conducted in one's own house, hotel room, or anywhere in between.

ON-DEMAND CARE ALLOWS PATIENTS TO SCHEDULE AND ATTEND APPOINTMENTS WITH PHYSICIANS FROM ACROSS THE COUNTRY, BUT IN MANY CASES, THE PATIENTS PAY OUT-OF-POCKET FOR THESE VIRTUAL CONSULTS.

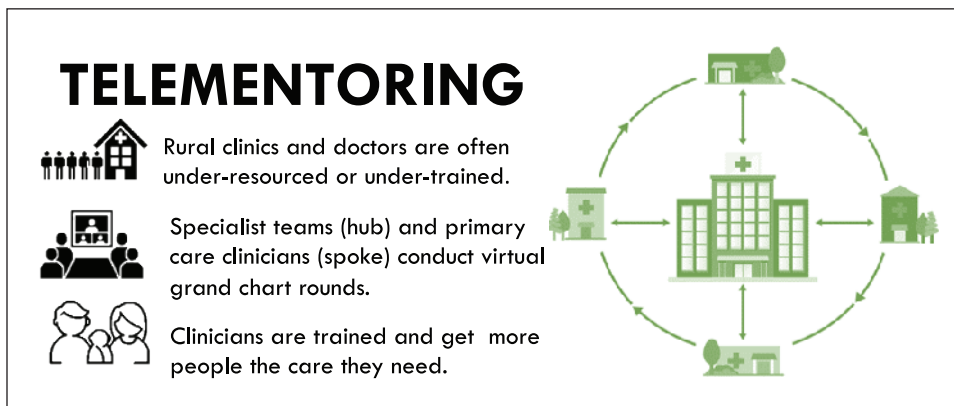


In this model, patients usually have access to a network of doctors employed and trained by the telemedicine service provider company. For instance, Teladoc has 3,000 independent physicians that help providers give care 24 hours a day. Providers can also use their own physicians to treat patients.⁴ Companies known for this type of telemedicine include American Well, Doctors OnDemand, TytoCare, and MDLive.⁴

Telementoring

Telementoring takes a slightly different approach than the previous models. Unlike traditional or direct to consumer telemedicine, telementoring focuses on connecting providers with other care providers, instead of patients directly. The key word in this model is 'mentoring.' Recognizing that rural clinics and medically underserved areas are often under-resourced and not trained to meet the myriad of specialty needs of their communities, telementoring provides training and education instead of direct care. Specialist teams connect virtually with primary care and other healthcare providers to conduct virtual grand chart rounds in which they discuss complex patient cases and provide education on new techniques, procedures, medications and other ways to improve patient care. Because providers receive the support and training they need to treat specific conditions, they can provide better care for more people without having to contact a specialist each subsequent time diagnosis or treatment is needed.

TELEMENTORING CONNECTS PROVIDERS WITH OTHER CARE PROVIDERS TO PROVIDE TRAINING AND EDUCATION – INSTEAD OF DIRECT CARE TO PATIENTS.





travel costs for patients – including fuel prices, lodging, and lost patient wages – are over \$300 per person.¹¹ Sadly, some patients completely forgo care due to the amount of time and money required for this travel.

Thankfully, with recent developments in telecommunications and video-enabled technology, telemedicine has become a viable option to address the access to care and workforce shortage dilemma. Telemedicine gives healthcare an advantage it very much needs: increased access to care, lower costs, and lower readmissions.¹² In 2012, the Veterans Health Administration (VA) saw an estimated savings of \$6,500 for each patient using its telemedicine services. In addition, the number of bed days and hospital admissions decreased for all VA telemedicine patients.¹³ The VA's success is no exception. Mercy Health in St. Louis developed a telemedicine Virtual Care Center that has decreased length of stay and mortality rates by 40%.⁹ Naturally, costs have decreased because fewer patients need to stay in the hospital. More expansive studies suggest that telemedicine could save U.S. healthcare up to \$6 billion in costs annually.¹² Overall, the literature clearly shows that telemedicine helps increase access to care and reduce costs.¹⁴

Telemedicine's potential impact goes beyond improved care delivery. Currently, 59 million Americans reside in HPSAs.⁵ Telemedicine can address workforce shortages in these areas by increasing capacity and creating jobs. For instance, rural schools with no fulltime school nurse can utilize telemedicine to diagnose and treat ill students by connecting to an offsite physician or nurse, thereby increasing capacity. The same school may also create an Information Technology (IT) position to maintain the technology and oversee the program, thereby creating jobs. Telementoring and distance education opportunities can also be used to connect rural providers with colleagues in larger medical centers, providing them with critical access to the latest developments in healthcare and treatment options. This reduces the feeling of isolation and increases the chance of rural providers remaining in their communities to practice.

Examples of telementoring impacting workforce development are widespread across the country. One study from Columbia found that over 22,000 jobs were created because of telemedicine programs.¹⁵ Similarly, jobs in telehealth coordination, telehealth nursing, and telehealth education

are currently flooding online job postings. Clinical healthcare, IT, and patient services are just a few of the fields expected to grow due to telemedicine; while new jobs at clinics, universities, and institutions will develop in order to implement and manage these services. Many of these jobs may be located at rural host sites, giving community members the opportunity to pursue these careers without relocating to urban centers.

Although telemedicine offers an effective way to improve care and expand the workforce, there are limitations. One of the main concerns with telemedicine is its quality of care as compared to in-person visits. Currently, telemedicine is very effective at certain services, including simple examinations of the throat, lungs, eyes, ears, and even abdomen; however, more complex services can be inadequate. For example, physicians cannot palpate organs through telemedicine. Many skeptics feel these virtual visits don't replace in-person doctor visits, but rather create additional appointments and additional costs. For instance, a study found that 58% of in-store clinics offering telemedicine services represented new use of medical services rather than replacing a doctor's visit.¹⁶ Likewise, research shows that sometimes patients using telemedicine services need additional in-person follow-up for more precise diagnosis or treatment.¹⁶ Such evidence points to the reality that telemedicine is certainly not a silver bullet in addressing all healthcare and workforce shortages. Not all services are appropriate and not all patients are best suited for telemedicine. Telemedicine will be most effective as one tool in the continuum of care. Combining telemedicine with in-person services, while also improving other aspects of the healthcare system, holds promise for a better health future in Arizona.

Promising Practices in Arizona

In 1996, a time in Arizona when telemedicine was virtually nonexistent, Dr. Ronald Weinstein and Representative Robert “Bob” Burns established the Arizona Telemedicine Program to create a broadband telecommunications infrastructure for telemedicine (Arizona Rural Telemedicine Network). The program provides telemedicine services, distance learning, informatics training, and telemedicine technology assessment capabilities to communities across the state.^{17,18} Since then, telemedicine leaders have further transformed how many Arizonans receive care. Some of these innovative and transformative solutions are described below.

