



Ten Critical Steps for a Successful Telemedicine Program

Mark Vanderwerf

Abstract. In the early 2000s, the International Society for Telemedicine (ISfT) asked me to present our observations of what characteristics appeared to be common to successful telemedicine and telehealth programs based on our experience supporting over hundreds of telemedicine programs around the world. To find out, AMD Global Telemedicine conducted a study of over 60 telemedicine programs in three different countries. During this review, we identified ten basic points and documented successful and unsuccessful approaches to each. There are exceptions, but the approach to each of these issues appears to maximize the likelihood of success or failure. The findings were initially presented to ISfT membership at their conference in Denmark. The study has been updated continuously as new information becomes available. The most current observations are as follows.

Introduction

The basic points of characteristics are common to almost any program that attempts to bring change to an organization. More than anything else, a telemedicine practitioner must realize that the proper introduction and management of change is essential.

Step #1: Establish a Vision

Few things appear as essential to the successful implementation of change as setting a vision that shows people where they want to go and shows how getting there will contribute to achieving their objectives. Successful telemedicine programs consistently presented a clear vision of the program as well as a clear vision of how the telemedicine program contributes to the overall vision of the organization

The first step in setting a program vision is to identify and understand the strategic and tactical objectives and vision of your overall organization. It is helpful to know what objective the organization wants to use telemedicine to accomplish. This depends on the business model or motivations the organization is pursuing. Here are three examples:

Access to Care Model – Delivering care in remote locations or to populations that do not have care available to them due to geography or limited resources. Examples include remote villages in Alaska and Canada as well as developing countries and poor urban environments.

Cost Savings Model – Providing alternative care delivery methods to reduce cost. Examples include prisons, industrial sites, military, etc where telemedicine reduces or eliminates transportation costs to allow the sharing of resources between hospitals to reduce cost.



Access to Market Model – Expanding the market that can be served by a healthcare provider. Telemedicine allows the delivery of services and expertise over greater distance.

After you understand the objectives of the overall organization, clearly state the objectives for your telemedicine program. Clearly show how your program objectives contribute to the overall objectives of the organization. Finally, clearly outline a vision of what will be accomplished as a result of the implementation of the telemedicine program. However, stating goals and vision is not enough. You must get the consensus of stakeholders and agreement of management. Make sure they understand and believe in telemedicine's contribution.

Establish short term and long term goals and the methods of measuring them. Remember that telemedicine is a tool not a goal. It needs to solve a real problem. Medicine is still about people, patients, quality of service and the financial needs of the organization. Telemedicine must contribute to those needs to be valuable.

Observation: One objective (stated or un-stated) should be to maximize utilization. If people do not use the program, support will erode. If many people use the system frequently, support will be much easier to achieve. It is very difficult to cut a program that is delivering a respectable volume of services. A consistent characteristic of unsuccessful telemedicine programs is that they saw themselves as somehow separate from the overall organization and had independent objectives. These programs lost support over time or were relegated to a minor and often experimental role in care delivery.

Step #2: Building a Long Term Financial Plan

Even when financial considerations are not the prime objective of your program, they remain critical. Programs that start with a solid financial justification and meet the measurements of the plan more easily capture future funding and support.

Remember that in most organizations you do not always get what you want but you often get what you measure. Start with measurements that contribute to achieving the business objectives of the organization. Give clear short and long-term financial goals. Examples include:

- If it is a revenue model, show clear revenue management.

- If it is a cost saving model, show your benchmark and a method to clearly measure the savings.

- If it is a strategic model, show a way to measure strategic contribution or result.

Develop your financial plan and define the measurements that will be used to drive achievement of the plan's goals. Make sure these measurements are understood and at least tacitly accepted by management.



Failing to do this is a common and sometimes fatal error. Remember, if you do not establish and agree to measurements up front, someone will eventually set them for you and they may not be to your liking or benefit.

If you are starting with a grant, see it as short-term “seed” capital and not as a long-term revenue source. Look for ongoing revenue or a measure of indirect financial contribution to the organization. A specific focus on long-term sustainability is a common trait among successful programs.

Step #3: Create a Convenient and Effective Work Environment

Telemedicine must be available where it is needed. The equipment must be available at or very near to where care is provided and where the consulting physician works.

