

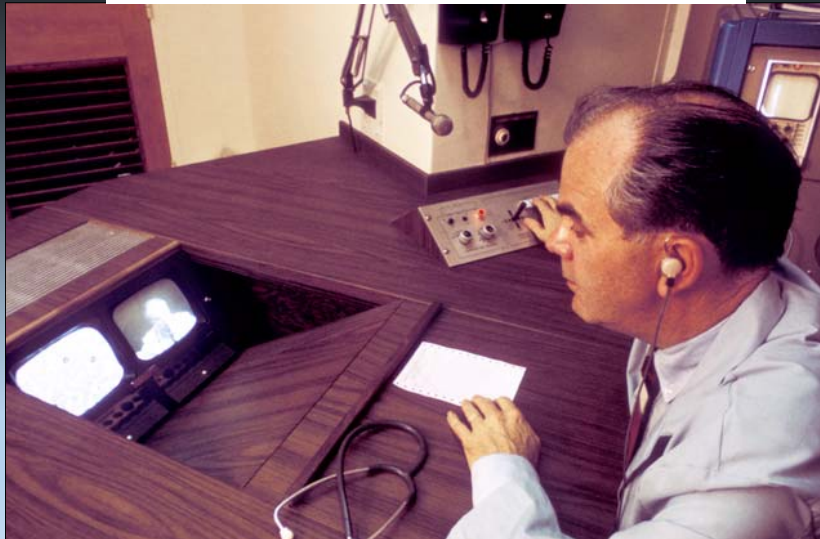
Building a Successful Telemedicine Program

Ronald S. Weinstein, MD
Founding Director, Arizona Telemedicine Program



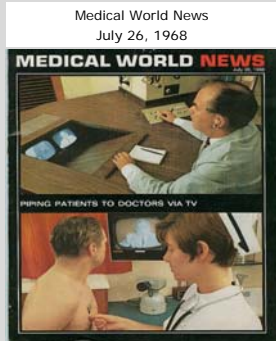
First Telemedicine Case
Massachusetts General Hospital
April 21, 1968

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



1968

Historic Photos First Telemedicine Practice (1968)

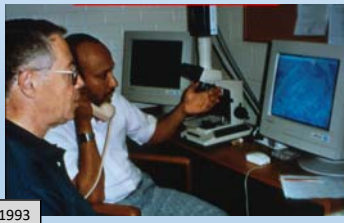


© 2010, Arizona Telemedicine Program

Massachusetts General Hospital – Department of Pathology – 1968



Invention and Commercialization of Telepathology (1986)



Review Article

Invention and Early History of Telepathology (1985-2000)

Ronald S. Weinstein¹, Michael J. Holcomb², Elizabeth A. Krupinski³

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Abstract

This narrative-based paper provides a first-person account of the early history of telepathology (1985–2000) by the field’s inventor, Ronald S. Weinstein, M.D. During the 1980s, Dr. Weinstein, a Massachusetts General Hospital-trained pathologist, was director of the Central Pathology Laboratory (CPL) for the National Cancer Institute-funded National Bladder Cancer Project, located at Rush Medical College in Chicago, IL. The CPL did post therapy reevaluations of surgical pathology and cytopathology diagnoses before outcomes of the completed clinical trials were published. The CPL reported that interobserver variability was invalidating inclusion of dozens of treated bladder cancer patients in published reports on treatment outcomes. This problem seemed ripe for a technology-assisted solution. In an effort to solve the interobserver variability problem, Dr. Weinstein devised a novel solution, dynamic-robotic telepathology, that would potentially enable CPL uropathologists to consult on distant uropathology cases in real-time before their assignment to urinary bladder cancer, tumor stage, and grade-specific clinical trials. During the same period, universities were ramping up their support for faculty entrepreneurship and creating in-house technology transfer organizations. Dr. Weinstein recognized telepathology as a potential growth industry. He and his sister, Beth Newburger, were a successful brother-sister entrepreneur team. Their PC-based education software business, OWLCAT™, had just been acquired by Digital Research Inc., a leading software company, located in California. With funding from the COMSAT Corporation, a publicly traded satellite communications company, the Weinstein-Newburger team brought the earliest dynamic-robotic telepathology systems to market. Dynamic-robotic telepathology became a dominant telepathology technology in the late 1990s. Dr. Weinstein, a serial entrepreneur, continued to innovate and, with a team of optical scientists at The University of Arizona’s College of Optical Sciences, developed the first sub-1-mm whole-slide imaging system, the DMetrix DX-40 scanner, in the early 2000s.

Keywords: Digital pathology, innovation, medical education, pathology, telepathology, The University of Arizona, virtual pathology

INTRODUCTION

Telepathology is the diagnosis of surgical pathology cases at a distance using real-time video imaging or store-and-forward digitized images [1–12]. The American Telemedicine Association clinical guidelines for telepathology define telepathology as: “A form of communication between medical professionals that includes the transmission of pathology images and associated clinical information for the purpose of various clinical applications including, but not limited to, primary diagnoses, rapid cytology interpretation, intraoperative and second opinion consultations, ancillary study review, archiving, and quality activities.” [13]

driver for the invention was a crisis in a National Cancer Institute (NCI)-funded National Organ Site Cancer Program, the National Bladder Cancer Project (NBCP), with the National Bladder Cancer Group (NBCG) the clinical trial arm of NBCP.

Why invent dynamic-robotic telepathology? For logistical reasons, the NBCP collaborators’ “analytical diagnoses,” the diagnoses used for data analysis at the end of a clinical trial, were generated by the NBCG’s own Central Pathology Laboratory (CPL) located in Chicago, IL. These bladder cancer diagnoses, including re-staging and re-grading of

Address for correspondence: Dr. Ronald S. Weinstein

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1996

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1996

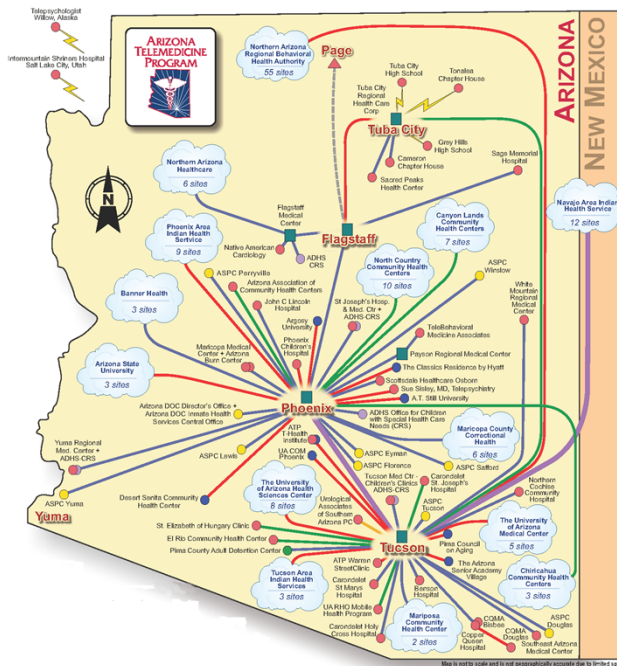
Rep. Robert "Bob" Burns (ret.)