Arizona Telemedicine Program (ATP)

ATP is made up of 50 members in 170 locations, from various backgrounds and care services across the state.¹⁹ ATP is one of the largest state-wide programs in the nation and has five divisions: Telemedicine Infrastructure, Training, Distance Learning, Assessment, and Telemedicine Services. The program holds an annual training conference at Flagstaff Medical Center and has trained leaders on best telemedicine practices via video conferences in Europe, Asia, and Latin America. In its roughly 20 year existence, ATP has handled 1.3 million cases by performing services including telera-diology, telecardiology, telepathology, tele-infectious disease, tele-diabetes, long distance monitoring, teleophthalmology for Native Americans, telestroke care, and tele-physical therapy.³ One specific highlight from the ATP broadband telemedicine network is the connection between Yuma Regional Medical Center’s Neonatal Intensive Care Unit and Banner UMC – Tucson. UMC pediatric cardiologists see and direct echocardiograms of newborns in real time and can diagnose the severity of heart problems. According to Dr. Greg Warda with Yuma Regional, “Telemedicine has saved so many babies.”³

Arizona Telemedicine Council (ATC)

ATC was organized to support the advancement of telemedicine and foster discussion regarding telemedicine best practices, business solutions, policy, and funding opportunities. Currently, there are 44 ATC members from government agencies, industry, and the public and private healthcare sector. The Council meets once a quarter and has held 86 quarterly meetings since 1996.¹⁹

Northern Arizona Telemedicine Alliance (NATA)

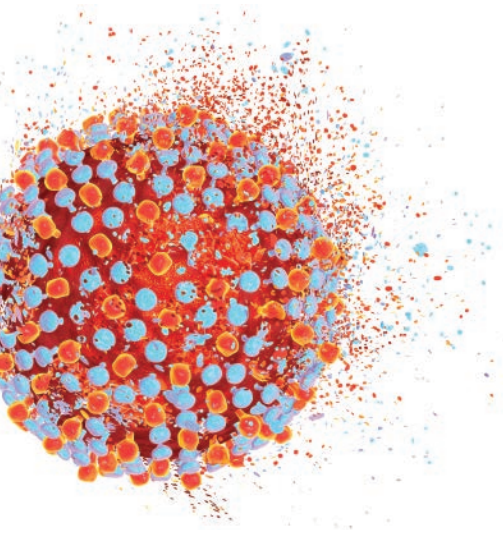
NATA was born out of a desire to collectively improve health-care and patient outcomes in Northern Arizona. NATA is organized and staffed by ATP and began meeting in 2014 as a way for providers to collaborate, share information, and support one another’s work. The informal group meets quarterly with an average of 15-20 participants. Some members include Northern Arizona Healthcare, North Country Healthcare, and Health Choice Integrated Care.²⁰

Northern Arizona Healthcare (NAH)

NAH clinics are created specifically to connect patients to care at Flagstaff Medical Center, where NAH’s telemedicine program is housed. As both a hub and spoke, NAH can provide and receive telemedicine consultations across the state. A leader in home health monitoring, NAH’s Care Beyond Walls and Wires program has reduced hospitalization rates and days of hospitalization. NAH also offers an on-demand service, “Be Well Now,” through a partnership with American Well.²¹

Health Choice Integrated Care (HCIC)

HCIC provides telemental services to patients across Northern Arizona. The recipient of three national awards, HCIC is most known for organizing the RBHAnet, a telemedicine network connecting four regional behavioral health authorities across the state. The network includes more than 80 sites and has completed more than 200,000 consultations since its inception.²² RBHAnet has helped save thousands of dollars in costs by reducing travel expenses for physicians and patients.²³ Some services provided through the program include psychiatric evaluations, inpatient staffing, consultations, therapy, case management, and emergency evaluations.²⁴



PROJECT ECHO

THE FIRST ECHO PROGRAM WAS LAUNCHED IN 2003 AT THE UNIVERSITY OF NEW MEXICO (UNM) AND WAS DESIGNED TO TEACH RURAL PROVIDERS HOW TO TREAT HEPATITIS C.

PROJECT ECHO IS A FORM OF TELEMENTORING, SO INSTEAD OF PROVIDING DIRECT CARE, PROJECT ECHO USES TELE-MEDICINE TO DISTRIBUTE KNOWLEDGE. CURRENTLY THE ECHO MODEL IS BEING USED AT 112 SITES WORLDWIDE AND HAS BEEN ADOPTED BY VARIOUS GROUPS INCLUDING THE U.S. DEPARTMENT OF VETERANS AFFAIRS.⁶⁰

See Page 12 for more information on Project ECHO.

Copper Queen Community Hospital

Copper Queen Community Hospital has used telemedicine to adapt to the funding cuts and hardships many rural hospitals face. Located in Bisbee, Arizona, Copper Queen Community Hospital offers a wide suite of telemedicine programs including teleburn, telepediatrics, telecardiology, telepulmonology, telestroke and telera-diology. Physicians from out of town provide specialty services via telemedicine, enabling patients to stay in Bisbee to receive the care they need. Similar to Northern Arizona Healthcare, Copper Queen Community Hospital has a home care monitoring program.²⁵

VA Healthcare Systems

Northern Arizona VA Healthcare System (NAVAHS) is using telemedicine to reshape how veterans receive care. Since 2011, NAVAHS has used telemedicine to provide care for patients located in a 65,000 square mile area. Primary Care Tele-medicine Outpatient Clinics (PTOC) located throughout the region connect rural patients with expert physicians. These clinics are staffed with a Registered Nurse and a Certified Health Technician. Staff assist the remote provider in assessing the patient with the use of telehealth modalities located at the PTOC that aid the examination. NAVAHS also uses telemedicine for in-home monitoring to care for patients with chronic conditions such as diabetes, congestive heart failure, or hypertension.²⁶

The Phoenix VA Healthcare System, in partnership with Chandler Fire, Health & Medical Department, and Tempe Fire Medical Rescue Department, has created its own telemedicine program to treat high-risk veterans in need. A community paramedic and nurse conduct in-home appointments by connecting residents to a medical provider through a mobile tablet. The Phoenix VA Healthcare System has also developed a mobile medical unit equipped with an exam room that can be deployed to rural parts of Arizona, by which veterans receive basic examinations and mental health consultations.^{27,28,29}