The sending room must be an environment very similar to a typical patient exam room. It should address the unique needs of telemedicine such as lighting and layout without becoming unfamiliar or interrupting the existing healthcare process. Most successful programs assure that every sending site has a minimum standard set of tools and skills. This helps the receiving consultant know what they can ask for as well as what they should expect the sender is equipped to do successfully.

The receiving room should be close to the consulting physician’s workplace and equipped similar to their typical work environment. Technology now allows direct integration to the physician’s desktop through store and forward software and through the use of software codecs. Every effort should be made to bring capabilities as convenient and close to the provider as possible.

It is important to choose proven tools that work effectively and are as simple as possible to use. Technology should remain in the background. It should be functional and effective but hidden whenever possible. A common temptation that generally contributes little to the success of telemedicine programs is constant tinkering with and experimenting with technology. Although this type of research is important, it appears inappropriate for a patient care environment and, in many programs, it becomes an unproductive diversion.

Examples:

An effective sending room: A standard exam room with the same exam table, tools and supplies that a typical exam room would have. In an environment similar and familiar with non-telemedicine care.



Wrong sending room: An “impressive” room with cables and technology on display. It might look “cool” but it is unfamiliar to the patient and the caregiver and is usually counterproductive.

An effective consulting (receiving) room: Located in or very close to the consultant’s workplace. A small quiet room with all the required tools close at hand. If the consulting physician uses a PC or text to access reference in their normal course of work, these tools should be in the room. If a fax machine might be used to provide more information, it should be included in the room as well. (The best consulting room is often the consulting physician’s office.)

Wrong consulting room: Placement in any area that the consultant has to walk a long distance to or does not have the normal references and tools they use conveniently available or is not quiet and private.

The worst example of a consulting room was a stall in an emergency room. It was separated from the next patient bed by a curtain and a distance of about three feet. The consulting physician had to compete with sounds of the patient and care team on the other side of the curtain and everything the sending site said was heard by anyone in the area.

Attention to detail is important for success. Examples include:

Sending sites should provide approximately 150 foot-candles of white light at the patient site.

Send site layouts should place the patient between the caregiver and the monitor.

Monitors (video or PC) should be color or balanced at both the receiver and the send site using a color chart.

Step #4: Mainstream Telemedicine into the Standard Care Process

Delivering care with telemedicine should be the same as delivering care without telemedicine. The more different it is, even in minor issues, the more change that has to be accepted. A simple rule to keep in mind is that “The more change that must be adopted the higher the likelihood of failure.”

Details count. Standard protocols for the use of equipment, for examination and for documentation should be written for each medical specialty. The protocols should follow the standard protocol used in non-telemedicine as much as possible. Training should follow these protocols. The result of this structure is greater comfort for caregivers and more consistent clinical results.

Provide easy to use tools and services that support the use of telemedicine. This includes simplified scheduling, measurement, documentation and billing protocols and systems/



Recognize that telemedicine is change. Making it “too” different will make it more difficult to accept and succeed.

Examples:

Right: If the consulting physician usually expects to see the patient’s chart as they enter an exam room, they should see the same or similar patient chart as they enter the telemedicine consulting room with the same information in the same format. Note that telemedicine protocols have now been formally accepted by both the Dermatology and Ophthalmology Associations.

Wrong: Telemedicine is presented as a “different way” to deliver medicine with its own workflow and different forms.

Observation: High utilization is achieved only if telemedicine can be made part of the normal care process. As stated earlier, high utilization should be an objective of any telemedicine program implementation. Without utilization the program will decline.

Step #5: Plan and Assure Effective Training

Training is critical. Successful programs plan for it and deliver well-defined training in layers. Timing is often as important as content. The basic foundation for training should include:

- Communication technology
- Clinical technology
- Diagnostic device user training for both send and receive sites
- Workflow and protocols of care and procedures for use of devices
- Documentation
- Trouble shooting and access to product and technical support

Training that is delivered in layers appears to be the most successful. The first layer, initial training, must be planned so that it is delivered immediately before the lessons are used. For training to be valued it must be perceived as valuable. Initial training should be as formal as possible.

