

Needs Assessment: A Key to Building Better Telemedicine Programs

By Glenn W. Wachter, October 25, 2000

Introduction

As a general rule, people do not want health care per se; they simply want to feel better. Unfortunately, sometimes the local health care resources do not include many kinds of medical services, specialty care for example, that lead to feeling better. Because specialists tend to work in large cities where they ply their trade on a larger population, patients in rural and remote regions are often medically underserved. This kind of disparity of health care needs and resources has inspired the contemporary wave of telemedicine development so that timely, quality health care becomes available to all.

Industry surveys show hundreds of telemedicine systems have been implemented all across North America. Yet far too many of these programs are abandoned when the grant funds dry up because of minimal planning for program sustainability. Many programs find funding first, and then decide to build a telemedicine program. Some have called this the reverse 'Field of Dreams' approach: if you build it and they don't need it, they won't come ([Chin, 1998](#)). Stumbling through implementation without first engaging in methodical planning and assessment doesn't bode well for the long-term sustainability of any telemedicine program. Instead, health care planners setting up telemedicine services ought to undertake a more systematic approach when establishing a new health care delivery system like telemedicine. A key part of planning a sustainable telemedicine program is conducting a needs assessment.

Typical Needs Assessment Model

In a typical needs assessment, the areas that require consideration go well beyond simply identifying needs ([Grigsby, 1995](#)). A number of models of needs assessment for telemedicine planning exist; however, TIE staff cannot make specific recommendations since one model will not fit all programs. Instead, we will describe a popular model, and refer to others for readers to investigate.

Doolittle and Cook's ([Doolittle and Cook, 1999](#)) needs assessment model considers three critical perspectives: clinical; economic and technical. A description of these three categories is provided below.

Clinical Considerations

Clinical assessment first challenges the telemedicine planner to identify the clinical service area in question, and second, to determine health care services that are offered and those that are not ([Doolittle and Cook, 1999](#)). The latter question obviously requires a detailed understanding of where patients go for health services. Health problems of the community, as well as the region that surrounds it, and the resources needed to address those problems must be recognized. Next, what health care services do residents of this region have to travel to find, and are these clinical services amenable to being delivered via telemedicine?

As a case example, research conducted by the Telemedicine Research Center in 1998 found that roughly two-thirds of Oregon did not have a cardiologist serving the population. For cardiology services, patients in Eastern Oregon travel either west to Bend or east to Boise, Idaho, or north to Walla Walla Washington, making this distance to the nearest cardiologist a couple of hundred miles. In fact, after careful study, it was determined that while 2.6% of Oregon's cardiologists served Eastern Oregon (mainly through circuit riding), 8% of hospitalizations and 20% of the state's total deaths were cardiovascular related in this portion of the state.

Overall, the primary question must be "what does this patient community lack that can be solved with telemedicine technology?" The case example above clearly shows a region with deficient clinical needs, which potentially could be helped by providing telemedical cardiology services.

Once telemedicine-amenable needs are identified, planners should consider whether there are sufficient clinical resources available at the consulting as well as the remote site. Understanding how many and what kind of providers are present, as well as what the capabilities of each facility are will help make clinical planning easier. Additionally, another important clinical factor is whether the remote site practitioners can handle the follow-up care for a particular service. Further, are clinicians involved at both the consulting and remote sites amenable to telemedicine? Getting remote staff comfortable and committed to using telemedicine technology is a necessity; otherwise, the telemedicine program is likely to fail ([Doolittle and Cook, 1999](#)). Successful programs will strive to make telemedicine complementary rather than competing with the health care services

offered at the remote site (or within the local region). Positive relations between the remote and consulting site are possible if the latter is careful not to strip local patients away ([Doolittle and Cook, 1999](#)).

Economic Considerations

According to Doolittle and Cook ([Doolittle and Cook, 1999](#)), program planners must also consider the economic perspective of needs assessment. Obvious line items, such as telemedicine equipment purchases and telecommunication costs are commonly thought of, but then there is a seemingly unending laundry list of expenses that must also be considered, not just for the consulting but possibly several remote sites as well. A short sample list is provided below.

Sample Expenses for a telemedicine consulting site:

- program administrator salary;
- nursing staff salary;
- technician salary;
- scheduler/Administrative Assistant salary;
- office rent;
- office equipment (computers, furniture, etc.);
- copies, mailing, fax, other office supplies;
- miscellaneous telemedicine supplies;
- telecommunication line charges;
- telemedicine equipment;
- telemedicine room network access;
- equipment maintenance;
- equipment upgrade.

