



**A Business Plan for the
Wyoming Telehealth Network
Final Report**

**Prepared for
The Wyoming Telehealth Consortium and the
Wyoming Department of Health**

May 6, 2010



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May 6, 2010

Dear Dr. Bush:

The Wyoming Health Information Organization (WyHIO) is pleased to present the Business Plan for the Wyoming Telehealth Network (WTN), as it builds upon the infrastructure base (WYNETTE) supported by the FCC Rural Healthcare Pilot Program to expand to the larger statewide scope of the WTN.

This submittal addresses the business operations of the WTN over the five year period from July 2009 through June 2014, and incorporates both the initial draft and feedback from the Wyoming Telehealth Consortium and other interested parties.

The WyHIO appreciates the opportunity to present the Business Plan.

Sincerely,

Jerry Calkins, Ph.D., M.D.
Chairman
WyHIO Board of Directors

MISSIONS

The mission of the Consortium shall include:

Facilitating the operation of a statewide interoperable telemedicine/telehealth network using existing internet protocol based communication and videoconferencing infrastructure and telecommunication services to the extent possible;

Coordinating with appropriate state agencies to establish incentives to implement, promote and facilitate the voluntary exchange of secure telemedicine/telehealth network information between and among individuals, entities and agencies that are providing and paying for services authorized under the Medicaid program, in conformity with rules adopted by the state chief information officer;

Develop and promote a common direction for a statewide interoperable telemedicine/telehealth network among state agencies, in conformity with rules adopted by the state chief information officer.

The mission of the Wyoming Health Information Organization (WyHIO) is to enhance access, quality, safety, and the efficiency of healthcare in Wyoming through the implementation of a telecommunications network supporting telehealth/telemedicine and the interoperable exchange of electronic health information that is secure and confidential, assuring interconnectivity within Wyoming and the rest of the nation.

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- Tom Richards, MD, Apollo Telemedicine, LLC

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Purpose/Scope of the Plan Document

This business plan has been developed for the Wyoming Telehealth Consortium (WTC) by the Wyoming Health Information Organization, under contract by the Wyoming Department of Health. It describes the development, business, and operational objectives of the Wyoming Telehealth Network (WTN), including plans and budgets for how those objectives are to be reached. This document should be considered a living document that will be revised to reflect the consensus and changing telehealth needs of the Wyoming's healthcare system.

The plan articulates a desired future state for the WTN, in which the WTN and related healthcare information technologies support the healthcare system's goals of increased collaboration, improved access and quality, and increased efficiency for providers. Additionally, the document provides information for those unfamiliar with telehealth on past and current telehealth activities in Wyoming.

More specifically, this plan speaks to

- Developing the WTN, leveraging the FCC Rural Healthcare Pilot Program as well as other existing infrastructure;
- Implementing clinical, educational, and administrative telehealth applications;
- Developing strategies for sustaining telehealth activities in Wyoming.

The Consortium members acknowledge that they cannot anticipate all future telehealth delivery needs. To that end, the plan identifies a number of priority capabilities for the WTN that will establish a solid and sustainable base for currently anticipated service delivery, allow the WTN to adapt as needed to leverage and integrate with future infrastructure development, and grow to meet future service delivery needs identified by Wyoming's healthcare community.

Please provide any feedback to

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Executive Summary

The expanded use of telehealth to deliver healthcare to the citizens of Wyoming offers a number of benefits, including increased access to care, treating patients in their local communities, the potential to expand emergency services in rural areas, and savings in time and travel related costs.

Historically, Wyoming's telehealth activities have centered on educational and administrative activities. Telehealth efforts in Wyoming include the following:

- Wyoming Network for Telehealth (WYNETTE) with the University of Wyoming and the Wyoming Department of Health;
- Southeast Wyoming Telehealth Network (SEWTN) through the Cheyenne Regional Medical Center and other hospitals in southeast Wyoming;
- FCC Rural Healthcare Pilot Program;
- The telestroke program at the Wyoming Medical Center;
- Inmate healthcare services at the Wyoming Department of Corrections with Prison Health Services;
- Veteran's Administration telemedicine program;
- Mental health services supported by Apollo Telemedicine and the Department of Health;
- Additional mental health programs supported by the Department of Health.

In 2009, the Wyoming Legislature created the Wyoming Telehealth Consortium, under the Wyoming Department of Health. The Consortium is charged with facilitating the operation of a statewide telehealth network, and has made delivery of clinical services a priority. The Consortium's five-year vision for telehealth anticipates, among other items, a wider use of telehealth to deliver clinical services, integration of telehealth into clinical practice, and removal of barriers to telehealth services. Over time, the operation of a statewide telehealth network is expected to move to a public/private collaborative, based on the structure of a public or private not-for-profit corporation.

For budgeting purposes, the Consortium's five-year horizon is broken into two periods:

- July 2009 to June 2011 – years 1 and 2
- July 2011 to June 2014 – years 3 through 5.

In years 1 and 2, the Consortium will focus on building the infrastructure to support delivery of telehealth services. Costs for those two years are approximately \$526,000 and \$1,416,000, respectively.

Currently available revenues to support costs in years 1 and 2 total approximately \$1,162,000, leaving an estimated shortfall of just over \$280,000. Options for closing this shortfall include lowering costs, applying for additional grants, seeking additional government appropriations, and initiating membership or participation fees. However the ability to generate fees is contingent on demonstrating an acceptable business case for providers and other network supporters.

In years 3 through 5, total network operating costs are estimated between \$1.5 and \$1.65 million annually or just over \$4.77 million for the three years. During these years,

no new federal funding is anticipated, requiring costs to be supported from memberships, fees, and other contract services.

For years 3 through 5, revenues from memberships are estimated between \$190,000 and \$210,000 annually, leaving a potential shortfall of \$4.1 million.

Introduction/Overview

For the purposes of this business plan, telemedicine and telehealth are defined as shown below:

Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients' health status. Closely associated with telemedicine is the term "telehealth," which is often used to encompass a broader definition of remote healthcare that does not always involve clinical services. Videoconferencing, transmission of still images, e-health including patient portals, remote monitoring of vital signs, continuing medical education and nursing call centers are all considered part of telemedicine and telehealth.¹

Historically, telehealth services in Wyoming focused on educational and administrative activities. The Wyoming Telehealth Consortium has made the implementation of clinical services a priority. The delivery of educational, administrative, and clinical services through telehealth provides a number of benefits to Wyoming:

- Improved access to care in remote areas
- Improved access to specialists
- Keeping financial resources in local communities
- Savings in time, travel, related costs
- Improved home health care and remote monitoring
- Improved collaboration among providers
- Improved accuracy of diagnoses/reduction of errors
- Improved provider efficiency
- Better access to medical education/training.

Telehealth/telemedicine services are delivered in various ways, as shown below:

- Networked programs link large hospitals and clinics with outlying hospitals and clinics
- Point-to-point connections to deliver services directly or outsource specialty services to independent medical service providers
- Monitoring center links for used for cardiac, pulmonary or fetal monitoring, home care and related services
- Web-based e-health patient service sites provide direct consumer outreach and services over the Internet.

Additionally, a number of factors will impact the near-term development of telehealth/telemedicine both nationally and in Wyoming. Among these are the following:

- Lack of uniform connectivity
- Concerns over Quality of Service with the public internet network
- Education needed to inform providers of telehealth services and how telehealth can be used to improve healthcare delivery
- Need for expanded wireless services and integration with existing landline networks

¹ American Telemedicine Association (ATA)

http://www.americantelemed.org/files/public/abouttelemedicine/What_Is_Telemedicine.pdf

- Demand for new services is increasing – ICU monitoring, mobile applications via handheld devices, expansion into long term care facilities, home and remote patient monitoring, etc
- Emergency services and response – public health, disaster response, Emergency Medical Services
- Reimbursement for telehealth services still lacking
- Need for coordination and resource sharing between telehealth and Healthcare Information Exchange
- Legal barriers – medical licensure, electronic prescribing via telehealth, malpractice issues
- Privacy/security
- Infrastructure expansion and demand for bandwidth
- Sustainability.²

² American Telemedicine Association, Comments of the ATA before the FCC, In the Matter of Healthcare Delivery Elements of National Broadband Plan, Public Notice # 17
http://www.americantelemed.org/files/public/policy/FCC_12_2_2009.pdf

Telehealth in Wyoming

Vision, Mission, Guiding Principles

As indicated earlier, Wyoming's telehealth efforts have previously focused on educational and administrative services. In 2009, the Wyoming Legislature created the Wyoming Telehealth Consortium (WTC) and charged it with "Facilitating the operation of a statewide interoperable telemedicine/telehealth network...". Telehealth in Wyoming is evolving quickly. To help accommodate this change and provide for the anticipated future role of telehealth in Wyoming, the WTC has adopted a vision, mission, and set of guiding principles to guide its telehealth efforts.