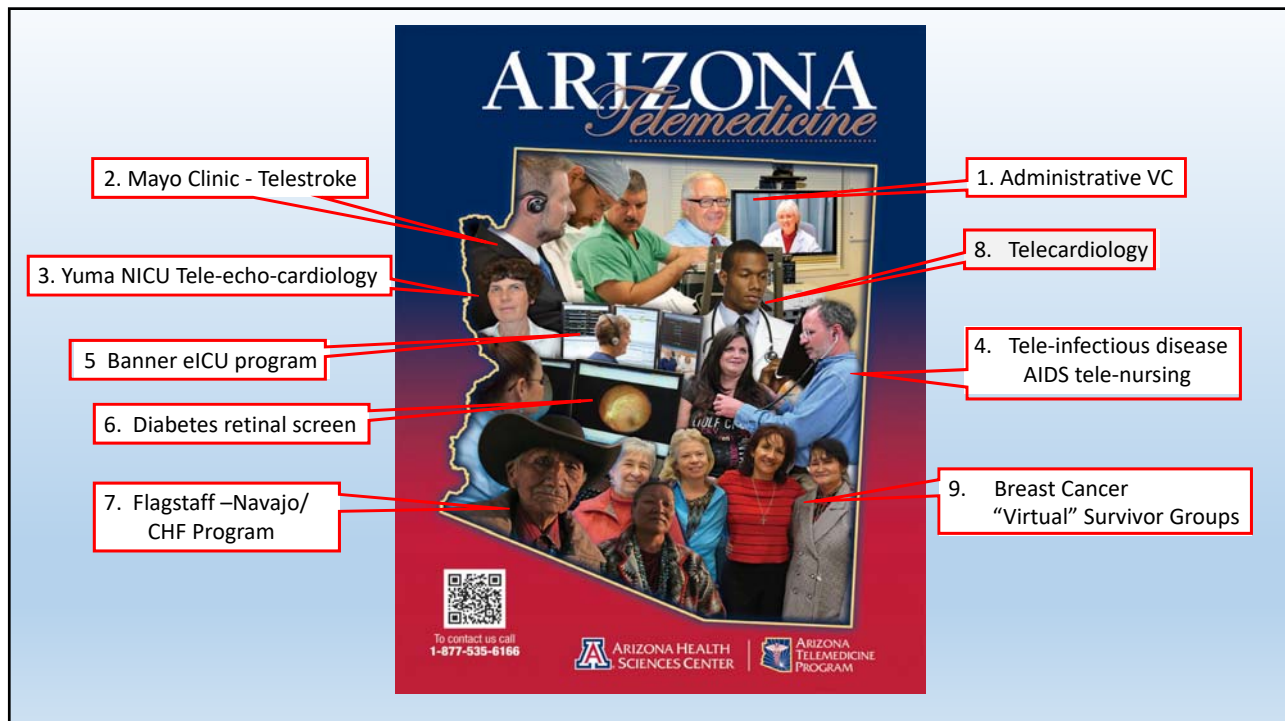
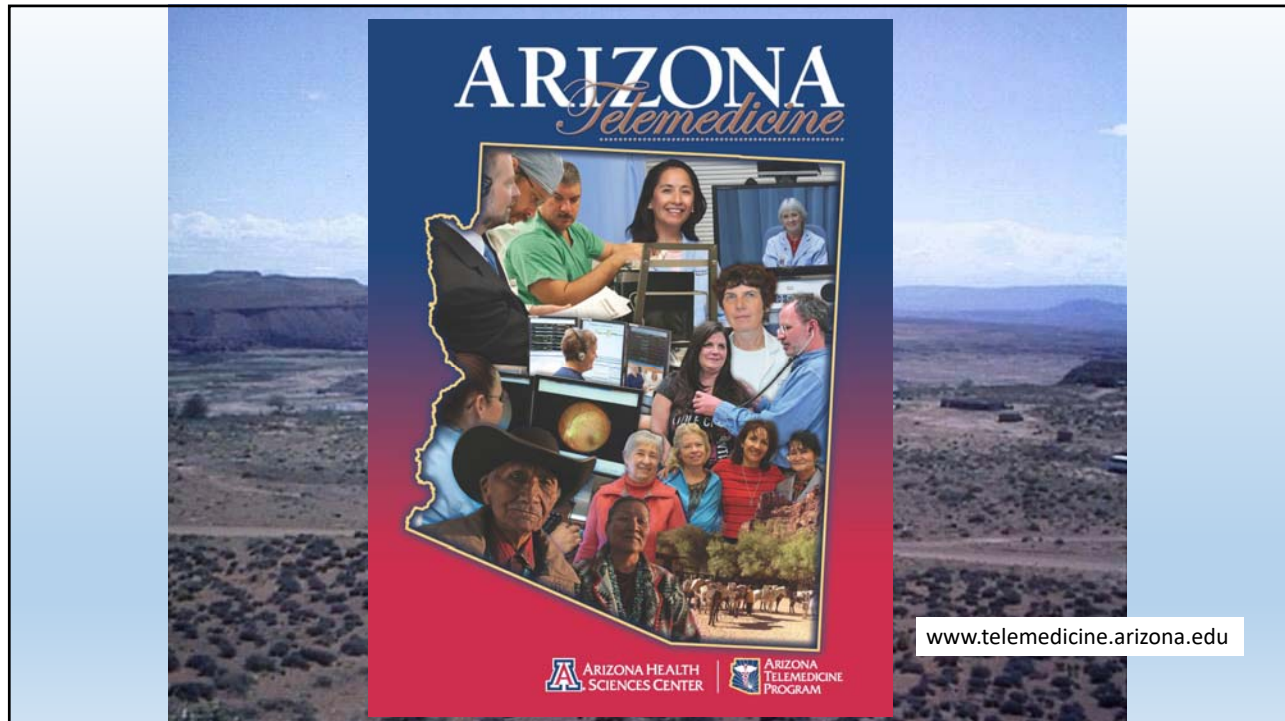
Ronald S. Weinstein, M.D.

Arizona Telemedicine Program Corp of Engineers



ARIZONA TELEMEDICINE NETWORK





Blogs and Webinars

- Arizona Telemedicine Program
- Southwest Telehealth Resource Center

Rural, Inpatient Dialysis is the Telemedicine Trifecta: Improving Access, Improving Outcomes and Saving Millions