North Country Hepatitis C Care Team

The Hepatitis C Care Team at North Country HealthCare provides hepatitis C virus (HCV) screening, treatment, and education. The team is made up of a program coordinator, support personnel, behaviorists, health coaches, clinical pharmacists, and healthcare providers. Using the telementoring model Project ECHO, the team receives expert treatment guidance from HCV specialists in Phoenix. The North Country ECHO program, headquartered in Flagstaff, links clinicians from 14 community health centers across Northern Arizona via the ATP network to discuss patient history, status, and treatment options. These discussions are led by specialists at the University of Arizona Cancer Center at Dignity Health St. Joseph's Hospital and Medical Center. More than 100 patients have completed HCV treatment through this program.³⁰

Mayo Telestroke Program

Mayo Clinic uses telemedicine to serve various hospitals and medical centers across the state by providing definitive diagnosis of stroke in patients presenting with stroke symptoms. Clinicians can receive real time treatment advice from neurologists which can save patients an unnecessary transfer to a larger hospital. Most importantly, these experts can determine whether or not to administer tPA, a clot-dissolving drug that reduces disability and can save lives when given quickly after a stroke. Having this real-time interaction between experts and attending physicians saves costs, time, and lives. In addition to receiving the expedited care, studies show that the cost of care for stroke patients receiving care through Mayo's program is almost \$1,500 less than routine stroke care.³¹

Interstate Medical Licensure Compact

On May 11, 2016 Arizona joined the Interstate Medical Licensure Compact, a multistate compact aimed at expediting the process for physicians seeking to practice in multiple states. The compact reduces the primary documents required for verification and eliminates the redundancy of state licensure applications. Ultimately, the compact will enable patients in Arizona to receive more access to medical experts across the country.³² In addition, the compact will allow Arizona to virtually export its providers, thereby bringing additional funding into the state. The first medical license issued by the Interstate Medical Licensure Compact Commission was issued on April 20, 2017 to an applicant with a Wisconsin principle license that applied for a Colorado medical license through the interstate compact. Arizona's participation in the Interstate Medical Licensure Compact becomes effective January 1, 2018. As of May 2017, 20 states had joined the compact and five additional states had compact legislation in process.³³

Banner iCare and eICU

Located in Phoenix, one of Banner Health's most notable telemedicine programs is its electronic Intensive Care Unit (eICU) operations center. Critical care physicians, acute care

nurse practitioners, and nurses are available 24/7 to monitor patients in Banner hospitals across the country. Studies have shown that these types of eICU programs can shorten hospital and ICU stays.³⁴ By having additional support at patients' bedsides, the correct treatment can be provided immediately via telemedicine with the guidance of Banner eICU staff.³⁵

Banner has taken this successful eICU program and adapted it to treat and care for chronic patients and frequent emergency room users. Through Banner's iCare program, patients receive home health monitoring kits and tablets. Additionally, they are connected to a virtual Care Team that works with the patient's primary care physician. Since 2014, the program has seen hospitalization rates reduced by 49.5% and total cost of care go down by 34.5%.³⁶ Banner received the Industry Leader Award from the American Telemedicine Association for this work. In the words of the Patient Care Innovation Vice President for Banner, the program is "improving the quality of life for these people while reducing the cost of healthcare. A win for everyone."³⁴

Telemedicine & Telehealth Service Provider Showcase (SPS)

Started in 2014, SPS is a national conference created by ATP, Southwest Telehealth Resource Center, and the Four Corners Telehealth Consortium. The showcase is an opportunity for telemedicine service provider companies to link with hospitals, healthcare systems, clinics, and anyone else who could use their services. Attendees get the chance to hear from national experts on telemedicine, connect with telemedicine vendors, and share best practices with one another.³⁷

ATP also hosts the Telemedicine and Telehealth Service Provider "Directory" on its web page (telemedicine.arizona.edu/servicedirectory). This database, which is national in scope and currently lists information on 113 companies that provide clinical telemedicine services, including 48 companies doing business in Arizona. The site is designed to provide healthcare organizations with critical information for in-sourcing a broad spectrum of telemedicine services.

BANNER EICU: "IN 2012, ICU ACTUAL LENGTH OF STAY WAS 20,000 FEWER DAYS THAN PREDICTED, BASED ON PATIENT ACUITY; AND TOTAL HOSPITAL DAYS WERE REDUCED BY 49,000. COSTS AVOIDED: MORE THAN \$68 MILLION."³³

Promising Practices from Around the Nation

Arizona was one of the early pioneers of telemedicine, but across the country states are creating new and improved applications for telemedicine. Effective policy, collaborative partnerships, and efficient treatment are a few ways that other states are improving telemedicine. Some of the nation's promising practices are highlighted below.

Policy

In the 2017 American Telemedicine Association (ATA) Gap Analysis, New Mexico, Nevada, and Tennessee received high accolades for their telemedicine laws. Each state scored an "A" for both coverage/reimbursement and physician/licensure. New Mexico first passed a telemedicine law in 2013, establishing what is referred to as "true parity," which requires the same coverage and rate of reimbursement for telemedicine services and in-person medical services. Also, state service requirements for telemedicine are equal to in-person care standards, and out-of-state physicians wanting to practice telemedicine in New Mexico can obtain a telemedicine permit to do so. Nevada also offers a telemedicine permit and has joined the Interstate Medical Licensure Compact. Tennessee's law includes true parity; and like New Mexico, has Medicaid coverage for school and in-home care and forbids adopting stricter standards than in-person care. Each of these states are creating environments for telemedicine to thrive. Other states that scored an "A" in the ATA Gap Analysis include Louisiana, Kansas, Montana, South Dakota, Tennessee, and Utah.^{38,39}

New York Presbyterian (NYP) and American Well

Once only accessible at a local host site, today, on-demand telemedicine services give patients access to doctors from virtually anywhere. Arizona has its own share of on-demand influence thanks to startups like Mesa's eVisit and Northern Arizona Healthcare's partnership with American Well. However, the on-demand provider and healthcare system partnership between American Well and New York Presbyterian (NYP) is one that Arizona might consider replicating. Since implementing telemedicine, wait times for NYP have decreased from 2.4 hours to just 31 minutes.³⁹

Using American Well's Software Development Kit, NYP connects patients to physicians 24/7 using their own network of physicians that includes ColumbiaDoctors, Weill Cornell Medicine Physician Organization, and New York Presbyterian Medical Groups. This strategy allows patients to meet with physicians whom they trust in a timely manner. Unlike

most of American Well's partnerships, the patient experience is tailored to NYP's online platform, NYP OnDemand. NYP uses the nuts and bolts of American Well while the user experience stays the same.⁴⁰