- **Vision** - Telehealth will play a major role in improving both access to and quality of healthcare to Wyoming's citizens.
- **Mission** - Facilitating the operation of a statewide interoperable telemedicine/telehealth network using existing internet protocol based communication and videoconferencing infrastructure and telecommunication services to the extent possible.
- **Guiding Principles**
 - Existing resources and knowledge will be leveraged.
 - Telehealth initiatives will be interoperable.
 - The telehealth network will be collaborative.
 - Telehealth will integrate into the health system and support other initiatives.
 - Healthcare providers will be educated on the capabilities and benefits of telehealth

History of telehealth efforts in Wyoming

In 2004, the Wyoming Department of Health, Office of Telemedicine and the University of Wyoming Center for Rural Health Research and Education (CRHRE) jointly submitted a proposal for federal funding to support the development of the Wyoming Network for Telehealth (WyNETTE). From 2006 to 2008, the Wyoming Legislature supported continuation of the project. Additionally, WyNETTE extended its resources by partnering with local, state and regional entities that were working towards similar goals.

The Cheyenne Regional Medical Center (CRMC) secured federal funding in 2004 and 2006 to provide videoconferencing links among eight hospitals in Laramie, Rawlins, Douglas, Lusk, Torrington, Wheatland, Cheyenne and Kimball, Nebraska, creating the Southeast Wyoming Telehealth Network (SEWTN). That funding also provided for clinical application peripherals in selected facilities and the development of an interactive clinical education series.

In 1997, a consortium of health care providers, public and private organizations, and state agencies were awarded an FCC Rural Health Care Pilot Program grant to link hospitals, community mental health centers, and substance abuse clinics in the state into a telehealth network. This grant, administered by the University of Wyoming (UW), will enable the deployment of broadband infrastructure supporting telehealth

and health information exchange, providing dedicated circuits for video conferencing and healthcare applications.

The UW, CRMC and the Wyoming Hospital Association partnered on a three-year Health and Human Services, (HHS) Office of Rural Health Policy Rural Network Development network development grant supporting telehealth education/outreach and project management for the FCC grant.

Current telehealth efforts in Wyoming

Wyoming Medical Center (WMC) in Casper initiated a pilot telestroke program in July 2005. In January 2006, the hospital obtained a grant from the Wyoming Hospital Association (WHA) to acquire a communications toolkit for stroke consultation. A pilot site, Memorial Hospital of Converse County, went live in October 2008.

The Wyoming Department of Corrections in conjunction with Prison Health Services has implemented a telemedicine program at four Wyoming institutions. Services delivered via telehealth include telepsychiatry, primary care, and chronic disease management.

CRMC currently operates the SEWTN, serving eight hospitals in Southeast Wyoming. The bulk of the services offered through this network are educational and administrative.

The Veteran's Administration operates a closed broadband network, utilizing video over Internet Protocol (IP) to provide telehealth services across the United States. Their mission includes rural health the VA has set up 4 new outreach clinics in Wyoming.

Apollo Telemedicine, under contract to the Wyoming Department of Health (WDH), is developing a pilot project to test an integrated system of mental health care for the state based on telemedicine services. When successful, this model will support earlier psychiatric evaluation of patients, more appropriate specialty care, and more efficient transfer of the most seriously ill patients to inpatient psychiatric facilities. It is expected this pilot will develop the model for delivery of telepsychiatry services statewide.

The WDH through its most recent budget request provides funding for support of technical and business services for the existing telehealth network operations. This support is provided through the joint efforts of the Wyoming Health Information Organization and Cheyenne Regional Medical Center.

In its 2009 session, the Wyoming Legislature established the Wyoming Telehealth Consortium. The Consortium will enable leaders of state agencies, private health organizations and professional and community organizations to facilitate the operations of a statewide interoperable telemedicine/telehealth network.

The Wyoming Telehealth Network in Five Years

Expected outcomes of Telehealth/Telemedicine in five years

Wyoming is a frontier state, with its small population living in a large geographic area. It is currently the least populated state in the Union. Health care accessibility is problematic, where distance, geography, inclement weather, isolated communities, and limited health care resources present significant challenges.

This is further complicated by a shortage of primary care and specialty physicians. The bulk of Wyoming counties qualify as Health Professional Shortage Areas. Additionally, rural residents typically travel significant distances, often during inclement weather to see medical specialists.

Telehealth/telemedicine is an effective way to deliver health services, improving access to care, increasing collaboration among healthcare providers, and providing additional educational opportunities to Wyoming's healthcare community. Expected outcomes of telehealth/telemedicine implementation are as follows:

- Improved access to clinical services in rural areas;
- Increased clinical services and integration into clinical practice;
- Increased provider collaboration;
- Increased educational opportunities for healthcare professionals and patients;
- Flexibility to adapt to changing service delivery needs;
- Current technology adoption and Integration.

Description of Wyoming telehealth/telemedicine in five-years

Telehealth/telemedicine in Wyoming in five years will be characterized by a number of significant improvements:

- Use of telehealth/telemedicine is widespread, with a variety of services delivered to rural communities and patient's homes; telehealth is a cost-effective service delivery mechanism;
- Telehealth/telemedicine is routinely integrated into the delivery of healthcare services;
- Barriers to telehealth usage are removed: reimbursement, licensing, credentialing;
- Technical, business, educational, scheduling, and other needed support services will be readily available; telehealth is easy to use;
- Telehealth consults will enable interaction among members of multi-disciplinary teams;
- Increased support for geographically isolated providers will be available, including relief support for provider shortage areas and disciplines;
- Providers have increased access to educational opportunities, saving travel time and money;
- Patients have convenient access to education relating to their healthcare needs or those for whom they care;
- The telehealth/telemedicine network infrastructure has the ability to implement new telehealth services as needed;

- Telehealth/telemedicine has strong participation levels, provider support, and sustainable funding;
- Telehealth/telemedicine services evolve with technology advances; telehealth integrates with electronic health records (EHRs) and (HIE); home based services are expanded.

Responders to the telehealth interview process were asked a number of questions related to the long-term vision of telehealth in Wyoming. Two significant findings from that interview process addressed ease of use and cost-effectiveness. Equipment and software must be easy to use, reliable, and adequately supported. Both patients and providers must have easy access to obtain services as needed. Providers will support the delivery costs of telehealth services, but only if additional revenues are available or the process is cost-neutral.

Interviewees also provided information on the long-term view of telehealth capabilities/services, items needed to make telehealth viable, and resources required for operation and sustainability.

Significant items related to capabilities and services are listed below:

- Services must be easy to obtain;
- Technology must be easy to use;
- Suggested future services focused on clinical applications, and included
 - As needed consults from specialists;
 - Telepsychiatry, telemental health
 - Various types of emergency services – telestroke, telecardiology, EMS
 - Follow up services, especially for surgery;
 - ICU monitoring;
 - Home health applications;
 - Remote pharmacy management/support;
 - Medication therapy management;
 - Dermatology;
 - Pathology
- Support for desktop, mobile users, EMS personnel;
- Continued training – to address new technology, staff turnover at user and central sites
- Automated scheduling process;
- An open and transparent process for accessing the telehealth network infrastructure and services.

When asked about telehealth network needs, interviewees cited the following major items:

- Adequate support, both technical to accommodate emergency (24 x 7) emergency medical services, as well as general telehealth education/outreach
- More bandwidth to accommodate images for clinical applications
- Statewide standards for connectivity
- Access to electronic health records
- High quality video and audio to enable providers to sense visual and audible cues from patient;
- Personnel at host sites to assist both patient and remote site provider in care delivery;

- Short term successes to demonstrate value and build support for telehealth expansion;
- Identification and implementation of value added services for telehealth network users;
- Champions, especially physicians and nurse practitioners, to promote the benefits of and increased participation in telehealth.

As to resources required to support sustainable delivery of telehealth services, interviewees cited several major areas:

- Adequate reimbursement for hosting sites and service providers to allow not only the delivery of services, but also for providers to financially support telehealth infrastructure and services;
- Adequate revenue to support infrastructure costs for telehealth service delivery;
- A plan to generate additional telehealth revenues or demonstrate telehealth cost neutrality for hospitals and other providers.