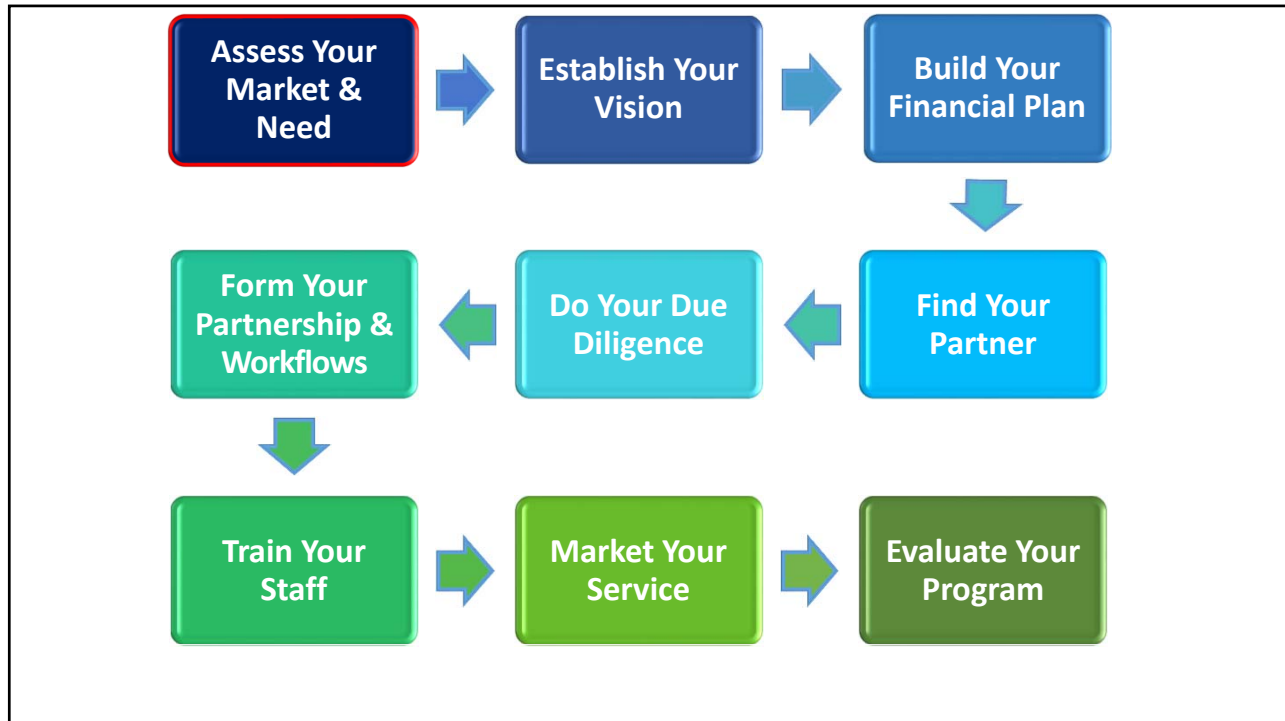
By Greg Ensell on Jan 17, 2019



(L to R) Matthew Gembala, MD, of AKDHC demonstrates how a telenephrology consultation works with Troy Layden, RN, Summit dialysis manager, and Fredda Kermes, Summit telemedicine director.

When [Summit Healthcare in Show Low, AZ](#), lost its inpatient dialysis service and its two local nephrologists in 2016, it was no longer able to provide dialysis for patients who were hospitalized. Instead, Summit had to transport these patients to a hospital in Phoenix, Tucson or Flagstaff, where they could receive not only acute inpatient services but also inpatient dialysis. These transports, nearly always via air medical services, cost on average \$42,000 per flight.

Where to start?



Assess Your Market & Need

Involve Stakeholders in All Phases of Decision-making

Assess Your
Market &
Need

- Internal stakeholders:
 - Administrators & business office
 - Clinical (all healthcare professionals, not just physicians)
 - Support staff (e.g., case coordinators)
 - IT
 - Legal
- External stakeholders:
 - Patients & patient groups/representatives
 - Other healthcare providers (e.g., local medicine man)

What Is Needed in Your Community?

Assess Your
Market &
Need

- **Look at patient data & outcomes (e.g., # diabetics, # diagnosed with late stage diabetic retinopathy)**
 - For your community
 - For your hospital/system
- **Look at local physician coverage gaps (e.g., ? no neurologists)**
- **What healthcare services are patients having to travel or be transported for?**
- **Look at regulations (e.g., penalties for readmission)**

Assess Your
Market &
Need

How Will Telemedicine Tie into Your Practice?

- Complement/expand your clinical offerings or substitute when your providers are unavailable?
- What specialty services?
- What hours will telemedicine be offered?
- Personnel requirements?
- What are service goals? Provider-patient? Provider-provider?
- Where are you connecting? Provider office? Telemedicine clinic? Patient home?



Assess Your
Market &
Need

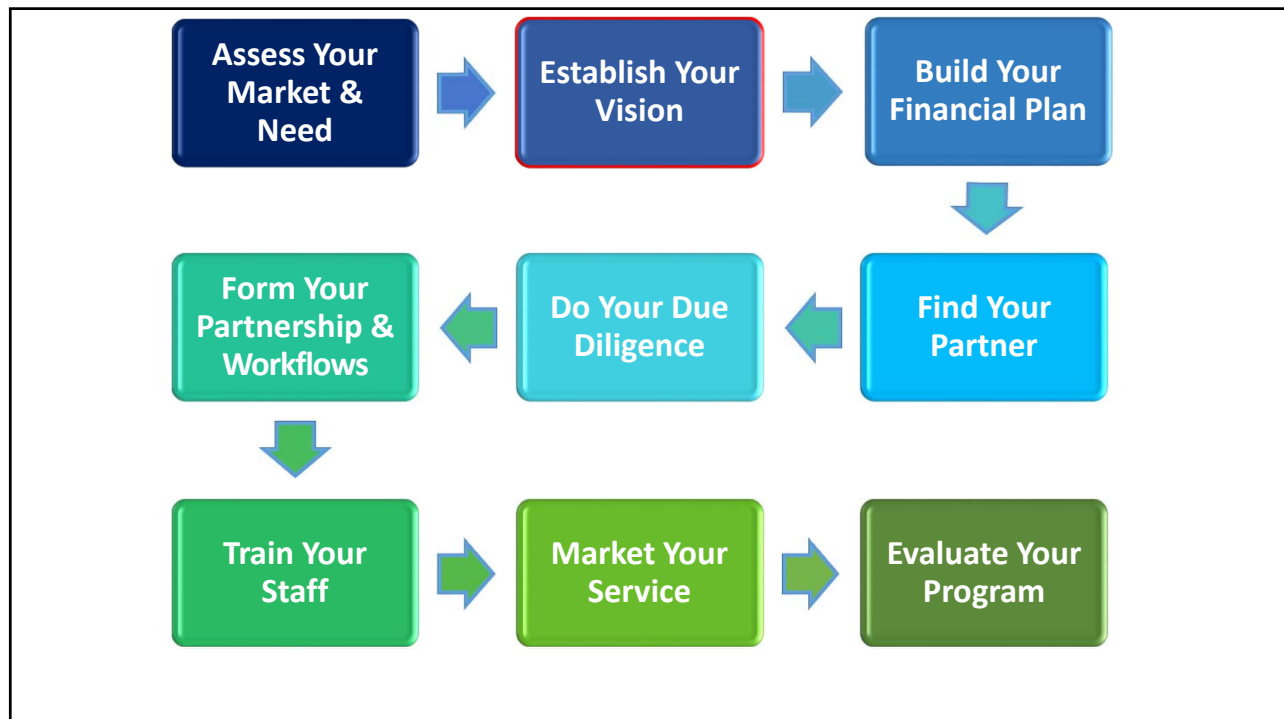
How Will Telemedicine Tie into Your Practice?

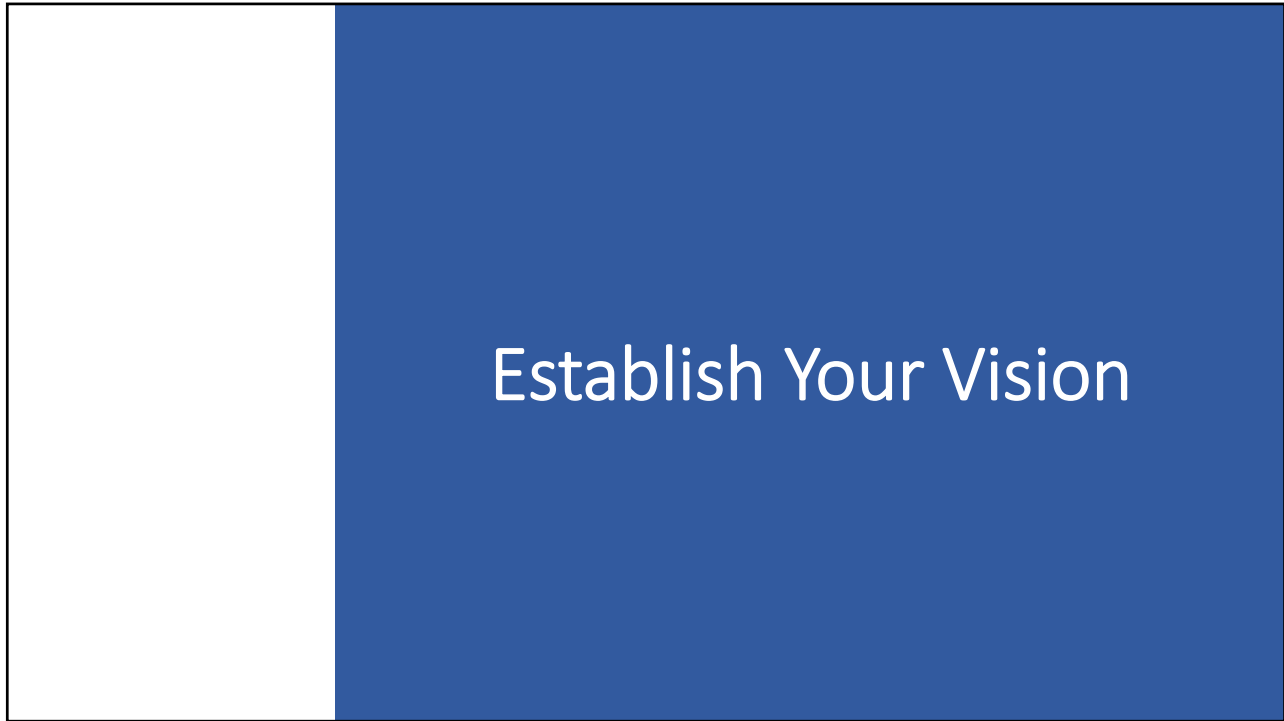
- **Recommended approach:**
 - *Choose one or two of the most important services and start with them*
 - *Don't take on too much at one time*
 - *Expand upon initial service; build program incrementally*
 - *Figure out process for integrating 1-2 services effectively & efficiently, then expand*
- "Tele-everything" **Disaster!**