Project ECHO

Many physicians have reservations that telemedicine can provide the same quality of care as in-person visits. Thus, giving up a clinic spot to see a patient via video doesn't make sense. Dr. Norman Sussman at Baylor College of Medicine sees telementoring (using telemedicine to distribute knowledge instead of direct care) as a way to address these concerns. For Sussman, telementoring lets him increase his capacity without feeling like he is giving up quality of care. The first ECHO program was launched in 2011 at the University of New Mexico (UNM) and was also designed to teach rural providers how to treat the hepatitis C virus (HCV).⁴¹ Through this same model, Dr. Sussman has helped more than 400 patients with HCV and has trained providers to treat 10 times that amount. He sees this delivery method as both a cost effective and ethical way to deliver care and has expanded services to offer cardiology clinics on hypertension, hyperlipidemia, congestive heart failure, and cardiac issues related to obesity.⁴²

Currently the ECHO model is being used around the world and has been adopted by various groups including the U.S. Department of Veterans Affairs.⁶² Due to its success, President Obama signed the bi-partisan ECHO Act on December 14, 2016. The Act will build on the work of UNM and will study the ECHO model and its impact on health conditions, healthcare workforce, and public health programs.⁴³ Best practices, barriers, and recommendations regarding the role of technology-enabled collaborative learning and capacity building should result.

The University of Mississippi Medical Center

Mississippi has the lowest physician to population rate in the nation at 184.7 physicians per 100,000 residents (Arizona ranks 32nd with 234:100,000). In rural Mississippi, 65% of

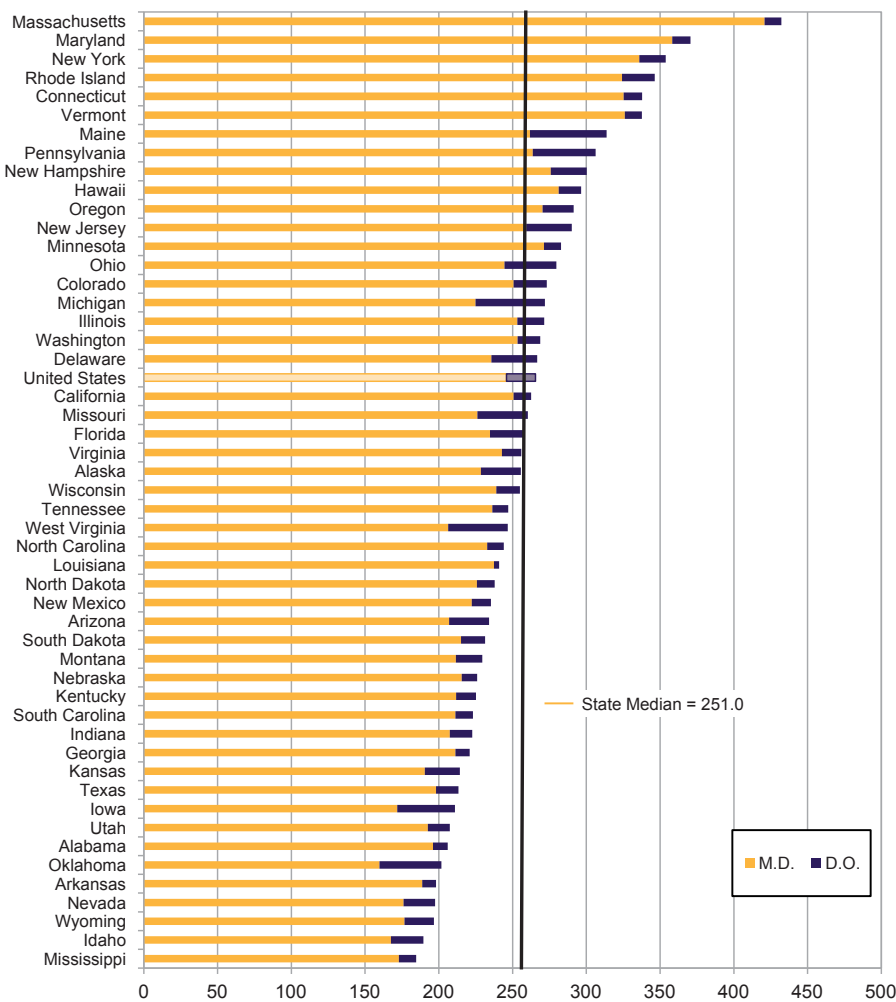
the state's counties are more than a 40-minute drive from specialty care. Even though 64% of patients live in rural areas, 68% of the providers are located in urban settings.^{44,45}

Amidst these shortages, the University of Mississippi Medical Center for Telehealth uses remote patient monitoring to increase patient care. Diabetic patients receive mobile tablets and examination devices that enable them to check vital signs, participate in education sessions, and report daily health information. If patients don't check-in or if vital signs are outside of the appropriate range, a physician will contact the patient for follow-up. After a six-month pilot program in 2014, A1C levels decreased and medication

adherence increased to 96%.^{46,42} In total, the program saved \$339,184, and according to Michael Adcock, Administrator for the Center, if 20% of the diabetic population in Mississippi participated in a program like this one, the state could save approximately \$180 million per year.⁴⁷

This same model is now being adapted by the Center to treat patients with chronic obstructive pulmonary disease, hypertension, kidney disease, and other conditions that require chronic disease management.⁴⁴ As a whole, the Center for Telehealth handles 100,000 virtual visits per year through 218 service locations in 35 medical specialties.⁴⁵

FIGURE 3 Active Physicians per 100,000 Population
BY DEGREE TYPE, 2014



THE UNIVERSITY OF MISSISSIPPI
MEDICAL CENTER FOR TELEHEALTH
SAVED OVER \$339,000 IN 2014
IN A SIX-MONTH PILOT PROGRAM
FOR DIABETIC PATIENTS USING
REMOTE MONITORING.

Note: Physicians whose school type was unavailable (n=58) are excluded.

Source: Association of American Medical Colleges, 2015 State Physician Workforce Data Book. July 1, 2014, population estimates are from the U.S. Census Bureau (Release date: December 2014). Physician data are from the 2015 AMA Physician Masterfile (December 31, 2014).

Arkansas Children’s Hospital and Rural Schools

In Arkansas, elementary students don’t miss school when they need to see the doctor. A partnership between Arkansas Children’s Hospital and various schools around the state connects ill students to care from physicians without leaving the school nurse’s office. Through a grant from the Department of Agriculture, the Children’s Hospital helps keep more kids in school and their parents at work. When a child needs to see a doctor, school nurses perform exams with the help of a telemedicine cart, fully equipped with high-definition video and electronic medical devices including otoscopes, stethoscope, and a dermatological camera. From across the state, physicians watch in real-time as the nurse conducts the exam, offering guidance and providing a diagnosis. After the visit, an “after-care report” is given to the student’s parents and primary-care physician.⁴⁸



IN RESPONSE TO RECENT NATIONAL CRITICISM, THE VA SOUGHT NEW WAYS TO FIX WHAT MANY WOULD CALL A BROKEN SYSTEM. CREATING A TELEMEDICINE PROGRAM BECAME A PRIORITY TO ACCOMPLISH THAT, AND IN 2015, 677,000 VETERANS RECEIVED CARE.