Current state of telehealth/telemedicine in Wyoming

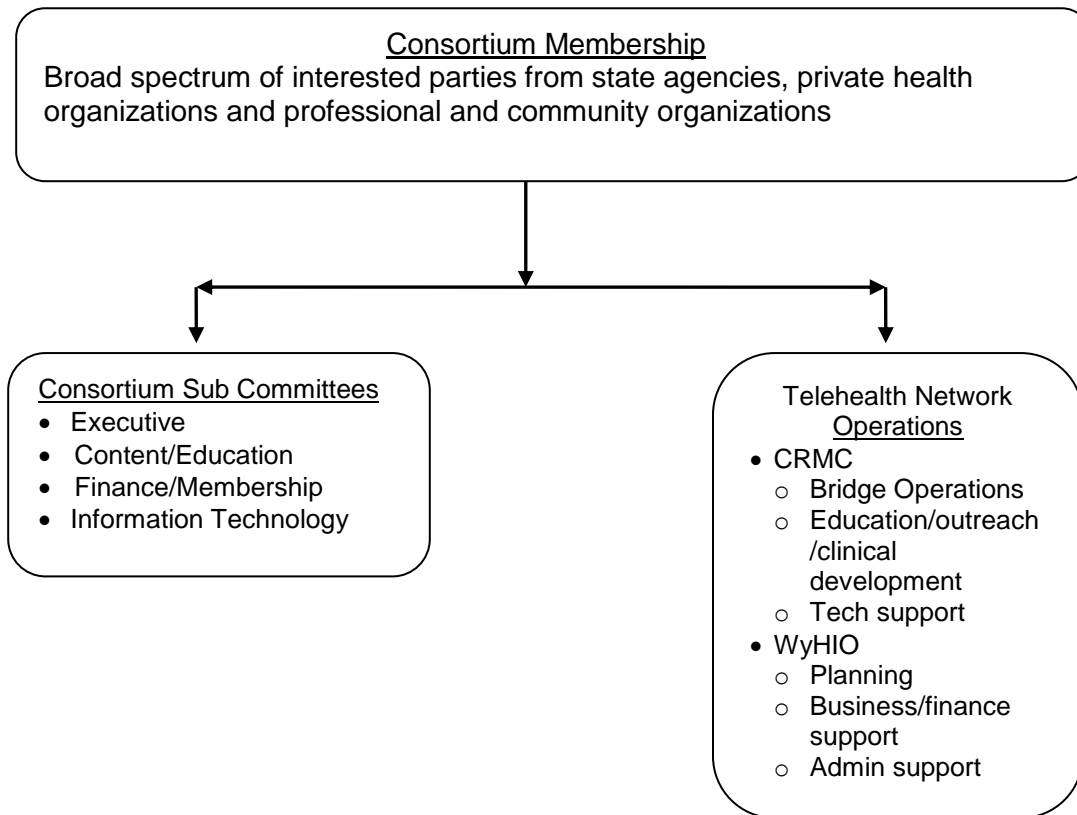
The current state of telehealth/telemedicine in Wyoming can be characterized as one of building capacity. The SEWTN delivers services to its member hospitals in Southeast Wyoming. The FCC Rural Healthcare Pilot Program is supporting connectivity to hospitals and mental health centers. The Veterans Administration has operated its closed network to provide telehealth services to its constituents. Non-VA telehealth services have focused on educational and administrative activities generally delivered using in-kind support from key parties and internet connections. However, over the last two years there has been an increased effort to build capacity to support the delivery of expanded telehealth/telehealth services outside the VA network.

However, a number of areas remain in the process of building capacity. The discussion that follows addresses issues of organizational structure, operations and technical resources, barriers and legal issues, partnerships/alliances formed, and funding available.

In 2009, the Wyoming Legislature established the Wyoming Telehealth Consortium (WTC), and charged it with responsibilities related to facilitating the operation of a statewide interoperable telemedicine/telehealth network, and coordinating telehealth activities statewide. The Consortium operates under the authority of the Wyoming Department of Health, with members appointed by the Director of the Department. The statutory language outlining the Consortium's statutory authority and mandated activities is shown in Appendix C.

Figure 1 below depicts the current structure of the Consortium and its sub-committees.

Figure 1. Wyoming Telehealth Consortium



The current operations and technical base for telehealth services is characterized below:

- Telecommunications infrastructure is commodity internet based, with many smaller hospitals and providers having broadband capacity under the T-1 level (1.54 MB).
- The Cheyenne Regional Medical Center (CRMC) operates the Southeast Wyoming Telehealth Network (SEWTN), a regional telehealth network connecting 8 hospitals. The SEWTN supports educational, administrative, and clinical activities to its members and other hospitals in Wyoming.
- 24 of Wyoming's 27 hospitals are connected via a commodity internet network, supported through a contract with the Wyoming Department of Health and in-kind services from CRMC.
- In 2007, Wyoming was awarded an FCC Rural Healthcare Pilot Program grant to install and support dedicated T-1 lines to hospitals and mental health/substance abuse centers. The contract for those services is expected to be signed by April 2010, with installation completed by the end of 2010. Funding is sufficient to support the dedicated lines for approximately 15 months. The University of Wyoming administers this grant.
- A second federal grant was awarded to CRMC and the University of Wyoming to support management activities under the FCC grant as well as telehealth education/outreach activities. The University also administers this grant.

- The Wyoming Department of Health (WDH) provides funding to the WyHIO and CRMC to support business, administrative, and technical support activities for the network.
- The WDH also provides funding to Apollo Telemedicine for a pilot project to develop and test a model for delivery of telepsychiatric services in Wyoming.
- The Veterans Administration operates a closed broadband network, supporting face-to-face consults and store and forward applications. Additionally, the VA operates a number of in-home monitoring programs.

Legal and policy issues fall into the general categories of licensure, liability, record keeping, prescribing, and adequate staffing at hub sites. A number of the state licensing boards have formed working groups to deal with the current issues.

Partnerships/alliances have been formed both within Wyoming and across state borders. Telehealth networks in Idaho and Montana provides services to Wyoming communities near the borders of those states.

The Veteran's Administration serves veterans across Wyoming through its Veterans Integrated Service Network (VISN) using a combination of hospitals in Cheyenne and Sheridan, rural health clinics, mobile health vans³, and telehealth services. Its telehealth network is a closed broadband network, using video over IP, and focuses on face-to-face consults and store and forward applications. Additionally, the VA operates a number of in-home monitoring programs using normal telephone connections (POTS).

The Telehealth Consortium and Wyoming healthcare providers have the opportunity to partner with the Veterans Administration in both linking telehealth networks and providing direct services to VA patients. The VA estimates that approximately 1,200 patients will be seen at its Wyoming outreach clinics, and seeks opportunities to partner with providers in Wyoming. Potentially, the VA would seek services in areas such as laboratory work, in-patient services, physical therapy, mammography, cardiac rehabilitation, end-of-life services, and surgery.

Providers would need both a reliable communications infrastructure and access to the VA medical records system to partner with the VA. Potentially, partnerships could also involve sharing of staff, space, and network resources.⁴

Telehealth provides the opportunity for significant efficiencies and cost savings in the delivery of health care to inmates at Wyoming's Department of Corrections. These services currently include telepsychiatry, primary care, and chronic disease management, but could be expanded to additional services.

The pilot project currently underway by Apollo Telehealth has the potential to establish a base for statewide expansion of telepsychiatric services. The expansion of these services offers the opportunity to deliver services to underserved areas, to provide more timely emergency telepsychiatric services, and also reduce the cost of emergency telepsychiatric services.

³ VA Telehealth Quarterly, March 2009, http://www.carecoordination.va.gov/newsletters/docs/2009/032409-newsletter_Vol8Iss4.pdf

⁴ Interview with staff at Cheyenne VA hospital, 2/13/2010

In 2008 Governor Freudenthal appointed an Audio Visual Task Force to examine all systems delivering distance education, video conferencing, and IP-based communications throughout the state. The consultant conducting the study made a series of recommendations, two of which, if implemented, could support development of any future telehealth network infrastructure:

- Provide or subsidize funding to provide broadband connectivity to member sites to attain a minimum baseline bandwidth standard in alignment with each stakeholder's videoconferencing business requirements;
- Determine and deploy a unified, reliable, and flexible videoconferencing infrastructure platform to include equipment components that can be shared yet individually accessed and allocated for all business functions that utilize videoconferencing.⁵

The Consortium has formed a working relationship with the AV Task Force, and will continue to pursue any opportunities to collaborate.

The Wyoming participants in telehealth delivery are working cooperatively to build Wyoming's telehealth capabilities. It is anticipated that this cooperation will continue as the telehealth infrastructure is expanded in Wyoming, with little or no competition expected in infrastructure development. However, individual healthcare and other service providers are expected to compete in the offering and delivery of non-infrastructure services.

Currently, Medicare, Medicaid, and Blue Cross Blue Shield of Wyoming reimburse for telehealth services.

Medicare reimbursement for telehealth services began with passage of the Balanced Budget Act of 1997 (BBA). The BBA called for the coverage and payment for telemedicine consultations to Medicare beneficiaries in rural health professional shortage areas (HPSA). The BBA also required that a Medicare practitioner be with the patient at the time of the consultation and specified that teleconsultant fees had to be shared between the consulting physician and the referring physician.

In 2001, the BBA was amended to expand the payment for telehealth services. However, reimbursements were also limited to those eligible individuals that received services at originating sites: office of a physician or practitioner, critical access hospital, rural health clinic, federally qualified health center, or a hospital. While these amendments removed some of the prior constraints, there remain substantial limitations related to geographic location, originating sites, and eligible telehealth services.