Reasons to Partner with a Service Provider

Assess Your Market & Need

- **Capability to deliver clinical services without interruption**
 - Recruit & retain practitioners
 - Large networks of credentialed healthcare providers
- **Partner can handle back-office functions (reports and billing)**
- **Partner can manage or co-manage program**
- **Experience/expertise**
- **Support**
 - Help desk
 - Legal & regulatory
 - IT
 - Administrative
 - Marketing





Establish Your Vision

Establish a Vision Aligned with Your Mission

Establish a Vision of the Delivery Model

A white rectangular area containing a blue button in the top right corner with the text "Establish Your Vision". Below the button, there are two lines of blue text: "Establish a Vision Aligned with Your Mission" and "Establish a Vision of the Delivery Model".

Establish a Vision Aligned with Your Mission

Establish Your Vision

- **Vision statement:** Define the optimal desired future state; provide guidance & inspiration
 - *“Our vision is to fully incorporate telehealth technologies into the routine business and practices for the provision of health care in our County and throughout Arizona.”*
- **Mission statement:** Identify and understand the objective(s) the telemedicine service will accomplish – what it does, who does it, how it does what it does
 - *“Our mission is to improve the health of citizens in our county through the development and evaluation of innovative health care and education services supported by health information technologies.”*

Establish Your Vision

Reality Testing

The Physician-Patient Relationship

Establish Your
Vision

- **Generally, once a physician affirmatively acts in a patient's case by examining, diagnosing, treating, or agreeing to do so, and the patient accepts, a relationship exists**
- **Must establish an appropriate physician-patient relationship in order to prescribe**



Know the Legal and Regulatory Landscape

Establish Your
Vision

- **All the laws still apply regardless of whether it's in-person or via telemedicine: HIPAA, privacy & security, licensing, anti-kickback, liability, standard of care.**



Know the Legal and Regulatory Landscape

Establish Your Vision

- **Informed consent & education:**
 - Mitigates risk
 - Informed consent is required by AZ law
 - For Behavioral Health under AHCCCS (administered by ADHS/DBHS) informed consent must be obtained by at least 1 year BH experience—also, separate informed consent required for recording a video session.
 - **Even if informed consent not required**, should educate patient about unique aspects of telemedicine compared to traditional visit
- **Arizona does not require an in-person exam to establish Provider-Patient Relationship: Video technology must be adequate to conduct history and physical exam remotely**
- **Medicare also allows video substitute for in-person exam**

Stark & Anti-Kickback Statutes

Establish Your Vision

- Stark Law prohibits physicians from referring patients for designated health services to an entity with which the physician has a financial relationship.
- AKS prohibits offering or soliciting anything of value, directly or indirectly, in return for patient referrals.
- Telemedicine may be subject to fraud and abuse laws if the use directly or indirectly generates reimbursement from a federal health program.
- Equipment leases or the provision of free telemedicine equipment to referral sources **should be evaluated under fraud and abuse laws.**

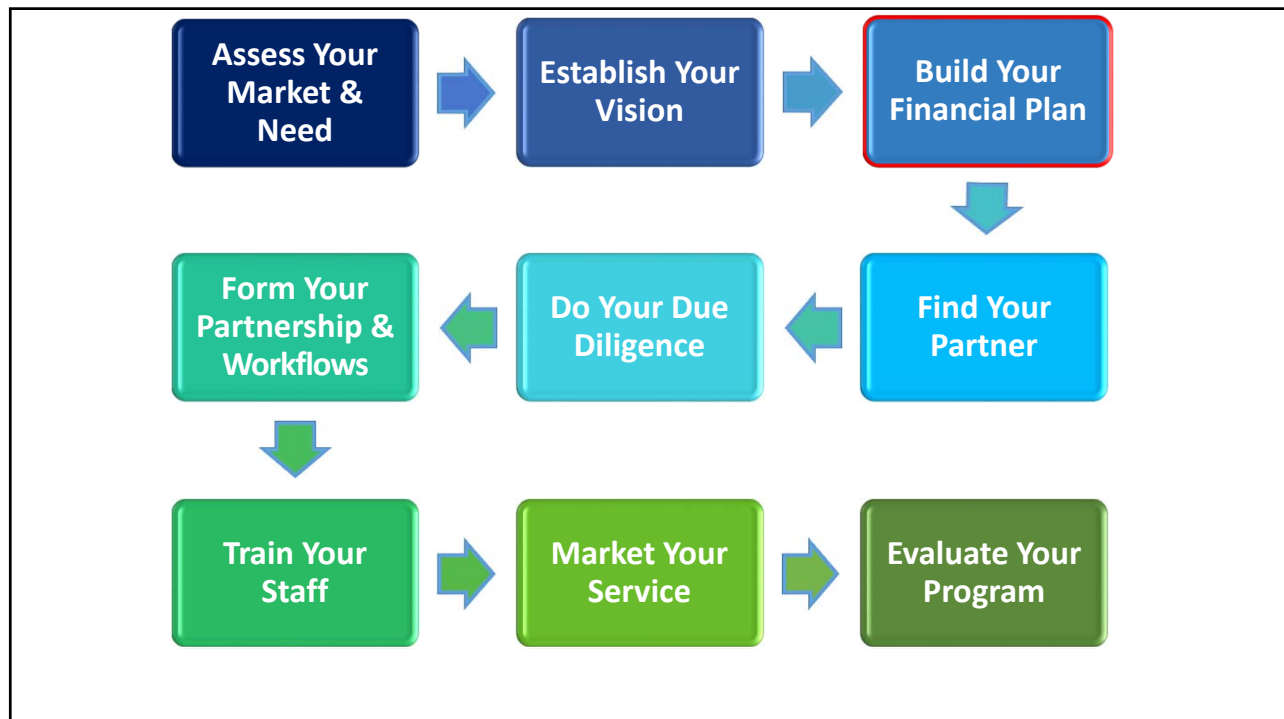
Credentialing & Privileging of Tele-providers

Establish Your Vision

- **CMS Proxy Credentialing Rule:**

- *Allows medical staff of hospital where patient is being treated via telemedicine to rely on the credentialing and privileging done at the Medicare-certified hospital where the telemedicine practitioner is located and credentialed*
- *Written agreement required*
- *Streamlined: Obtaining medical staff privileges at a hospital takes 2-3 months*
- *May require hospital bylaw amendment*