Mayo Clinic in Rochester, Minnesota

At Mayo Clinic in Rochester, Minnesota, the Division of Neonatal Medicine uses telemedicine to aid hospitals less familiar with advanced newborn resuscitations. The aim of the program is to provide the correct level of care in the right location for these high-risk newborn deliveries. Over a span of 20 months between 2013 and 2015, six health systems received 84 consultations. After these consults, one-third of the patients were able to stay in the local hospital instead of being transferred to a hospital farther away. Overall, patient access to expert care increased and patient transfers decreased due to the telemedicine program. Ninety-three percent of community physicians agreed telemedicine consults improved patient safety, quality of care, or both.⁴⁹

The VA Health System

In recent years, the VA Health System in Phoenix and across the country has received national criticism for its wait times and scheduling issues. In response, the VA sought new ways to fix what many would call a broken system. Creating a robust telemedicine program became a top priority.

There are three main strategies the VA uses for telemedicine. These include Store and Forward Telehealth, Clinical Video Telehealth, and Home Telehealth Monitoring which helps treat chronic conditions. In total, telehealth services are available for 45 specialty services. In order to treat patients across the country, the VA has created telemedicine hubs for a variety of these specialties. For instance, in 2016 the VA announced it would be creating five Mental Health Telehealth Clinical Resource Centers to provide mental health care for veterans in remote areas. These hubs and others like them connect with VA clinics across a particular region, primarily providing care for cases relating to mental health, rehabilitation (including audiology and speech pathology), retinal imaging, primary care, weight management, cardiology, and dermatology.⁴⁹

In 2015 alone, the VA conducted more than 2 million telemedicine visits and in fiscal year 2015, 677,000 veterans received care through telemedicine. The VA has seen positive results from its telemedicine program. Bed days have been reduced by 56 percent; readmissions have been reduced by 32 percent; and psychiatric admissions have seen a 35 percent reduction.⁵⁰

Today's Challenges

National leaders in telemedicine are innovating at such a pace that Arizona may begin falling behind. Per discussions with telemedicine professionals across the state, Arizona telemedicine leaders seem to share this message: Arizona is a pioneer in telemedicine, but there is work to be done to stay current. Despite the state's many accomplishments, there is still room to improve.

Reimbursement, licensure, and bandwidth were consistently mentioned as the biggest challenges Arizona telemedicine faces. Not surprisingly, national research paints a strikingly similar picture. A U.S. Department of Health and Human Services report surveyed the most important issues regarding telehealth policy. The three most important issues to federal leaders and healthcare stakeholders were payment and coverage, state licensure barriers, and broadband connections to rural hospitals and clinics.⁵⁷ These barriers present significant challenges to the efficacy of increasing care through telemedicine.

Reimbursement

Poor reimbursement makes a difficult endeavor, creating a telemedicine program, all the more challenging. Dr. Don Kane, Dignity Health Regional Chief Medical Informatics Officer, explained that providers are busy seeing patients in-person, and expanding to take on additional patients via telemedicine creates an additional burden that limits the implementation of these programs. Despite this reality, as Dr. James Johnson with the Northern Arizona VA Health Care System described, "As soon as someone starts making money off of it, [telemedicine] will explode." Addressing parity will financially enable and incentivize providers to give quality care to patients when and where they need it, through telemedicine. But without adequate reimbursement, providers simply will not have the ability to offer telemedicine services. Fortunately, courtesy of a recent change in state law, Arizona telemedicine coverage will increase geographically from rural-only to statewide in 2018. However, in order to adequately expand the amount of telemedicine services offered in the state, the number of covered services will need to expand as well.

"WHEN PAY IS THE SAME,
YOU'LL SEE PEOPLE
JUMP ON BOARD."

*Dr. Sue Sisley,
Telepsychiatrist*



Licensure

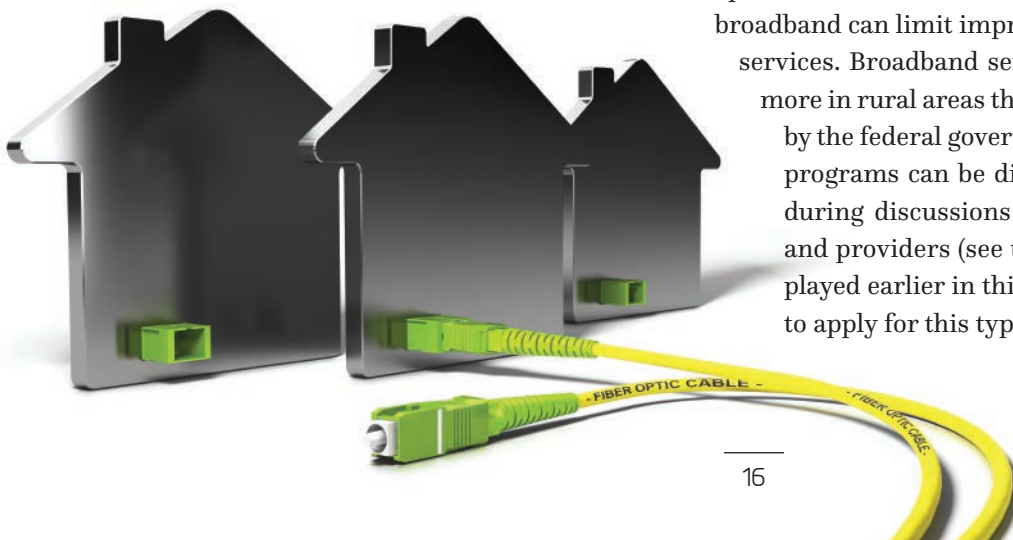
Increasing capacity and the provider workforce through telemedicine is another way we can increase access to care. However, long, tenuous and often expensive licensing processes can discourage out-of-state providers from practicing telemedicine in Arizona. As noted by the U.S. Department of Health and Human Services report, “State licensure barriers can block healthcare providers’ enthusiasm about telehealth.”⁵⁷ Telepsychiatrist Dr. Sue Sisley shared this sentiment. Dr. Sisley often receives requests for consultation from patients in other states, but can’t treat them because she isn’t licensed in the state where the patient resides. Knowing how difficult it can be to obtain those licenses, Dr. Sisley is confident an interstate license agreement would help doctors obtain licensing and provide care for patients in need of telemedicine services.