Among the provisions passed in the 2001 amendments were the following:

- Eliminated the provider "fee sharing" requirement;
- Eliminated the requirement for a Medicare participating "telepresenter";
- Expanded telemedicine services to include direct patient care, physician consultations, and office psychiatry services;

⁵ PlanNet Consulting, LLC, State of Wyoming, Governor's Task Force, Video Conferencing and IP-Based Communications, DRAFT Final Report, July 31, 2009, <http://sites.google.com/site/wyovideo/Home/reference-documents>

- Included payment for the physician or practitioner at the Distant Site at the rate applicable to services generally; expanded the definition of Originating Sites to include physician and practitioner offices, critical access hospitals, rural health clinics, federally qualified health centers, and hospitals (but did not include nursing homes);
- Expanded the geographic regions in which Originating Sites are located to include rural health professional shortage areas, any county not located in a Metropolitan Statistical Area, and from any entity approved for a federal telemedicine demonstration project; and
- Permitted use of store and forward applications in Alaska and Hawaii for federal demonstration projects.⁶

Based on existing data, 27 state Medicaid programs acknowledge at least some reimbursement for telehealth services. States have been encouraged to create innovative payment methodologies for services that incorporate telemedicine technology. States may reimburse for both the provider at the hub site for the consultation and the provider at the spoke site for an office visit. States also have the flexibility to reimburse any additional cost (i.e., technical support, line-charges, depreciation on equipment, etc.) associated with the delivery of a covered service by electronic means as long as the payment is consistent with the requirements of efficiency, economy, and quality of care. These add-on costs can be incorporated into the fee-for-service rates or separately reimbursed as an administrative cost by the State.⁷

Wyoming Medicaid began paying for telehealth services in May 2007, covering electronic real time synchronous audio-visual contact between a patient and healthcare practitioner relating to the healthcare diagnosis or treatment of the patient. Payment can be made for services provided at both hub (patient) site and spoke (consulting physician) sites.

Acceptable hub sites for covered telehealth services include:

- Physician's office
- Psychologist's office
- Nurse Practitioner's office
- Critical access hospitals
- Rural health clinics
- Federally Qualified Health Centers (FQHC)
- Hospitals (as defined by Medicare, including general acute care hospitals and acute psychiatric hospitals)
- Community mental health or substance abuse centers.

Spoke sites include:

- Any licensed physician
- Physician's Assistants practicing under the supervision of a physician
- Advanced Practitioners of Nursing.⁸

⁶ Center for Telehealth and E-Health Law, <http://www.telehealthlawcenter.org/?c=127>

⁷ Health Resources and Services Administration, Report on Telehealth Reimbursement, <http://www.hrsa.gov/telehealth/pubs/reimbursement.htm>

⁸ Shanna Alles, Wyoming Dept. of Health, Equality Care Telehealth Coverage, October 23, 2008, <http://www.health.wyo.gov/mhsa/medicaid.html>

Additionally, the Wyoming Department of Health anticipates it will soon extend Medicaid reimbursement for telehealth services provided to residents of nursing homes.

Blue Cross Blue Shield of Wyoming also reimburses for telehealth services. To qualify as a professional service, actual visual contact (face to face) must be maintained between physician and patient. Provider-to-provider consultations, such as telephone consultations, are not reimbursed.

Reimbursable services include professional office or outpatient services such as Evaluation and Management services, psychiatric diagnostic interviews, individual psychotherapy services, diabetes education and speech therapy services listed in the Current Procedural Terminology (CPT[®]) of the American Medical Association.

Reimbursement is allowable for the consulting physician only, and no reimbursement is available to those presenting the patient to the consultant. However, an originating site fee is billable.⁹

The Wyoming Employees' Group Insurance provides a health insurance program to many public employees. This plan is self-insured with administrative services provided by Great West (now part of Cigna). The Group Insurance Board has asked Great West/Cigna to explore how telehealth might be used to provide improved services to its members, and Cigna is now participating in the Telehealth Consortium.

There are a number of other funding sources available to support telehealth operations, as described in the following paragraphs.

The largest single source of funding available is the FCC Rural Healthcare Pilot Program grant, which supports dedicated telecommunications lines and related equipment to hospitals and various mental health/substance abuse centers in Wyoming. This grant was awarded in late 2007, with construction anticipated to be completed in late 2010. The expected total amount of the grant, including both federal and matching shares, is approximately \$900,000. This grant is administered by the University of Wyoming.

A second federal grant was awarded to the University of Wyoming and the Southeast Wyoming Telehealth Network operated by Cheyenne Regional Medical Center. Through agreement of the parties, this grant was revised and proceeds applied toward the costs of managing the FCC grant described above, providing telehealth education/outreach services, and development of clinical applications. This grant amounts to \$180,000 each year, with two years applicable to the Business Plan period.

For several years, Cheyenne Regional Medical Center has provided in-kind support to statewide telehealth efforts. This includes use of their teleconferencing bridge, staff support for bridge operations, and other facilities and support costs for staff dedicated to telehealth. An annual estimate of the value of this in-kind support is approximately \$52,000.

In 2009, the Wyoming Department of Health requested and was appropriated \$235,000 to support business and technical support operations of statewide telehealth efforts

⁹ Blue Cross Blue Shield of Wyoming, Policy #0.99.01.1

through June 2010. The Department will continue support of the network based on a continuing appropriation from July 2010 through June 2012, at approximately \$115,000 each year. These services are provided jointly by the WyHIO and CRMC.

The Wyoming Department of Health has provided \$30,000 to Apollo Telemedicine, LLC for a pilot project to develop and test protocols and procedures for the delivery of emergency telepsychiatry services.

Reaching the five-year telehealth/telemedicine outcomes

As outlined earlier, the expected five-year outcomes of telehealth/telemedicine are as follows:

- Improved access to clinical services in rural areas;
- Increased clinical services and integration into clinical practice;
- Increased provider collaboration;
- Increased educational opportunities for healthcare professionals and patients;
- Flexibility to adapt to changing service delivery needs;
- Current technology adoption and Integration;

To successfully reach those outcomes will require commitment and resources in the following areas:

- Leadership
- Infrastructure/facilities
- Support services
- Financing

During interviews with key parties in Wyoming and in discussions with others in telehealth, leadership was often cited as a key to successful implementation and adoption of telehealth/telemedicine. This leadership will be needed in all areas of influence, and especially among physicians, nurses, pharmacists, mental health professionals, hospital administrators, and elected officials.

As more clinical applications are delivered via telehealth, network infrastructure needs will increase. The overwhelming issue for healthcare professionals is ease of use. Other needs will include as a minimum, a secure, reliable, high bandwidth telecommunications network; adequate bridging capacity; convenient scheduling and session connection, high definition equipment at hub sites; and connections to desktop and mobile sites.

To reliably deliver clinical services, adequate technical support services are required. The services ensure the quick and easy connections needed as well as the continuation and quality of those connections. As Wyoming moves into the delivery of emergency medical services via telehealth, 24 x 7 support must be available.

To ensure the financial sustainability of telehealth, adequate funding must be available to the healthcare professionals and hub sites delivering services, as well as support for the network infrastructure and supporting services. While Wyoming has made some progress in providing support in both areas, it is not adequate to meet the long term vision articulated above. Funding will be needed from many areas. A strong business case must be made for providers, insurers, and others to increase and demonstrate the value of telehealth in Wyoming.

The remainder of this document suggests what is needed to support the delivery of telehealth/telemedicine in Wyoming, focusing on a two time periods: years 1 and 2, and years 3 through 5.

The Short-term Plan – Years 1 and 2

Efforts in the current (7/1/2009 to 6/30/2010) and next year will focus on expansion of services, especially clinical, and building organizational capacity and infrastructure to support expanded service delivery. The following narrative addresses organizational structure, operations and technical resources, partnerships/alliances, and budget/funding.