- **Or, retain complete credentialing of all telemedicine providers using existing credentialing process**



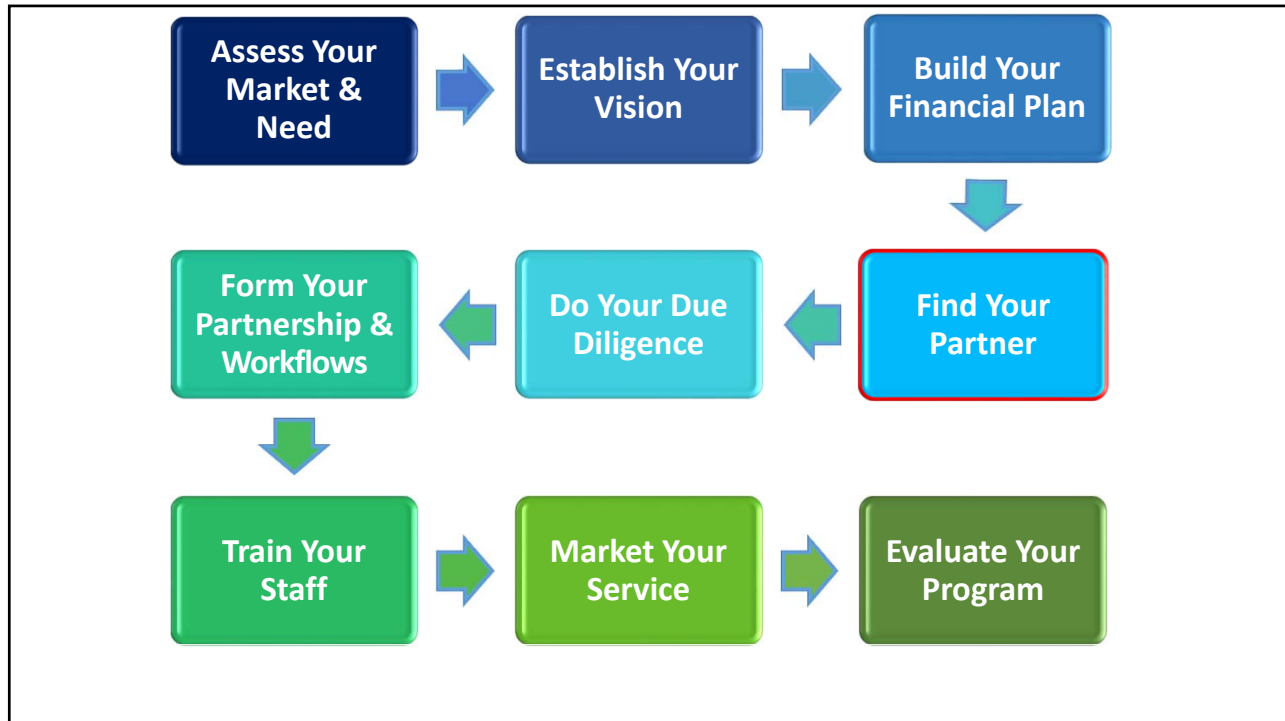
Build Your Financial Plan

Build Your Financial Plan

Build Your
Financial Plan

- Return on investment
 - Savings
 - Revenue
 - Strategic contribution
 - Penalty avoidance
- Payment for services
 - Subscription
 - Fee-for-service
 - Direct from patient
 - Who will do the billing?





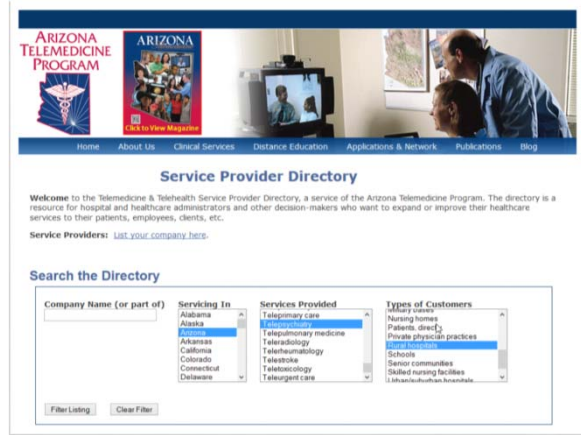
Find the Right
Partner(s)

Where to Look for Service Providers

Find Your Partner

- ATP National **“Telemedicine & Telehealth Service Provider Directory”**

- Focused on **clinical & ancillary service providers only** (not platform vendors or consultants)
- Offers detailed filters and comparisons





Overview:
Service Provider Directory

Find Your Partner

Service Provider Directory
Telemedicine & Telehealth

ARIZONA
TELEMEDICINE
PROGRAM

SOUTHWEST
TRC
TELEHEALTH
RESOURCE CENTER™



Questions to Start With

Find Your Partner

- **Does their history and implementation plan sync with your organization and goals (mission & vision)?**
- **Number of years in telehealth business**
 - If they're a startup, who are their investors and how committed are they?
 - Who are their customers? Will they provide references?
- **How strong is their management team?**
 - Expertise and experience
 - Healthcare experience or only IT and technical?
- **Where are they located – headquarters, providers, tech support?**

Past Performance

Find Your
Partner

- Number of sites potential partner has taken live
- Number of customers – past & present
- How many telemedicine cases have they done? What kind?
- What is their growth rate?
- Can they provide data to back up their claims?
 - Clinical
 - Financial

Questions to Start With

Find Your
Partner

- Do they have experience with the coverage and capability you need?
 - Hours of availability
 - Wait times for consults
- Are they willing to work with your organization's size and number of consultations?
- Do they have a robust implementation plan?
 - In writing
 - Proven, battle-tested

How Strong is their Clinical Team?

Find Your
Partner

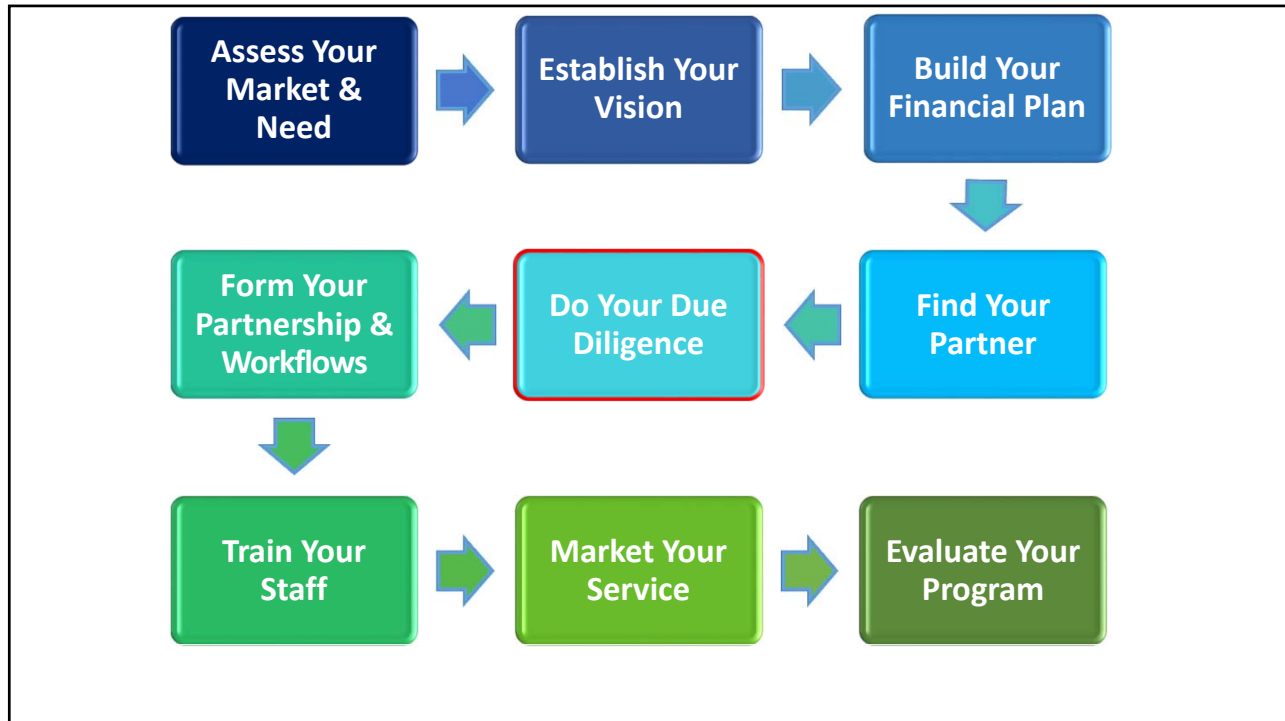
- **Number of physicians/providers in the specialty you need, at the level you need (# and qualifications), and licensed in Arizona (or your state)**
- **Clinical experience, training, degrees, board certification, lawsuits**
- **If academic institution: faculty, fellows or residents?**
- **How strong is their clinical team?**