Part of the VA’s telemedicine success can be attributed to the freedom physicians have within a national health system. Physicians have “license portability,” which enables a physician in Rhode Island to treat patients from Denver, Phoenix, and Seattle in the same day. This creates a large pool of experts that can provide virtual treatment and expertise to patients across state lines. Although creating a single federal license is problematic, reducing barriers to state licensing for providers is a proven method to expand telemedicine services and connect patients to the care they need.

Broadband Connectivity

In many cases, the primary barrier keeping patients from connecting to physicians via telemedicine is the need for bandwidth. The 2016 Broadband Progress Report conducted by the Federal Communications Commission (FCC) found that 39% of rural Americans lack access to minimum broadband speeds. In rural tribal communities across the nation this number increases to 68% – a major concern, considering tribal land makes up 25% of Arizona’s geographic area. Not surprisingly, the FCC report discovered that in Arizona’s rural tribal land, 95% of residents lack access to these minimum broadband speeds; while in non-tribal rural Arizona communities, 63% of residents lack access. In short, the communities most in-need of telemedicine services often lack basic connectivity required for such services.^{51,52}

In places where there is adequate connectivity, financial costs for broadband can limit improvements or expansion of telemedicine services. Broadband services can cost as much as three times more in rural areas than in urban.⁵⁰ Although there are efforts by the federal government to provide funding for this, these programs can be difficult to navigate. This was confirmed during discussions with NATA. Many small, rural clinics and providers (see the AZ Telemedicine Network map displayed earlier in this report) simply don’t have the capacity to apply for this type of funding.⁵³



Opportunities for Improvement

Overcoming poor connectivity, limited reimbursement rates, and difficult licensing processes will be essential to capitalize on telemedicine's potential to provide better care when and where it is needed. High quality healthcare delivery systems are being shaped by innovative and technologically rich ideas and before long, telemedicine and medicine will be synonymous. Fortunately, there are opportunities to overcome these barriers and advance patient care via telemedicine.

Policy and Parity

There exists common sentiment among Arizona's telemedicine leaders that the Arizona statute governing telemedicine-covered services (ARS § 20-841.09) needs improvement. Despite positive "B" ratings from the ATA, the state's current policy has its limitations. For instance, Arizona is one of only two states, the other being Alaska, that have what are called partial parity laws. These laws only cover a select list of telemedicine services, rather than requiring equal coverage for every telemedicine and in-person service. Currently, Arizona requires coverage and reimbursement for eight services. These include trauma, burn, cardiology, infectious diseases, mental health disorders, neurology, dermatology, and (in 2018) pulmonology. Stakeholders continue to pursue adding covered services through legislation; however, these efforts are often met with significant opposition. Rather than continuing this piecemealed approach, stakeholders should consider working together to enact true, comprehensive parity.³⁷

Additionally, including true parity language in Arizona's telemedicine statute can help expand care. As Nathaniel Lacktman, healthcare lawyer and telemedicine expert with Foley & Lardner LLP, points out, Arizona's policy is a coverage law, not a parity law. The Arizona statute states, "All contracts issued, delivered or renewed on or after January 1, 2018 must provide *coverage* for healthcare services that are provided through telemedicine if the healthcare service would be *covered* were it provided through in-person consultation between the subscriber and a healthcare provider and provided to a subscriber receiving the service in this state." The law only references equal coverage, not equal reimbursement rates.^{54,55}

Unlike Arizona, states like New Mexico, Delaware, and Minnesota have enacted true telemedicine parity laws. Minnesota's law has a specific section titled "Parity between telemedicine and in person services." The parity language follows.



"A health carrier shall reimburse the distant site licensed healthcare provider for covered services delivered via telemedicine on the *same basis and at the same rate* as the health carrier would apply to those services if the services had been delivered in person by the distant site licensed healthcare provider." The language, "on the same basis and at the same rate" explicitly ensures providers receive equal reimbursement for service.⁵⁶

Without this clear language, insurance companies are able to reimburse telemedicine services for a portion of what they would for in-person care. New York encountered this issue after enacting a telemedicine law in 2016 that didn't include parity language. Consequently, commercial insurers only paid a portion of the traditional in-person reimbursement rate. Some insurers reimbursed at only 50 percent of the in-person rate. New York addressed this problem by amending the bill with language similar to Minnesota's, requiring reimbursement on the same basis and at the same rate as established for the service provided in-person.⁵⁷ Including true parity language protects Arizona providers from experiencing this and increases the ability for them to provide care. Establishing true parity statutes and expanding the list of telemedicine services reimbursable under Arizona's law could lay the groundwork for more impactful use of telemedicine in Arizona.

Interstate Medical Licensure Compact

With the rise of telemedicine and the potential for cross-state care, state medical boards are tasked with figuring out how to attract top talent to the state while still upholding licensure standards. A survey of 57 state medical boards and osteopathic boards across the country found that the number one issue they currently face is telemedicine.⁵⁸ As a means to address these telemedicine licensing issues, multiple states have signed on to the Interstate Medical Licensure Compact. The compact provides a quicker and easier way for physicians to receive licensure in multiple states by reducing repetitive application processes. For instance, primary information like education, liability history, and physician history must only be verified by the initial licensing state and not additional states where licensure is sought.

The Compact Commission will oversee the expedited licensure process, but the Arizona Medical Board will retain jurisdiction to enforce violations and will maintain regulatory authority in the state.

Although it is still unclear whether the Compact will lower costs, it does give ambitious physicians wanting to practice in multiple states an easier process to do so. In order to attract top talent to the state, Arizona should take full advantage of the Compact. Supporting the Commissions' implementation of the Compact will help ensure qualified physicians can easily get licensed in Arizona. In the words of Arizona Governor Doug Ducey, "...the world's most talented physicians know that Arizona is open for business."⁵⁹

Universal Service Fund

Various funding sources provide rural areas with resources needed to establish and expand broadband. One such source is the Universal Service Fund (USF). The USF provides resources through four main programs, one being Rural Health Care Support. Rural Health Care Support enables rural healthcare providers to pay rates for telecommunications similar to urban rates while subsidizing internet access. In 2014, about \$200 million was distributed nationally through the Rural Health Care Support program.⁶⁰

For telemedicine providers, the USF provides an important opportunity to receive resources needed to establish critical network connections. According to many NATA members, the USF is a great opportunity, with one exception: it's extremely time consuming and difficult to apply for. Currently, small providers with minimal capacity contract with third-party companies to apply for USF on their behalf. These companies make it easier to obtain USF funding, but take a large percentage of the funds as compensation, diverting much needed resources from providers in rural Arizona.⁶¹

One way to decrease the burden and increase the shared benefit of USF is to apply through a consortium. For members of a group like NATA, a consortium could be an ideal approach to bring in funds to Northern Arizona telemedicine programs. Not only does a consortium help provide the capacity needed for smaller providers to apply for funding, but it creates an avenue for rural providers – particularly those who may not fall within Federal Communications Commission's definition of