It goes without saying that securing funds to pay for these numerous expenses is an incredible challenge. That is why considerable time must be spent in identification of revenue sources. After internal funding from the medical center under which a telemedicine program may operate, [grant funds](#) may be one of the next stops that planners make. Government contracts may also be a possibility.

Reimbursement for telemedicine services is presently a rather challenging proposition, with a number of options such as Medicare, Medicaid and private payment. These topics are discussed in greater detail in the [TIE's Legal section](#). Paying for telecommunications is also possible through [Universal Service](#), which offers funds for rural health care providers. Covering the costs of a telemedicine program is a significant challenge with sketchy Medicare reimbursement, temporary grants, and hit and miss private payer reimbursement.

Above all, a sound business plan is recommended that achieves the mission and objectives of the telemedicine program. While securing funds can be troublesome, it may be possible to scale down the program initially, requiring less start-up capital ([Doolittle and Cook, 1999](#)). Providing fewer and less expensive services at first while the program is getting off the ground could be followed by ramping up the program as recognition of value and patient volume increases.

Technological Considerations

A third category for needs assessment focuses on examining the technological needs and resources before starting up telemedicine services. Program and remote sites may have equipment used in distance education that can also be used for clinical applications. The goal is to identify exactly what equipment is already owned and what must be leased or purchased to begin offering telemedicine services.

Telecommunication services should be treated similarly. A discussion with the information technology staff at the program and remote sites will reveal what speed of telecommunication service is presently installed and what kind of upgrades are available in the region. (Please see [Telecommunication, Linking Providers and Patients](#) for a more detailed discussion of telecommunication issues.)

Additionally, some time should be spent determining what kind of clinical, educational, and administrative uses the telemedicine technology will be used for. If the system is used clinically 25% of the time, a room-based system would be rather impractical and a roll about system might suit the purpose better ([Doolittle and Cook, 1999](#)).

Other Key Concepts

Relationships

Developing a telemedicine program means new relationships with practitioners, patients, vendors, payers and additional layers of regulation to monitor. Telemedicine experts seem to agree that planning a successful telemedicine program ought to begin at the bottom ([Doolittle and Cook, 1999](#)), that is to say that the first place to start is in the patient community. Exactly, what are the needs there? Can they be met through telemedicine or is another route more appropriate?

Because implementation of a telemedicine program involves so many new stakeholders, it is essential to completely understand the needs of the remote site personnel and facility, stacking on building blocks of a telemedicine program only after securing a strong base of support. Communicating directly with the remote sites to discover their needs is highly recommended. Remote site physicians, nurses, technicians, information technologists and hospital administrators all must be consulted about what the remote site needs from a telemedicine program ([Yellowlees, 1997](#)). Since the degree to which a telemedicine program is considered successful is largely dependent on the number of teleconsults that originate from remote sites (since that relates to patients served and reimbursement), insuring that remote site staff value the system and use it regularly is critical. This will mean that planners must take into account how practitioners feel about computers, and their attitudes towards technology. Unfamiliar, disengaged practitioners may result in few (if any) patients served, and considerable dust on the telemedicine system ([Grigsby, 1995](#)).

Focus Groups

Siden (1999) suggests that planners of telemedicine programs consider holding focus groups to gather qualitative data about the needs and resources of the remote and consulting sites' staff, as well as patients and families in the proposed service area. These small group sessions, which are optimally moderated by a person not affiliated with either group, may elicit in-depth concerns about telemedicine and frame the priorities of the program ([Siden, 1998](#)). Getting a clear understanding of what practitioners will require clinically and technically from the telemedicine equipment to feel comfortable conducting teleconsults may assist in equipment purchasing decisions to come. Obtaining this information up-front in the planning process may help in building more sustainable telemedicine programs.

Stimulate Demand

Educating the patient population can be a powerful way to stimulate and increase the demand for new opportunity of receiving specialty care within their own community. If it works anything like the high media saturation for pharmaceuticals, it would seem like a smart practice for growing the demand for telemedicine services. A number of groups need to know of the new service, including patients and their families, state and regional planners, health care service providers, and others supporting the use of telecommunications to improve medical care.