What Technology Platform Do They Use?

Find Your
Partner

- How strong is their platform?
 - Does it meet standards?
 - FDA-approved devices?
 - HIPAA compliant?
 - Reliable, easy to use? How many clicks/how much training is required?
 - What is the failure rate?
 - Interoperability?
 - Connections to EHRs? PACS? Does it work with your EHR and your PACS? Costs to integrate?
- Or, will they use whatever platform you provide?





Due Diligence,
Documentation & Your
Contract

Due Diligence: Background Check

Do Your Due Diligence

- Do they have proper licensure, etc.?
- What is their malpractice history and insurance?
- Do they have third-party credentials (e.g., [Joint Commission](#), [American Telemedicine Association](#), [Office of the National Coordinator for Health Information Technology certified HIT](#))?
- What is their BBB rating?
- Have they had trouble with IRS?
- Have they been in trouble with medical organizations?
- Have there been lawsuits against them?

Due Diligence: References

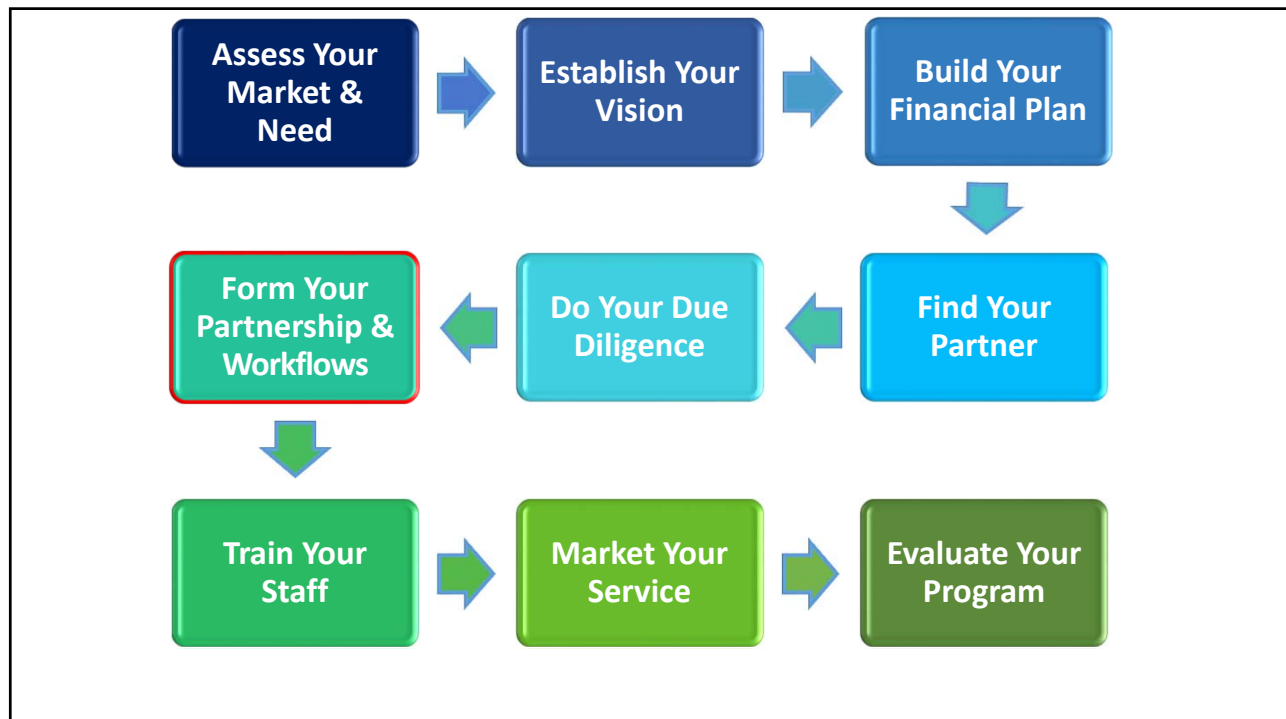
Do Your Due Diligence

- Request a customer list/references and contact them
 - Are you happy with this company?
 - What have they provided to you?
 - What have your challenges been with this company?
- Find and interview customers not given as references
 - Search the web
 - Go to trade shows & conferences
 - Look for user groups

The Contract

Do Your Due Diligence

- Ensure they have appropriate medical malpractice insurance, liability insurance
- Who will own the data? What data? Who will have rights to retain copies of the data? To license it, to sell it? For how long?
- Who will be responsible for continuity of care?
- Consider annually renewable contract
- Cover expansion



Form Your Partnership & Integrate Telemedicine into Your Workflows

Form a Partnership

Form Your Partnership & Workflows

- Telemedicine service programs are not one-sided, turnkey programs
- Requires effort on both sides:
 - putting together a program and educating at the user end
 - integrating workflows
- Collaborate with partner on what program will look like; form unity of vision for what you are trying to accomplish

Recognize You Are Changing the Status Quo

Form Your
Partnership &
Workflows

- Identify and leverage the proponents/champions: CMO, CNO tend to be important sponsors
- Identify and embrace the outliers: Reach out, make them part of the process, hear and address their concerns
 - e.g., “Big Brother”: eICU does not mean you are being watched 24/7; just that trends are being identified that need your attention
 - e.g., Will I have to become a technical expert?
 - e.g., Will my patients receive care as good as in person?

Agree on an Implementation Timeline

Form Your
Partnership &
Workflows

- Technical implementation is not what takes time
- Most time is spent working with the staff:
 - ensure messaging and impact is well understood
 - invaluable for successful implementation and ongoing relationship
 - Make sure everyone (not just providers) is trained
- Don't rush
- Try some dry runs with simulated patients before doing any actual cases

Communicate Internally & With Partner

Form Your
Partnership &
Workflows

- Project goals and plan, team members
- Site review by partner
- Tele-providers need to respect the pre-existing relationships and transfer arrangements in the community
- Reasonable and measurable expectations
- Trackable & well-defined metrics to measure telemedicine progress
- [Standards and guidelines](#) to be used for this service

Standards and Guidelines

Form Your
Partnership &
Workflows

- [ATA Practice Guidelines](#):
 - Multiple specialties including telepathology, teleICU, telemental health, teledermatology, telerehabilitation, home telehealth, diabetic retinopathy
 - Also primary and urgent care, telepresenting, and core operational guidelines
 - Remote healthcare data management
 - others