Suggestions: Start with a schedule training date and agenda. Do pre-training calls to assure attendance. Provide a course book (a handout that is and looks important). Pay attention to detail and realism in the training. It should be formal and include “formalities” such as: sign in sheets, a written curriculum, learning objectives, reference materials and a hands-on competency test. Successful attendees should be given a certificate. When possible, arrange



to give educational credits. It appears that formality adds to the perception of the importance of training and attendees tend to take it more seriously.

A formal follow-up training session and on-site assessment is an important second layer. It appears to be the most effective if delivered at the attendees work site(s). A less formal third layer included follow-up training, refresher sessions and support on demand that is freely available. Additional training to compensate for staff turnover should be planned in advance.

All layers of training should include on-the-job “real life” practice and attendees should be encouraged to have fun in the session.

A few typical successful ideas include:

- Use familiar processes and protocols. They will be learned most easily.

- Training should include play and casual use to increase familiarity.

- Use proven, quality equipment that is easy to use, delivers excellent performance and is dependable. They are the most likely to be learned and used consistently.

Observation: Money saved buying cheap equipment is quickly offset by the cost of retraining and poor acceptance if it does not perform or is difficult or cumbersome to use.

Training has a major impact on utilization and can be a major factor in “marketing and sustaining” your program. Training allows you to reinforce your program vision and restate important messages. It also helps make users more comfortable so they can more readily include and accept new methods of healthcare and technology.

After training is complete, provide support names and numbers and make sure support is easily available whenever it is needed.

Examples:

Right: A trainer arrives after equipment has been installed and fully tested and immediately before the first use is planned. Students are trained in the use of the technology and the workflow (protocol). The students are encouraged to play with the telemedicine equipment, examine themselves and their co-workers and even non-medical objects. The students are also encouraged to use the equipment to communicate casually with the remote site even for non-medical reasons. The first patient use should follow the training session as soon as possible so little is forgotten. Schedule follow-up training and assessment. Make user support immediately and easily available for those who need help. Have fun!



Wrong: Provide training as part of equipment installation. Deliver training several weeks or more before use. Provide a one-time training class. Restrict use of the equipment to “telemedicine only.”

Step #6: Make Sure You Have a Full Time Coordinator(s) and an Effective Leader and Cheerleader

A frequent mistake programs make is that they under-estimate the personnel requirements of implementing telemedicine. Many struggling programs can be linked to a focus on the technology and not on the work it requires to implement both technology and change.

Almost all successful programs have a full time coordinator responsible for day-to-day operations and available to support and serve the users. That person must: schedule session; make sure everything is working properly; encourage users; see and address issues; make sure people are using the system and removing obstacles for those who are not. The person filling this role must have skill, passion and a commitment to serve. A good person here can help the program overcome a lot of failings in other areas.

Every successful program also has a clear leader. This does not always need to be a full time position (it depends on program size). However, this person must have the necessary skills, authority and esteem to manage the program, fly cover for the program participants, inform management and assure that the program is properly marketed.

Successful programs also need passionate supporters/champions at the sending sites. Find them. Train them. Support and nurture them. Keep them involved. They are critical to your success.

All these positions are “agents of change.” All are critical.

Step #7: A Project Plan = Manageable Milestones = Reasonable Expectations

One surprising finding of the study was how many programs did not recognize the value of good project planning. Many programs struggled because of this. Successful implementation is very difficult without a project plan. Without good planning, failure tends to sneak up on you. Start with a solid, well-defined plan. Include all the steps to completion and understand the “critical path” issues.

When a project plan is well defined and clearly understood, both expectations and responsibilities can be properly set.

Warning #1: Do not over plan and paralyze the project.



Warning #2: A project plan is a tool. Do not use it as an offensive weapon.

Warning #3: Keep management simple. Involve as many parties as possible but remember, this does not mean that everyone gets a vote or that you will be able to please everyone. Keep the number of committees to a minimum and give them a fixed objective and duration. Give the manager of the program one master whenever possible.

Warning #4: Set reasonable milestones in the plan and meet them.

Step #8: Horizontal vs. Vertical Implementation

Some programs start by providing as many sites as possible with a very limited amount of capability in each site. This addresses the widest “horizontal” audience. Other programs start with very few sites with very extensive capability in each site. This gives one or two initial sites exceptionally broad “vertical” capability. In our findings, neither strategy is successful.