IN MARCH 2017, THE ARIZONA CORPORATION COMMISSION VOTED TO APPROVE A ONE-TIME DISTRIBUTION OF FUNDS TO HELP PROVIDE BROADBAND SERVICES TO SCHOOLS ACROSS THE STATE. THE ARIZONA UNIVERSAL SERVICES FUND COMMITTED \$8 MILLION TO HELP ESTABLISH THE PROGRAM. THE RURAL SCHOOLS THAT RECEIVE THESE SERVICES ARE POTENTIAL ACCESS POINTS FOR PATIENTS TO RECEIVE TELEMEDICINE CARE.⁵⁹

rural – to obtain funding. Only a small percentage of members in a consortium need rural designation, which enables these “non-rural” members to receive much needed resources. Helping create these types of consortiums could allow critical access providers in rural Arizona to take advantage of funding to establish and expand telemedicine services.

Telementoring

Telementoring presents a unique opportunity to exponentially expand care by increasing local clinicians’ ability to treat complex issues. The ECHO Act could be a catalyst for telemedicine projects and policy, serving as a framework for Arizona telementoring programs to develop. Arizona could expand the expertise and knowledge of its providers, and ultimately patient care, by establishing Project ECHO programs. In fact, ATP has already decided to start a state ECHO program for Rheumatology.¹⁸ According to the UNM School of Medicine, “As the ECHO model expands, it is helping to address some of the healthcare system’s most intractable problems, including inadequacies or disparities in access to care, rising costs, systemic inefficiencies, and unequal or slow diffusion of best practices.”⁶³

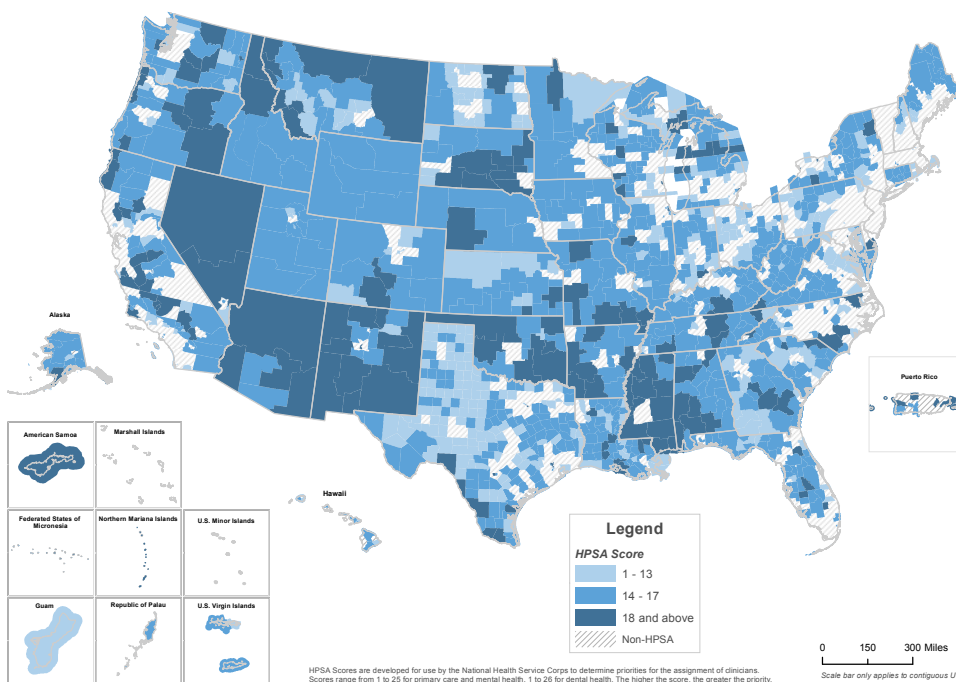
As Dr. Sussman with Baylor describes, “We are training an army of people – it’s a force multiplier.”⁶⁴ Providers can treat one patient through telemedicine or they can train one clinician who treats 20. In Arizona, a state that has some of the highest primary care shortages in the nation, telerenting can help train local providers to meet the healthcare needs of their entire community.

Telebehavioral Health

In Arizona, telepsychiatry has allowed many mental health patients across rural and remote regions of the state to receive needed care. As previously noted, behavioral health providers like HCIC and individuals like Dr. Sue Sisley have been a part of this important work. Unfortunately, a report titled *Rural Behavioral Health Review*, published by The University of Arizona, showed that lack of transportation, need for timely crisis response, provider shortages, frequent staff turnover, and the stigma associated with mental health care were keeping patients from receiving mental health care in rural Arizona.⁶⁵

Consequently, telepsychiatry and telemedicine behavioral health services are still among the greatest needs for hospitals

FIGURE 4 Health Professional Shortage Areas (HPSA) – Mental Health AS OF JULY 2017



Source: Prepared by Division of Data and Information Services Office of Information Technology, Health Resources and Services Administration, data source at <https://datawarehouse.hrsa.gov/tools/mapgallery.aspx>



ACCORDING TO THE INSTITUTE FOR HEALTHCARE CONSUMERISM, THE MARKET FOR TELEMEDICINE IS EXPECTED TO GROW AT AN ANNUAL RATE OF 32 PERCENT THROUGH 2018, CREATING JOBS IN IT, HEALTHCARE, AND ADMINISTRATION.¹³

and healthcare providers. A study of four hospitals in rural Arizona conducted by Matt Horn of the Arizona Health Collaborative found that the highest number of patients served each month were psychiatry patients. This comes as no surprise, given that Arizona has one of the highest rates of Health Professional Shortages for Mental Health in the nation, covering only about 21% of the states' needs.⁶⁶ The study also found that psychiatry and psychology were both high need and high priority services. Hospitals and medical centers alike agree that accessing telemedicine to offer behavioral health services is a top priority for advancing care for their patients.⁶⁷

Workforce

The development and advancement of telemedicine services presents an important opportunity for workforce development. According to the Institute for Healthcare Consumerism, the market for telemedicine is expected to grow at an annual rate of 32 percent through 2018, creating jobs in IT, healthcare, and administration.¹³ For instance, local telemedicine technology companies, such as GlobalMed and eVist, are currently growing and looking to add employees. IT jobs related to network connection and equipment maintenance should anticipate growth alongside telemedicine expansion.