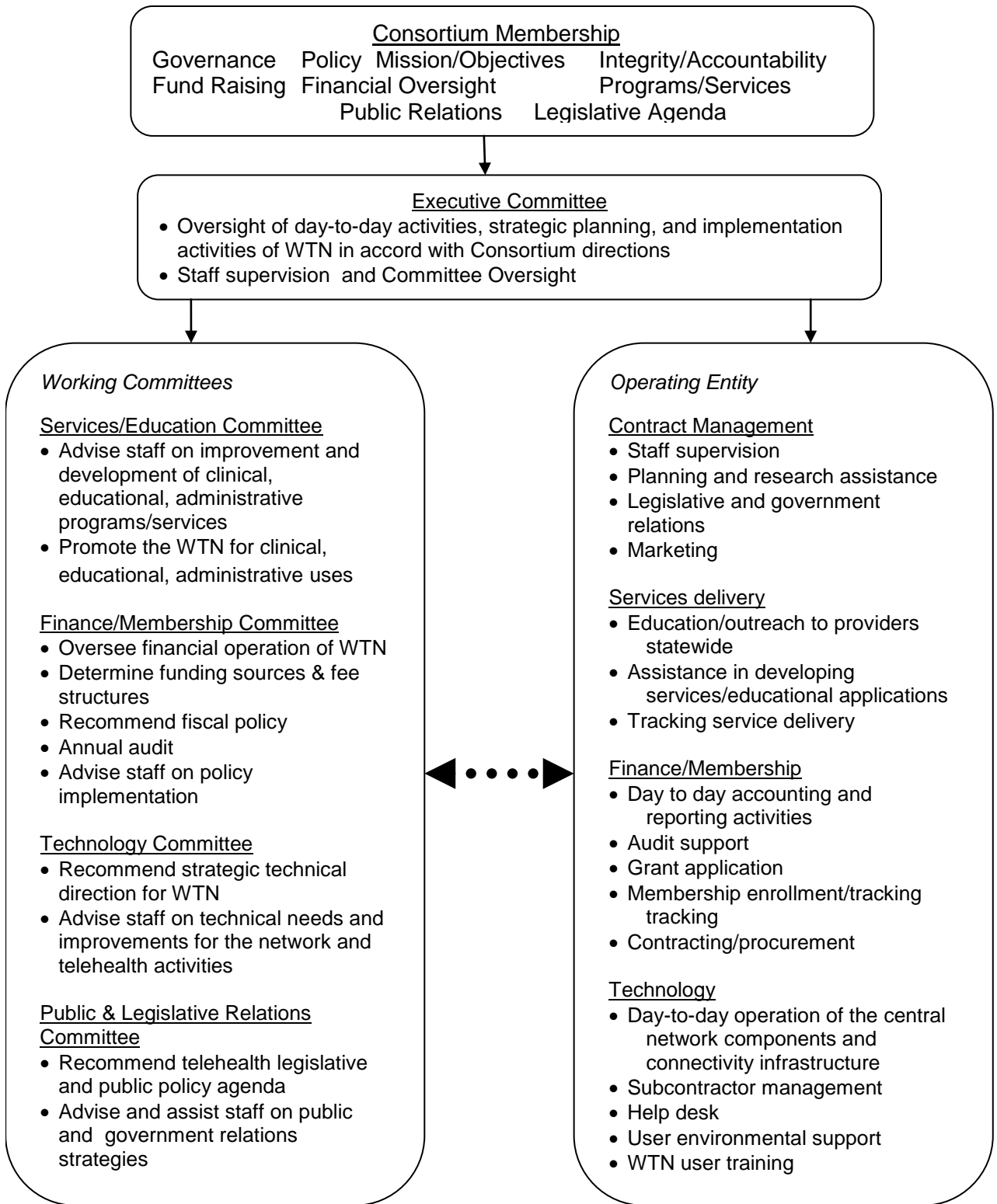
Organizational Capacity

As discussed earlier, the Wyoming Telehealth Consortium is charged with facilitating the operation of a statewide interoperable telemedicine/telehealth network. The Consortium has been operating since July 2009, and can be strengthened through several measures:

- An expanded committee structure;
- An expanded contract network support;
- More specific roles/responsibilities of parties;
- A defined set of Consortium deliverables.

Figure 2 outlines the expanded structure and roles/responsibilities of the parties.

Figure 2. Year 1 and 2 Organizational Structure
Wyoming Telehealth Consortium
 Years 1 – 2



To increase accountability, the Consortium should adopt a set of deliverables focusing upon the expansion of clinical services and the development of the network infrastructure and supporting network services. Suggested deliverables include

- Complete installation of the equipment and telecommunications lines supported by the FCC Rural Healthcare Pilot Program in early 2011;
- Define and vet telehealth value propositions for the stakeholder groups;
- Define the network products and services;
- Expand education/outreach to increase network usage in all service areas;
- Recruit providers and support delivery of at least three clinical programs;
- Develop and adopt standards for network connectivity;
- Adopt a reasonable operating budget and identify reliable, consistent funding sources for continued operation in years 3 through 5;
- Formalize a partnership with the Veteran's Administration for collaborative network operations and expanded services through Wyoming providers;
- Transition the network operations and governance structure to an independent, member based entity.

During the next two years, the Consortium will work aggressively to recruit providers of additional clinical services. Some specific activities could include the following:

- Statewide expansion of the existing telestroke program at Wyoming Medical Center (WMC);
- Expansion of an existing telepsych pilot program to hospitals and MHSAs in Wyoming;
- Development of a statewide telecardiology program;
- Delivery of mental health evaluations to juveniles placed in the custody of the state;
- Delivery of mental health evaluations and other services to those patients falling under the provisions of Title 25 of the Wyoming statutes.

Budget considerations will limit the types of clinical services that can be supported. For example, services that require 24 x 7 technical support may not be affordable in years 1 and 2.

Operations and Technical Resources

Additional efforts will focus upon developing and implementing the telecommunications infrastructure and related services that will provide access to network connectivity across Wyoming. The network capacity will provide a quality of service sufficient for real time information transfer and telehealth applications, monitoring of connections, troubleshooting, and technical support to users.

As part of the FCC Rural Healthcare Pilot Program, Wyoming and other participating sites will be connected via a combination of leased lines and commodity internet, with connectivity to Internet2 or National Lambda Rail. The data capacity at participating hospitals and mental health/substance abuse centers (MHSAs) will be a minimum of 1.5 Megabits per second, bi-directional.

Network services will also provide end-to-end monitoring of network performance and technical assistance to users to resolve any network service problems.

Partnerships/Alliances

Partnerships/alliances already established will be continued and expanded as needed. These include

- The Southeast Wyoming Telehealth Network
- The Wyoming Department of Corrections and Prison Health Services
- The University of Wyoming, Center for Rural Health Research and Education
- The Governor's AV Task Force
- Apollo Telemedicine, LLC

The Consortium will pursue a partnership with the Veteran's Administration to accomplish at least two objectives:

- Linking the Wyoming and VA telehealth networks;
- Identifying additional opportunities for Wyoming's healthcare community to provide direct services to VA patients.

The Consortium will seek opportunities to collaborate with its key stakeholders and involve its strategic partners, healthcare providers, employers, other groups, and the general public to advance the use of telehealth/telemedicine.

Budget/Funding

A primary responsibility of the Consortium is

Facilitating the operation of a statewide interoperable telemedicine/telehealth network using existing internet protocol based communication and videoconferencing infrastructure and telecommunication services to the extent possible.

The Consortium's budget estimates are based on the premise that the Consortium's primary activity in years 1 and 2 is the build-out and operation of a statewide telehealth network. This would include the necessary telecommunications and technical infrastructure for network operations, and any needed services to operate and manage that network, and be funded primarily through the FCC Rural Healthcare Pilot Program. The Consortium's preference is to be a consumer of services, contracting as needed with third parties for the delivery of needed technical and operational services.

The development and operations budgets for the network are broken into two periods:

- The first two years – 7/1/2009 to 6/30/2011
- Years three through five – 7/1/2011 to 6/30/2014

The estimates were built based on experience with the SEWTN, discussions with other networks (such as UTN and EMTN), and discussions with vendors who provide managed services for video conferencing networks. The budgets are meant to be reflective of the total costs of developing and operating the network, including those that are currently supported by grants, contracts, and in-kind donations. The budgets do not recommend any particular method of delivering the infrastructure and its associated services.

The amount of the proposed budget is comparable to those of other networks and costs provided by vendors for network managed services. It is assumed the Consortium will explore and evaluate the various alternatives for development and operations, and choose that which is best for Wyoming and its healthcare system.

Table 1 below outlines the anticipated costs for the first two years of operations, broken into major categories. Budgets for years 3 through 5 are included in a later section of this document. A more detailed budget for the full 5 year period is provided in Appendix B, along with an explanation of the various major expense categories.

Table 1. Estimated Budget for Years 1 and 2
Statewide Telehealth Network Build-out and Operations
 Years 1 and 2 Cost Estimate

	7/1/09 to 6/30/10	7/1/10 to 6/30/11	Total
Video Conferencing and Network Support	\$117,769	\$119,869	\$237,638
Content Mngt. & Event Coord.	110,000	84,000	194,000
Accounting/Administration	82,510	246,006	328,516
Network Management Support Costs	23,865	53,958	77,823
FCC Project Management	115,545	119,608	235,153
Hardware/Software Upgrades	46,510	34,351	80,861
Content Purchase	0	10,500	10,500
Support for New Initiatives	30,000	20,000	50,000
Equipment/Line Charges	0	692,654	692,654
Performance and Value Measurement	0	35,000	35,000
Total All	\$526,199	\$1,415,945	\$1,942,144

As shown in Table 2 , known revenues available to support the years 1 and 2 budget include the FCC Rural Healthcare Pilot Program federal and matching revenues, a second federal grant for FCC contract management and education/outreach, in-kind support from CRMC, and supporting contracts from the Department of Health. These sources could support about 86% of the two year budget, leaving a shortfall of approximately \$280,239.