Broad (horizontal) programs appear to stumble because they stretch management and communications capabilities. They make the audience so large that it is difficult to train them, support them or keep them interested and satisfied. In addition, because each site has very little capability (therefore limited uses) the participants appear to lose the “vision” of what can be done.

Building one or two “super capable” sites appears to fail because they are too complex and intimidating. Future users often see these sites and are concerned about the complexity. They tend to reject the program because it is beyond what they can understand. In addition, with so few participants, even if they are happy, they cannot form a critical mass large enough to drive a future large-scale expansion of the program.

The successful strategy is a balanced approach. Establishing a limited number (perhaps 10 – 20% of the anticipated total) of reasonably capable sites appears to work best. This focuses management attention. It also keeps the audience manageable and focused. It simplifies communication and support. This maximizes the likelihood of success of the initial sites. Problems can be resolved, protocols can be tested, improvements can be made and capabilities can be proven before there is large-scale implementation. Sites can exhibit success. In addition, this is usually a large enough group to provide the critical mass needed to drive future expansion.

Everyone loves to be a member of success. Adding sites in the future based on a foundation of success and happy supporters appear to work the best. Additional sites can be done in stages. Additional capabilities can also be added to all sites in stages over time.



Examples:

Right: Create a few sites that have the tools, communications, diagnostics devices, protocols and support resources. Make and test changes. Make each site successful. Understand why they are successful and then add sites using the same proven model.

Wrong: Deliver communications and/or basic video conferencing to as many sites as possible and add diagnostic capabilities later.

Wrong: Start with one or two complex sites focus on technology, make the sites able to do almost anything that can be done technically and then try to adapt this model when you expand broadly.

Step #9: Good Marketing is Critical

A rule of thumb in business is that “the investment for marketing and sales of any product is usually equal to or greater than the cost of developing the product or services.” Plan accordingly.

No one is going to beat a path to your door. Few people will understand the value of telemedicine unless you successfully deliver your message and then reinforce it effectively. Successful programs do this well. Unsuccessful programs appear to realize the importance of marketing too late or omit marketing entirely.

Remember that marketing is more than promotion and advertising. Good marketing starts with understanding the needs and wants of your users and organization.

- Do not get blinded by your own vision.
- Know what other groups want and how you might answer that need.
- Know how others are measured. Understand why some people might resist.
- Build your message based on wants, needs, measurements and specific resistance.
- Claim success and set public expectations.
- Tell the world the good things you’ve done.
- Tell the world what is coming next.
- Give credit freely. It is an inexpensive but valuable currency.

Remember that every contact with an outside party is a marketing opportunity (this includes: training, support calls, etc. even in a crisis).

Successful Techniques:



Market your management. Make sure they know when you are meeting their goals or adding value to the organization. When you have problems or issues, tell management early and tell them what “you” are doing to solve them. Do not constantly go to them for help or protection. This is your job. Ask for help when it is needed.

Never let them be blind-sided by bad news. Make all surprises good news.

Market to your opponents. Do not waste your energy trying to convince every opponent that you are right. Do not ignore them either. Remember that you may not convert them but you might get them to neutral...in life and in politics...that is just as good.

Observation: Everyone wants to be part of a success. Invite other to be part of yours.

Step #10: Publish or Perish?

Programs that focus on presenting or publishing the results or status of their program (or some part of their program) at least once per year appear to do significantly better than those that do not. The act of publication, teaching and sharing your knowledge and expertise is very important in many ways.

Some may consider this part of marketing and it certainly can be. However, it is much more. In addition to the value it delivers to others, the activity of writing or presenting what you have done and learned, forces a level of self-awareness, self-discipline and self-assessment that might not otherwise exist. It is immensely beneficial to hold your work up for public view by your peers.

Submit abstracts. Publish peer-reviewed articles. Present posters. Involve members of your telemedicine team. We suggest that you do this at least once per year.

In Summary:

The programs that succeed are the programs that manage change well by:

Setting a clear vision	Providing a plan and a roadmap to success
Establishing goals and measurements	Managing implementation and communication
Creating a good and effective work environment	Selling your program to others
Minimizing disruption	Publishing your results and accepting both outside criticism and recognition
Providing training and effective support	Staying focused
Providing good management, assistance and leadership	

These are all things that help change to happen!