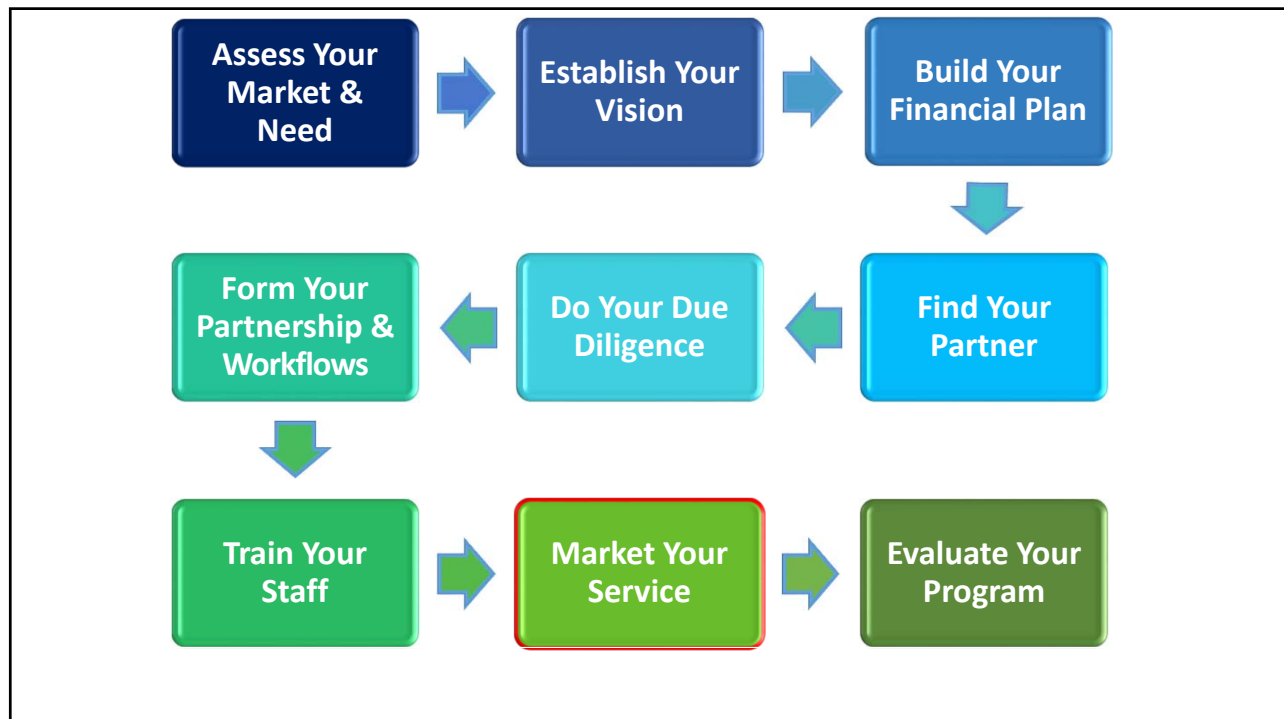


Train Your Providers
& Staff

Train Your Providers & Staff

Train Your Staff

- Telemedicine is an integrated component of your institution or practice and should be part of the normal position expectations
- Determine who needs to be trained (usually everyone)
- Determine content & extent of training needed for each position involved
- Determine how to provide the training & how often (for new users as well as refresher training)
- Evaluate training results



Market Your Service

Marketing Internally

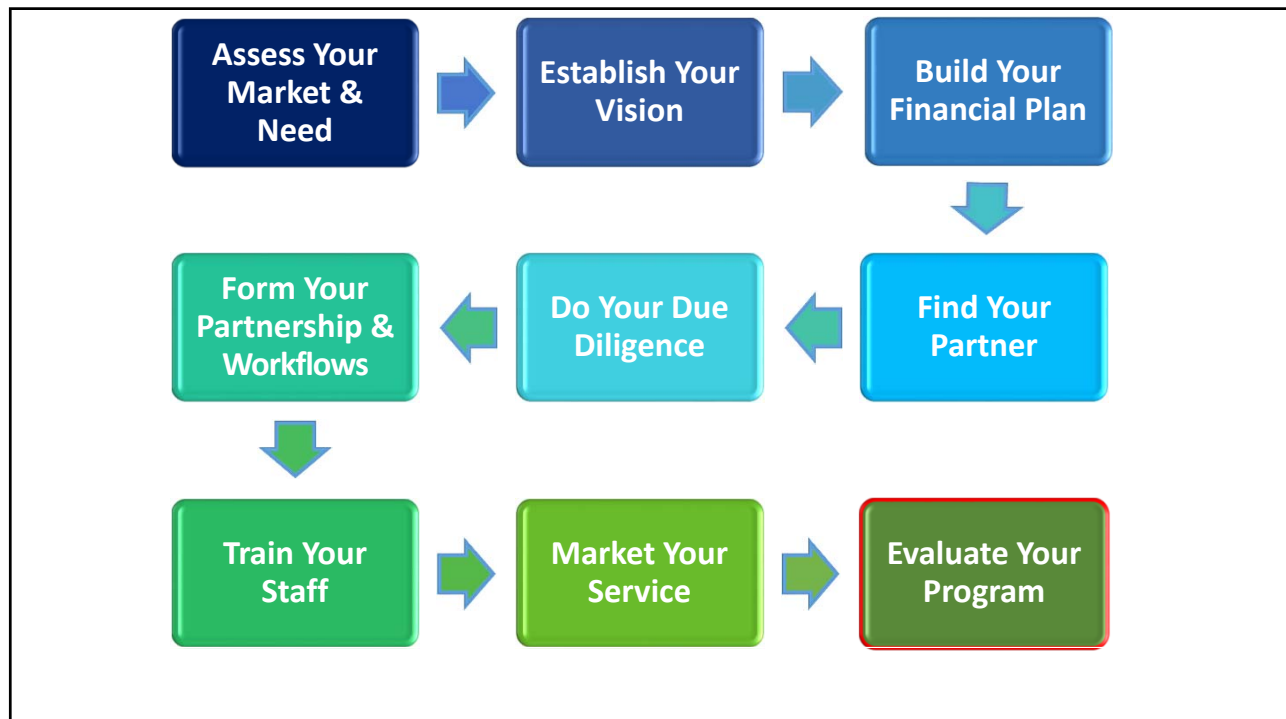
Market Your
Service

- **Let people & stakeholders know what your results are**
 - Consult numbers
 - Patient outcomes
 - Patient satisfaction
 - Staff satisfaction
- **This is a team process; be transparent**
- **Invite input/suggestions**
- **Tell them in more than one way (meetings, website, emails, etc.)**

Marketing Externally

Market Your Service

- **Let your community know there is a new service available**
 - Press release
 - PSA
 - Website and web content marketing (SEO)
 - Blog with email updates/sign-up
 - Letter to patients
 - Success stories
 - Social media
- **Cite partner experience & successes**



Evaluate Your Program

Evaluation: How to Start

Evaluate Your Program

- View transition on a relative basis:
 - Have we improved?
 - In what ways?
 - To what extent?
- Use measurable, objective data – choose metrics in advance
- What are you concerned with?