Table 2. Revenues Available for Years 1 and 2
 Known/Anticipated Estimated Revenues

Revenue Source	Years 1 and 2		Total
	7/1/09 to 6/30/10	7/1/10 to 6/30/11	
FCC Federal Grant	\$0	\$765,000	\$765,000
FCC Matching Funds	\$0	\$135,000	\$135,000

ORHP Grant	\$180,000	\$180,000	\$360,000
In-kind Support	\$51,950	\$0	\$51,950
WDH Contracts	\$234,955	\$115,000	\$349,955
Total	\$466,905	\$1,195,000	\$1,661,905

However, the bulk of these revenues (\$1,260,000) are from non-recurring federal grants. While there are a number of options available to address the anticipated shortfall of \$280,239, this situation is indicative of the larger problem facing the network - the need for stable, recurring revenue sources.

There are several options available to address the year 1 and 2 shortfall, including cost reductions, additional support from the Department of Health, and additional revenues.

In the short run, items in the years 1 and 2 budgets could be trimmed. In the long run, the Consortium should consider using the Universal Services Fund to help reduce telecommunications line charges to rural participants. The Rural Health Program is designed to reduce telecommunications costs to health care providers in rural areas. There is a rigorous application policy, and reimbursement can take between 6 and 12 months.¹⁰ The FCC, in its National Broadband Plan, has offered recommendations for creating economic incentives for broader health IT adoption and innovation.¹¹ These may offer additional opportunities for expanding Wyoming's funding base.

The WyHIO and CRMC are applying for federal grants that could contribute to network development during the grant period.

The Consortium could pursue memberships or other user fees as a source of ongoing operations. The American Telemedicine Association cites "program or user fees" as a potential ongoing source of revenue.¹² Additionally, a number of operating telehealth networks also rely on membership/user fees for continuing revenue.¹³

Results of interviews with key Wyoming healthcare community members on telehealth indicated providers would financially support telehealth if there was a return for their investment. Generally, this return was described as additional revenue or at least cost-neutrality. With that in mind, some initial estimates of numbers of telehealth network members and potential revenues were made.

Table 3 estimates the number of potential members by major stakeholder group, and size within the group. There were further breakouts within some of the groups, for example by type of healthcare professional. Additionally, an annual membership fee was proposed for each group/subgroup. The details of this process are shown in Appendix B.

¹⁰ <http://www.usac.org/rhc>

¹¹ FCC, The National Broadband Plan, <http://www.broadband.gov/issues/healthcare.html>

¹² American Telemedicine Association, Business Plan Template, Business and Finance SIG 2008

http://www.americantelemed.org/files/public/memborgroups/businessfinance/BF_BusinessPlanTemplate.pdf

¹³ Ongoing revenue sources for Arizona Telemedicine Program, Utah Telehealth Network, Eastern Montana Telehealth Network, Alaska Rural Telehealth Network

Table 3. Estimated Membership for Years 1 and 2
Estimated Membership

Type of Member	7/1/09 to '6/30/10		7/1/10 to '6/30/11	
	Small	Large	Small	Large
Hospitals	7	3	13	3
Health Professionals and Health Profession Organizations	25	28	47	55
Insurance Organizations	2	1	2	1
Government Organizations	21	10	26	13
Professional Health Care Organizations	0	2	0	2
Quality Improvement Organizations	0	1	0	1
Business / Purchaser Organizations	0	7	0	9
Consumers / Public Interest Organizations	1	0	1	0
Supporting Member Organizations	1	2	1	2
At-Large Individuals	25	0	30	0
Non-Profit, Non- advocacy Technology Organizations	0	0	0	0
Safety Net Organizations	1	0	1	0
Total	83	54	121	86

Extending the membership numbers by the proposed annual membership fees provides the estimated membership revenues in years 1 and 2, as shown in Table 4.

Table 4. Estimated Membership Revenues for Years 1 and 2
Estimated Membership Revenues

Type of Member	7/1/09 to	7/1/10 to	Total
	'6/30/10	'6/30/11	
Hospital Organizations	\$41,500	\$41,500	\$83,000
Health Professionals and Health Profession Organizations	\$28,000	\$51,750	\$79,750
Insurance Organizations	\$40,000	\$40,000	\$80,000
Government Organizations	\$20,500	\$26,000	\$46,500

Professional Health Care Organizations	\$2,000	\$2,000	\$4,000
Quality Improvement Organizations	\$1,000	\$1,000	\$2,000
Business / Purchaser Organizations	\$7,000	\$9,000	\$16,000
Consumers / Public Interest Organizations	\$500	\$500	\$1,000
Supporting Member Organizations	\$2,500	\$2,500	\$5,000
At-Large Individuals	\$625	\$750	\$1,375
Non-Profit, Non- advocacy Technology Organizations	\$0	\$0	\$0
Safety Net Organizations	\$500	\$500	\$1,000
Total	\$144,125	\$175,500	\$319,625

Comparing the expenditures to the total of the estimated membership revenues and the other known revenues indicates a potential surplus of \$39,386 for years 1 and 2, as shown in Table 5.

Table 5. Revenues vs. Expenditures for Years 1 and 2

Comparison of Expenditures and Estimated Revenues

Years 1 and 2

	7/1/09 to 6/30/10	7/1/10 to 6/30/11	Total
Estimated Membership Revenues	\$144,125	\$175,500	\$319,625
Other Revenues	\$466,905	\$1,195,000	\$1,661,905
Total Estimated Revenues	\$611,030	\$1,370,500	\$1,981,530
Less:			
Estimated Expenditures	\$526,199	\$1,415,945	\$1,942,144
Balance	\$84,831	-\$45,445	\$39,386

Risks/Contingencies

The primary risk/contingencies in years 1 and 2 appear to be the implementation dates for the telecommunications lines and equipment associated with the FCC grant, and financial support for network operations.

Award of the FCC Rural Healthcare Pilot project grant was announced in November 2007. Difficulties in the federal funds approval process and contract negotiations with the preferred vendor have delayed the project's start. As of this writing, contract negotiations have been completed. There continues to be risk of delay in approval of funds, and the current anticipated date for project completion is March 2011.

Adequate, ongoing funding remains a significant challenge. With the federal grants currently awarded, the bulk of funding needed in years 1 and 2 for network infrastructure development is available. The anticipated deficit, before the estimated membership fees or additional Department of Health funding is approximately \$272,000.

The ability to generate membership fees is contingent upon demonstrating an ROI for healthcare providers. The Consortium must educate providers on the value of telehealth, and convince providers that additional revenues or cost savings are available through the use of telehealth for the projected level of membership revenues to be attained.

The Long-term Plan – Years 3 through 5

Where the first two years of telehealth network operations are characterized as building capacity, the next three years focus on increasing capacity to deliver services and maintaining sustainable operations. Beginning in year 3, the network membership and usage is expected to increase substantially, with the associated delivery of additional and more complex clinical applications.

The narrative for years 3 through 5 continues the theme started earlier, addressing organizational structure, operations and technical resources, partnerships/alliances, and budget/funding.

Organizational Capacity

It is essential Wyoming adopt a governance structure that will not only drive sustainable telehealth efforts, but also meet the needs of participating members.

A critical factor in sustainable telehealth and electronic health record projects is developing and maintaining effective leadership and governance structures. In most cases, governance structures need to be distributed enough to be responsive to site or community specific needs, yet provide some level of coordination to ensure overall project objectives are met, knowledge is shared, and economies of scale are realized where possible. The most successful leadership and governance models share common elements:

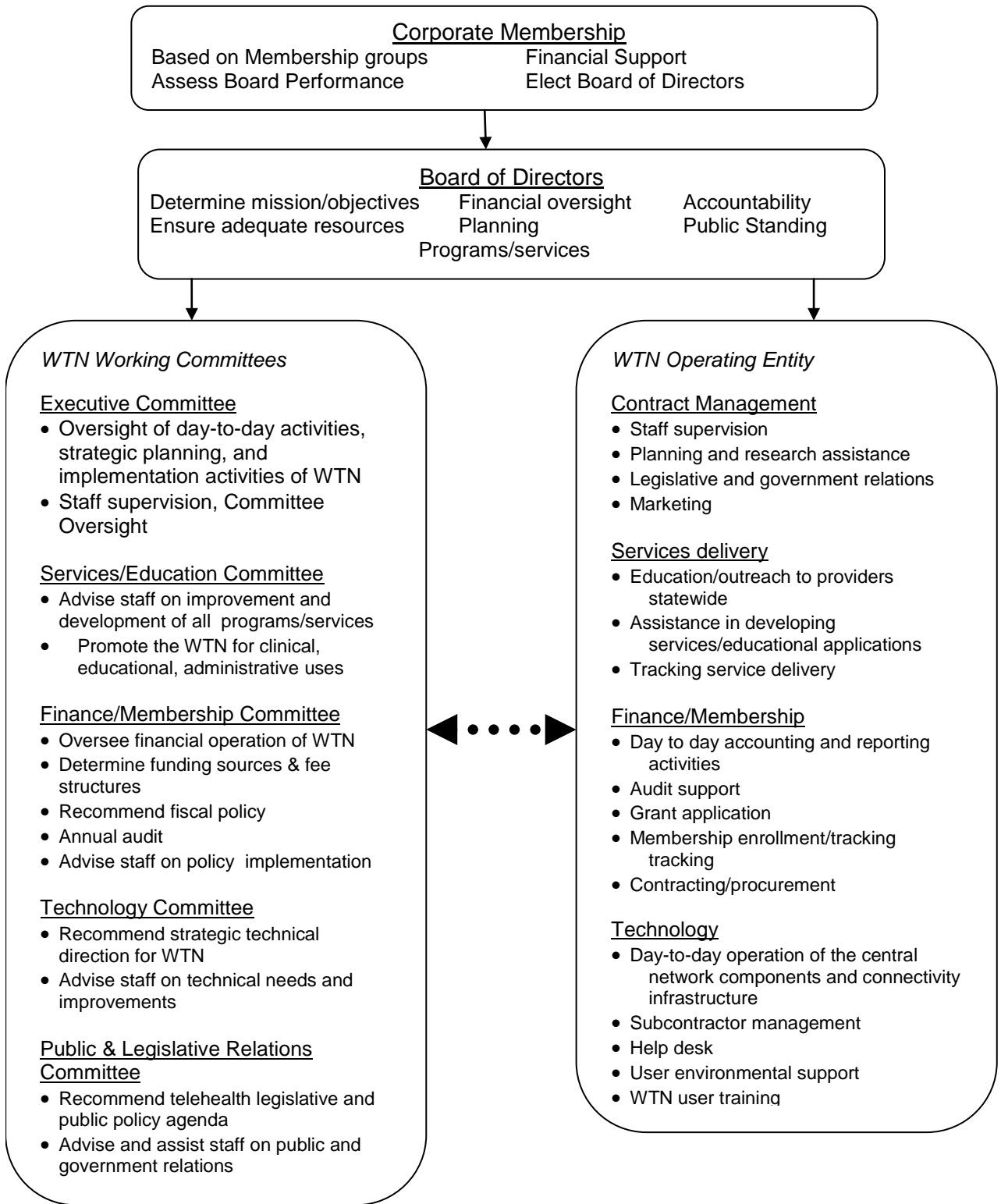
- Strong executive support and representation from all partners (e.g. government, health care organizations, community, etc.);
- A strong leadership role for clinicians, and specifically physicians;
- An oversight function which ensures participation in decision-making and representation from the various diverse partners required to make the project a success;
- Integration with existing organizational structures and functions;
- An ability to demonstrate the successes of the project; and
- A clear mandate and purpose.¹⁴

If the network expects to attract and retain contributing members to the network, it must be responsive to the needs of those members. This sentiment was confirmed during interviews with key healthcare community representatives. To help ensure this responsiveness, the current Consortium should transition to a member-based, independent, not-for-profit corporation. The corporation would be directed by a member-elected Board of Directors, building upon the public-private partnership pioneered by the Consortium.

Figure 3 below depicts the proposed organizational and operating structure of the Wyoming Telehealth Network (WTN).

¹⁴ Health Canada, Telehealth and Electronic Health Record: A Guide to Sustainability, <http://www.hc-sc.gc.ca/hcs-sss/pubs/ehealth-esante/2002-tele-sustain-viab/index-eng.php#note9>

Figure 3. Governance Structure, Years 3 through 5
WTN Governance/Operating Structure
 Years 3 - 5



Operations and Technical Resources

In years 3 through five, the WTN must have the capacity to adapt to increasing demands: new and expanded services, increased usage, new technology, and non-traditional ways of accessing and delivering services.

The demands for new and expanded services will address all service areas: educational, administrative, and especially clinical. The additional clinical services are expected to encompass major clinical service areas, such as dermatology, ophthalmology, forensics and pathology, medication management therapy, remote pharmacy support, ICU monitoring, emergency medical services, and home-based monitoring. Services begun in years 1 and 2 are expected to see increased demand as well.

The expansion into areas such as hospital-based and mobile emergency medical services (EMS) significantly increase the need for support to providers. These emergency services are delivered on a 24 x 7 basis, requiring technical support to be available on an as-needed basis.

Existing telecommunications networks will be impacted by increased usage of telehealth services as well as the exchange of other healthcare data. Many of the anticipated clinical services are image intensive, and the industry is quickly moving to High Definition (HD) equipment to provide a better quality image to providers. All of these will require higher bandwidth, and HD equipment requires additional ports on the telecommunications bridge.

The major increase in usage is expected associated with new and expanded services will be from non-traditional locations. Currently, provision of services involves hospital settings. However, a major change is expected as healthcare providers access the network from a series of non-hospital settings: office, home, mobile locations. This access requires different technology and licensing.

To support the increased service demands, the WTN must increase its capacity in a number of areas: technical support, bandwidth, service tools, and wireless connectivity.

To meet the increased technical service demands, the WTN should consider using a third party service contractor which specializes in network support. The contractor could provide first level support to users, such as a help desk, as well as technical service outside of normal business hours to meet EMS and other emergency services needs. Specialty contractors generally have staff servicing a wide customer base, and can offer lower pricing than dedicated staff.

Bandwidth requirements are constantly increasing, and it is difficult to estimate future bandwidth needs. However, the WTN should plan to provide a minimum of 5 Mb to each WTN hospital and provider site. Home based, patient monitoring can currently be delivered using the regular phone system, and for most patients, should be available through those connections in the future.

As expressed earlier, providers demand telehealth must be easy to use and reliable. The WTN will need a process to schedule equipment, facilities, and personnel, as well

as provide a simple connection process for patients and providers. Additionally, the WTN will need the tools to monitor the network and its usage to ensure stability and reliability of connections. A third party contractor could be used to provide those network control services.

The WTN should anticipate connecting mobile and non-traditional user locations to the network, and acquire the equipment, software, and licensing required in years 3 through 5.

Partnerships/Alliances

Partnerships/alliances already established will be continued and expanded. These include

- The Southeast Wyoming Telehealth Network
- The Wyoming Department of Corrections and Prison Health Services
- The University of Wyoming, Center for Rural Health Research and Education
- The Governor's AV Task Force
- Apollo Telemedicine, LLC
- Veteran's Administration
- Others established in years 1 and 2.

Additionally, the WTN will seek partnerships with other regional telehealth networks. A significant amount of healthcare services for Wyoming residents are delivered by out-of-state providers, especially in border areas. Partnerships with networks in other states will give Wyoming residents access to telehealth services, reducing travel time and costs. Additionally, Wyoming providers can gain access to out-of state providers with specialties not available in Wyoming.

Budget/Funding

The focus of years 3 through 5 is the continued expansion of all program areas as well as building participation in and sustainability of the network.

The estimates for years 3 through 5 continue from the base budget estimated in years 1 and 2, as well as experience with the SEWTN, discussions with other networks (such as UTN and EMTN), and discussions with vendors who provide managed services for video conferencing networks. The budgets are meant to be reflective of the total costs of developing and operating the network, and do not recommend any particular method of providing the infrastructure and its associated services.

Table 6 below outlines the anticipated costs for years 3 through 5. A more detailed budget for the full 5 year period and an explanation of the budget categories are provided in Appendix B.

Table 6. Years 3 through 5 Budget by Major Category
Statewide Telehealth Network Build-out and Operations
Years 3 through 5 Cost Estimate

7/1/11 to 7/1/12 to 7/1/13 to

	6/30/12	6/30/13	6/30/14	Total
Video Conferencing and Network Support	\$206,107	\$216,413	\$227,233	\$649,753
Content Mngt. & Event Coord.	159,863	167,856	176,248	503,967
Accounting/Administration	287,764	302,152	317,260	907,175
Network Management Support Costs	91,488	91,859	94,089	277,436
FCC Project Management	2,756	0	0	2,756
Scheduling System and Maintenance	100,000	200,000	20,000	320,000
Hardware/Software Upgrades	180,730	71,197	71,197	323,123
Content Purchase	11,025	11,576	12,155	34,756
Support for New Initiatives	20,000	22,500	22,500	65,000
Equipment/Line Charges	508,221	533,632	560,314	1,602,167
Performance and Value Measurement	27,500	28,875	30,319	86,694
Total All	\$1,595,454	\$1,646,059	\$1,531,314	\$4,772,827

Over the long run, the WTN must offer participants the opportunity to generate additional revenues or to be cost neutral with existing expenditures to elicit financial support. The WTN will also offer additional value added services that have the potential to increase efficiency or generate cost savings. The WTN will offer opportunities to share best practices and educate providers and other stakeholders on the value of telehealth and the WTN. Efforts will continue to raise additional funds through private and public grants and contracts.