Similarly, telemedicine will push the healthcare talent pool to develop new skill-sets. Studies have found that in order for healthcare professionals to effectively care for patients via telemedicine, 32 new competencies are needed. Skills like remote health promotion, remote monitoring, being able to provide psychological support via video, and knowing how to enhance contact with patients are now required for telemedicine providers. These skills and competencies will influence the creation of new specialties and healthcare jobs. For instance, a community health worker trained in telemedicine services could assist with virtual exams between patients and a nurse practitioner from the patient's home.⁶⁸

Companies and schools alike are responding to this change. In Grand Rapids, Michigan, Answer Health on Demand currently partners with Grand Valley State University to educate students about telemedicine technology and how to use it. The result is a workforce more prepared to begin using telemedicine.⁶⁹ Creating training programs and educational opportunities for these types of skills and positions in Arizona could be integral to increasing both the healthcare workforce and utilization of telemedicine.

Telehealth Networking

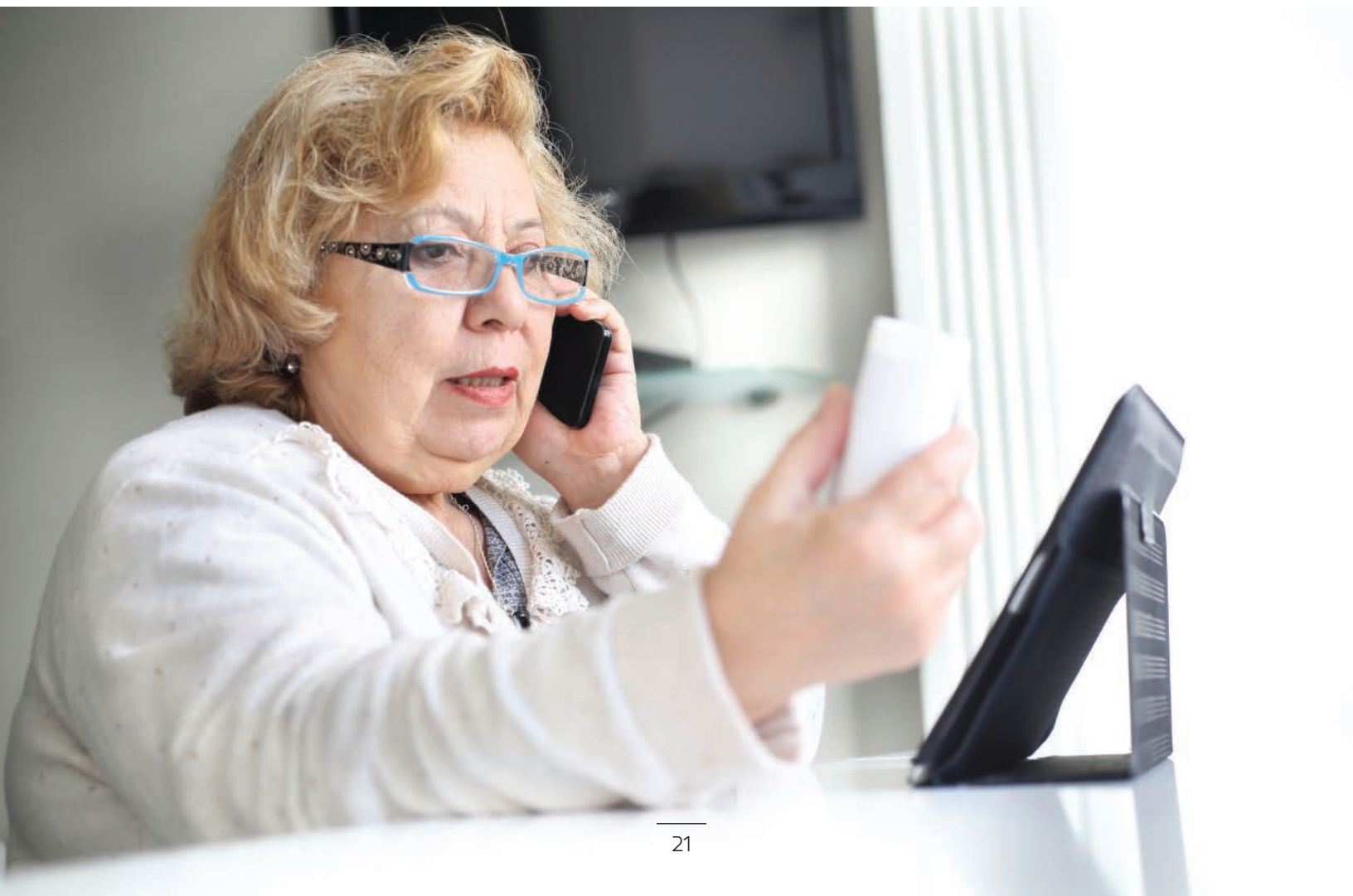
Arizona has already established various telemedicine groups, councils, and alliances. As the telemedicine landscape continues to change, however, statewide communication and collaboration will be key to establishing telemedicine as more than an alternative form of healthcare delivery. Likewise, with the recent signing of the Interstate Medical Licensure Compact, the state can expect more telemedicine providers than ever before. For many of these providers, the ability to share information and learn from one another is essential to the success of their programs. Creating collaborative solutions to issues pertaining to broadband, parity, and licensure is essential for the success of telemedicine in the state.

Conclusion

Telemedicine gives medical providers an ability to provide patients the right care, at the right time, in the right place. At its core, telemedicine bridges the gap between healthcare providers and patients separated by great distance. Patients, who would otherwise forego care because of this geographical gap, are able to receive preventive interventions and treatment. Yet, the benefits of telemedicine stretch far beyond any distance covered by this technology. Through telemedicine, mid-level providers can obtain expertise to treat complex conditions for their entire community, trauma victims can receive lifesaving emergency care, patients can effectively manage their diabetes, students can stay in school when they need a quick check-up, and veterans can receive mental health care that was previously unattainable. Telemedicine improves the health of entire communities by transforming the way healthcare is delivered.

Taking advantage of telemedicine in Arizona can help address both the workforce and healthcare needs of our state. Healthcare workforce and access to care are intricately intertwined, and the issues of one affect the other. Taking advantage of the opportunities discussed in this report can create the environment for telemedicine to flourish and strengthen both the state's healthcare workforce and healthcare delivery system. Building upon recent successes in telemedicine parity and the multi-state licensure compact, and increasing broadband connectivity will ensure that Arizona's communities receive more of the care they need when and where they need it.

The Arizona Telemedicine Program and its partners continue to raise the bar for telemedicine across the state. Continued support from local, state, business, academic, and medical leaders will help establish Arizona as worldwide leader in telemedicine.



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Images:

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2929 N Central Ave, Ste 1550
Phoenix Arizona 85012

602.385.6500
vitalysthealth.org



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Connecting Patients to
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Author: Jesse Walberer

Editorial Team: Marcus Johnson,
Suzanne Pfister, Emily Kepner

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