What to Measure


Evaluate Your
Program

- Patient-centered outcomes (e.g., clinical markers, reduced hospital stays)
- Provider-centered outcomes (e.g., diagnostic accuracy, efficiency & efficacy)
- Business outcomes (e.g., increased profits, reduced travel costs)
- Technical outcomes (e.g., faster network, more reliable communications, redundancy, better peripheral technology)
- Program outcomes (e.g., more sites added to network, number of consults, is the program growing)

Evaluation Resources

Evaluate Your
Program

- Southwest Telehealth Resource Center Online Learning Module: [Evaluation](#)
- [Telehealth Resource Centers Toolkits](#)



Brink

What's Next in Patient Safety and Risk Solutions Fall/Winter 2018

THE CALL FOR TELEMEDICINE

A PRESCRIPTION FOR WHAT AILS HEALTH CARE? EXPLORING THE WORLD OF TELEMEDICINE TODAY page 6

INSIDE A MIDWESTERN TELEMEDICINE HUB WHERE CONNECTED CLINICIANS TO RURAL PATIENTS AT THE TOUCH OF A BUTTON page 10

KEEPING CARE LOCAL MICHIGAN HEALTH GETS CARE TO PATIENTS' SIDES AND WHERE THEY NEED IT page 12

BACK TO BASICS SAMHOI HEALTH ADDS VIDEO VISITS TO PRIMARY CARE page 13

STANDARD OF CARE THINKING THROUGH RISK MANAGEMENT IN PROVIDER-TO-PATIENT TELEMEDICINE page 14

MONTANA EMBRACES TELEMEDICINE HOW IT LOOKS IN THE WILD WEST page 18

Telemedicine Risk Checklist

Licensing and Credentialing

- Are you licensed in the state where the patient is located?
- Are there local prescribing rules you need to follow?
- Are you using nursing staff, PAs, NPs, or others who also need to be licensed?
- Is there a credentialing process in place?

Clinician-Patient Relationship

- Are you creating a clinician-patient relationship?
- If not, is that clear to the patient?

Standard of Care—Patient/Condition Selection

- Are you providing the same standard of care that you would in person?
- Is this patient suitable for care through telemedicine?
- Is this condition appropriate for care through telemedicine?
- Do you have a plan for an emergency situation?

Physical Environment

- Do you have the same ability to communicate and understand as if this patient were in person?
- Is the lighting adequate on both sides of the interaction?
- Is the video and sound quality adequate?
- Can you ensure there will be no interruptions?
- Are you comfortable with the reliability of the technology?

Website Manner

- Are you introducing yourself?
- Are you making eye contact?
- Are you presenting yourself professionally?
- Are you showing empathy and compassion on a screen?

Privacy and Security

- Are you compliant with HIPAA?
- Are you protecting the confidentiality, integrity and security of health information?
- Do you have contractual assurances and/or Business Associate Agreements with vendors?
- Do you have adequate encryption, passwords, anti-virus, and security software?
- Where are your records stored?
- Who owns your records if there is a breach?
- Are you aware of all the modalities and devices involved?

Patient Safety

- Is your patient in a safe, private place to talk?
- Do you have concerns about other people nearby?
- Could you be missing about situations?
- Are you refusing to perform intimate exams over video?

Medical Records

- How does your e-visit information get into the medical record?
- Are you documenting as much as you would in person?
- Are you documenting the mode of service and technical information?
- Are you documenting any technical problems?
- How do your patients request access to records?

Billing

- Have you verified that you can bill for this service?
- Has your patient verified that their insurance will cover the service?

Professional Liability Coverage

- Does your professional liability policy cover telemedicine? (more on page 25)
- Does it matter where your patient is located?
- Do you need additional cyber liability coverage?

Informed Consent

- Are you talking with patients about the risks and limitations of telemedicine?
- Are you sharing contingency plans for outages?
- Are you managing expectations about what can be accomplished remotely?

Administrative Considerations

- Do you have acceptable policies and procedures covering telemedicine care?
- Do you have protocols for patient/condition selection and escalation of care?
- Are you tracking orders and follow-up plans?
- Do you have protocols for record keeping?
- Are you ensuring licensure for each clinician in each state?
- Are you ensuring appropriate billing?
- Do you have a plan for quality tracking for telemedicine encounters?
- Are you assessing patient and clinician satisfaction?
- Are you comfortable with clinician competence to use telemedicine?

Evaluate Your Program

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https://www.mmicgroup.com/docs/brinkmagazine/2018-01FallWinter_MMIC_Brink_Magazine.pdf

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Evaluate Your Program

Evaluate Your
Program

Clinician-Patient Relationship

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The Physician-Patient Relationship

Evaluate Your
Program

- **Generally, once a physician affirmatively acts in a patient's case by examining, diagnosing, treating, or agreeing to do so, and the patient accepts, a relationship exists**
- **Must establish an appropriate physician-patient relationship in order to prescribe**



Standard of Care— Patient/ Condition Selection

Evaluate Your
Program

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Program

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Webside Manner

Evaluate Your Program

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**Evaluate Your
Program**

Medical Records

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**Evaluate Your
Program**

Billing

- **Have you verified that you can bill for this service?**
- **Has your patient verified that their insurance will cover this service?**

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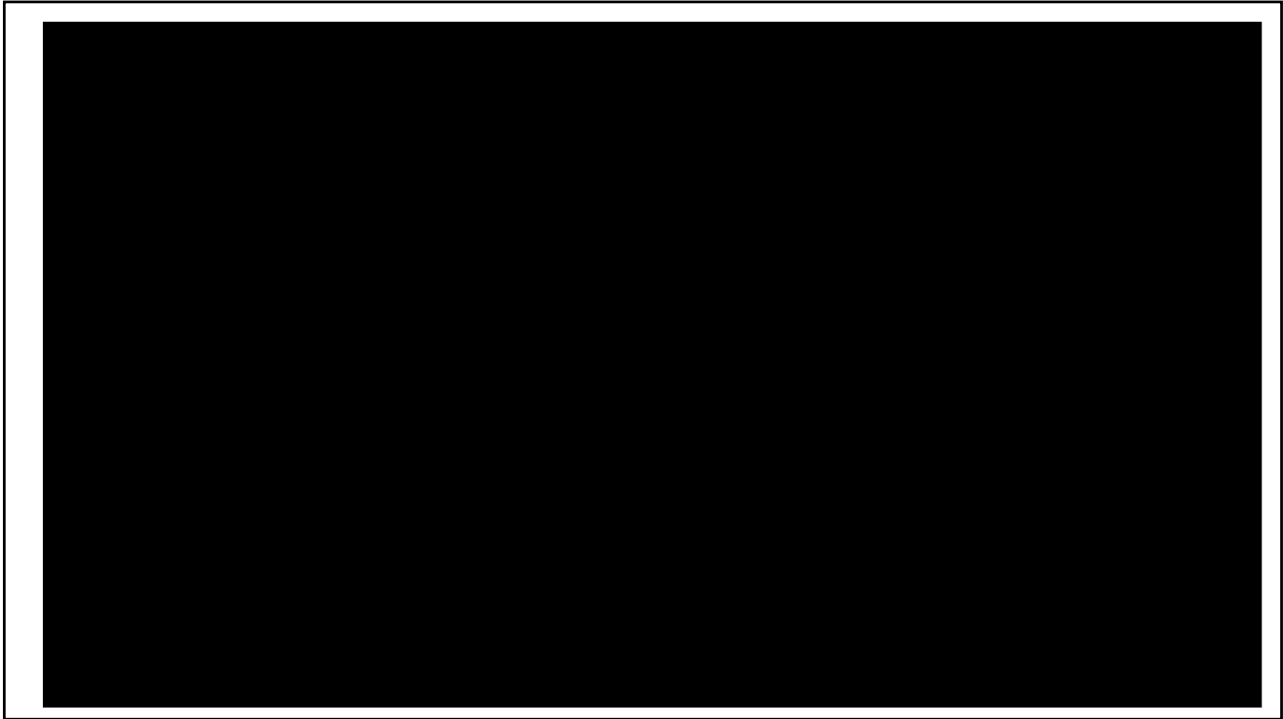
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- **Does your professional liability policy cover telemedicine?**
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A green rounded rectangular button with the text "Evaluate Your Program" in white.

Informed Consent

- **Are you talking with patients about the risks and limitations of telemedicine?**
- **Are you sharing contingency plans for outages?**
- **Are you managing expectations about what can be accomplished remotely?**



Questions!

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