Evaluation

Technically, evaluation seems quite premature in a discussion on needs assessment; however, it is included here to reinforce its importance to successful program building. Therefore, it is worthwhile to insure that consulting and remote site staff is willing to collect evaluative data pertaining to telemedicine consults. By placing value on evaluation early on, programs are more likely to quickly identify practices and strategies that are not profitable in time to try other alternatives.

Of primary importance is identifying the measures by which programs will be evaluated. Hailey et al., ([Hailey et al, 1999](#)) suggests that it is important to identify the effect of telemedicine on the time taken for various tasks. For instance, "how much time does telemedicine save patients who need treatment?" Next, quality is a key performance measure for telemedicine programs ([Hailey et al, 1999](#)). For example, program administrators can evaluate the quality of a given digital image or the frame rate of the live video teleconsultation. A third performance measure is cost, which can be examined at many different levels, such as the cost of a particular device or the larger cost of providing a service via telemedicine.

Patient outcomes are another critical factor for the telemedicine planner to consider, although collection of meaningful data require a solid design and make take several years to collect ([Hailey et al, 1999](#)). Knowing whether the quality of a telemedicine system has positively or negatively impacted patient health would have enormous benefit to others building and optimizing telemedicine programs.

Alaska Needs Assessment Questionnaire

[Alaska Federal Health Care Access Network](#) (AFHCAN) has developed a needs assessment [questionnaire](#) that it requires potential participants in its telemedicine program to complete. These questions, broken down into five categories, take into consideration many of the issues addressed in this article. It might be quite appropriate for this kind of 'survey' to be integrated as discussion points into a site level focus group. (This instrument was constructed by AFHCAN, and therefore, a couple of questions pertaining only to their specific locale were omitted.)

Human Aspects

1. Please identify members of your telehealth team.
2. How have you prepared your organization for telehealth?
3. How will you identify which sites are ready for telemedicine?
4. Does your medical staff desire telemedicine? What are their concerns?
5. Which of your sites do not presently have computers/e-mail capability/Internet access?

Clinical Workflow

1. How do you anticipate telemedicine will change your current workflow and delivery of health care? How do you plan to address these changes?
2. What are the referral patterns from the village/clinic sites to your organization? Does it change for primary care, ENT, and dermatology cases?
3. How is medical traffic currently handled by providers?
4. In a typical day, about how many encounters to you have at village/clinic sites?
5. How many of the above encounters would benefit from a) video otoscope, b) digital camera, or c) ECG?
6. What present telemedicine equipment do you have?
7. Where do outpatient charts flow in your facility (example: from provider to front office to medical records to other departments)?

Training

1. Will you require training in the operation of the telemedicine equipment?
2. Will you provide staff the necessary time for training?

Health Priorities

1. What are your key organizational goals for telehealth applications? Please rank in order of importance (1=most important). Access to care, patient satisfaction, quality of care, information transfer, cost/economics, continuity of care, other.
2. How do you expect the AFHCAN project to help meet your top goal?
3. Does your medical staff believe telemedicine will help address a health care need?

Business and Sustainability

1. What are your major concerns about sustainability of telemedicine?
2. Estimate the yearly telecommunication costs associate with telemedicine for each site. How will your organization sustain these yearly costs?
3. How will your organization sustain the yearly recurring cost of equipment maintenance and support after the first year?
4. What special considerations affect your desire to receive equipment in the early, middle or late portions of the twelve-month deployment schedule?
5. How will you know if this project was successful?

Conclusion

Several excellent discussions were referenced for this article, such as those by Doolittle and Cook, Hailey et al, and Siden; we encourage those interested to examine these works further. Many thanks also to Chris Patricoski, MD, for allowing us to include the [AFHCAN](#) needs assessment questionnaire. As a decision making tool useful for planning and implementing successful telemedicine programs, needs assessment appears to be gaining traction in practice and in the literature. For instance, granting agencies, such as the [Office for Telehealth Advancement](#) (OAT), now require prospective grantees to conduct a needs assessment in their application for funds. However, even though needs assessment appears to be increasingly valued, data comparing actual instruments for telemedicine planning have not been published to date. Hopefully, this article's consideration of key topics in needs assessment has spurred readers to examine and apply these tools so that sustainable telemedicine programs are the rule and not the exception.

References

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Learn more

1. [Alaska Federal Health Care Access Network](#)
2. [Alaska's Information Technology Group Needs Assessment Document](#)
3. [Finnish Office for Health Care Technology's Needs Assessment](#)
4. [TIE's Evaluation and Assessment Links](#)

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