Table 7 estimates the number of potential members by major stakeholder group, and size within the group. There were further breakouts within some of the groups, for example by type of healthcare professional. Additionally, an annual membership fee was proposed for each group/subgroup. The details of this process are shown in Appendix B.

Table 7. Estimated Membership for Years 3 through 5

Type of Member	Estimated Membership					
	7/1/11 to 6/30/12		7/1/12 to 6/30/13		7/1/13 to 6/30/14	
	Small	Large	Small	Large	Small	Large
Hospital Organizations	18	3	21	3	21	3
Health Professionals and Health Profession Organizations	57	74	65	92	80	107
Insurance Organizations	2	1	2	1	2	1
Government Organizations	26	13	26	13	26	13
Professional Health Care Organizations	0	2	0	2	0	2
Quality Improvement Organizations	0	1	0	1	0	1

Business / Purchaser Organizations	0	9	0	9	0	9
Consumers / Public Interest Organizations	1	0	1	0	1	0
Supporting Member Organizations	1	2	1	2	1	2
At-Large Individuals	30	0	30	0	30	0
Non-Profit, Non-advocacy Technology Organizations	0	0	0	0	0	0
Safety Net Organizations	1	0	1	0	1	0
Total	136	105	147	123	162	138

Extending the membership numbers by the proposed annual membership fees provides the estimated membership revenues in years 3 through 5, as shown in Table 8.

Table 8. Estimated Membership Revenues for Years 3 through 5

Estimated Membership Revenues				
Type of Member	7/1/11 to 6/30/12	7/1/12 to 6/30/13	7/1/13 to 6/30/14	Total
Hospital Organizations	\$41,500	\$41,500	\$41,500	\$124,500
Health Professionals and Health Profession Organizations	\$64,750	\$75,750	\$87,000	\$227,500
Insurance Organizations	\$40,000	\$40,000	\$40,000	\$120,000
Government Organizations	\$26,000	\$26,000	\$26,000	\$78,000
Professional Health Care Organizations	\$2,000	\$2,000	\$2,000	\$6,000
Quality Improvement Organizations	\$1,000	\$1,000	\$1,000	\$3,000
Business / Purchaser Organizations	\$9,000	\$9,000	\$9,000	\$27,000
Consumers / Public Interest Organizations	\$500	\$500	\$500	\$1,500
Supporting Member Organizations	\$2,500	\$2,500	\$2,500	\$7,500
At-Large Individuals	\$750	\$750	\$750	\$2,250
Non-Profit, Non-advocacy Technology	\$0	\$0	\$0	\$0

Organizations

Safety Net Organizations	\$500	\$500	\$500	\$1,500
Total	<u>\$188,500</u>	<u>\$199,500</u>	<u>\$210,750</u>	<u>\$598,750</u>

Comparing the expenditures to the total of the estimated membership revenues and the other known revenues indicates a deficit of about \$4.1 million for years 3 through five, as shown in Table 9.

Table 9. Revenues vs. Expenditures for Years 3 through 5

Comparison of Expenditures and Estimated Revenues
Years 3 through 5

	7/1/11 to 6/30/12	7/1/12 to 6/30/13	7/1/13 to 6/30/14	Total
Estimated Membership Revenues	\$188,500	\$199,500	\$210,750	\$598,750
Other Revenues	\$115,000	\$0	\$0	\$115,000
Total Estimated Revenues	\$303,500	\$199,500	\$210,750	\$713,750
Less:				
Estimated Expenditures	\$1,595,454	\$1,646,059	\$1,531,314	\$4,772,827
	-	-	-	-
Balance	\$1,291,954	\$1,446,559	\$1,320,564	\$4,059,077

Risks/Contingencies

The primary risks/contingencies in years 1 and 2 are related to operational and financial sustainability of the WTN. Operational sustainability hinges on participation by healthcare providers and acceptance of telehealth services by the patients. Telehealth networks are operationally successful nationwide and in the Rocky Mountain Region. Providers participate in those telehealth network services, and patients accept telehealth as an agreeable way to access needed services.

The WTN will need to concentrate its education/outreach efforts on providers and patients to build support for participation in telehealth services.

As discussed earlier, financial sustainability depends heavily on demonstrating a Return on Investment for healthcare providers. The WTN must convince providers that additional revenues or cost savings are available through the use of telehealth for the projected level of membership revenues to be attained. Additionally, other ongoing sources of revenues must be obtained to make the network viable.

Appendix A, Glossary of Terms

The following terms and definitions are taken from the American Telemedicine Association website.¹⁵

Telemedicine/Telehealth Terminology

The following is a list of terms and definitions that are commonly used in telemedicine/telehealth. The list was assembled for the purpose of encouraging consistency in employing these terms in ATA related documents and resource materials. The list is not all-inclusive and may be augmented by for specialty areas as deemed appropriate by ATA member groups.

Application Service Provider (ASP): An ASP hosts a variety of applications on a central server. For a fee, customers can access the applications that interest them over secure Internet connections or a private network. This means that they do not need to purchase, install and maintain the software themselves; instead they rent the applications they need from their ASP. Even new releases, such as software upgrades, are generally included in the price.

Asynchronous: This term is sometimes used to describe store and forward transmission of medical images or information because the transmission typically occurs in one direction in time. This is the opposite of synchronous (see below).

Bandwidth: A measure of the information carrying capacity of a communications channel; a practical limit to the size, cost, and capability of a telemedicine service.

Broadband: Communications (e.g., broadcast television, microwave, and satellite) capable of carrying a wide range of frequencies; refers to transmission of signals in a frequency-modulated fashion, over a segment of the total bandwidth available, thereby permitting simultaneous transmission of several messages.

Clinical Information System: Relating exclusively to the information regarding the care of a patient, rather than administrative data, this hospital-based information system is designed to collect and organize data.

CODEC: Acronym for coder-decoder. This is the videoconferencing device (e.g., Polycom, Tandberg, Sony, Panasonic, etc) that converts analog video and audio signals to digital video and audio code and vice versa. CODECs typically compress the digital code to conserve bandwidth on a telecommunications path.

Compressed video: Video images that have been processed to reduce the amount of bandwidth needed to capture the necessary information so that the information can be sent over a telephone network.

Data Compression: A method to reduce the volume of data using encoding to reduce image processing, transmission times, bandwidth requirements, and storage space requirements. Some compression techniques result in the loss of some information, which may or may not be clinically important.

¹⁵ ATA Glossary of Terms, <http://www.americantelemed.org/files/public/standards/glossaryofterms.pdf>

Diagnostic Equipment (Scopes, Cameras & Other Peripheral Devices): A hardware device not part of the central computer (e.g. digitizers, stethoscope, or camera) that can provide medical data input to or accept output from the computer.

Distant Site: The distant site is defined as the telehealth site where the provider/specialist is seeing the patient at a distance or consulting with a patient's provider. (CMS) Others common names for this term include – hub site, specialty site, provider/physician site and referral site. The site may also be referred to as the consulting site.

Encryption: A system of encoding data on a Web page or e-mail where the information can only be retrieved and decoded by the person or computer system authorized to access it.

Firewall: Computer hardware and software that block unauthorized communications between an institution's computer network and external networks.

Full-motion Video: This describes a standard video signal that allows video to be shown at the distant end in smooth, uninterrupted images.

Guideline: A statement of policy or procedures by which to determine a course of action, or give guidance for setting standards (Loane & Wootton, 2002).

HIPAA: Acronym for Health Information Portability Act.

Home Health Care & Remote Monitoring Systems: Home health care is care provided to individuals and families in their place of residence for promoting, maintaining, or restoring health; or for minimizing the effects of disability and illness, including terminal illness. In the Medicare Current Beneficiary Survey and Medicare claims and enrollment data, home health care refers to home visits by professionals including nurses, physicians, social workers, therapists, and home health aides. Using remote monitoring and interactive devices allows the patient to send in vital signs on a regular basis to a provider without the need for travel.

Internet Protocol: The Internet Protocol (IP) is the protocol by which data is sent from one computer to another on the Internet. Each computer on the Internet has at least one address that uniquely identifies it from all other computers on the Internet. IP is a connectionless protocol, which means that there is no established connection between the end points that are communicating. The IP address of a videoconferencing system is its phone number.

Interoperability: Interoperability refers to the ability of two or more systems* to interact with one another and exchange information in order to achieve predictable results (*refers to more than technical systems) (Bergman, Ulmer and Sargious, 2001). There are three types of interoperability: human/operational; clinical; and technical (Canadian Society for Telehealth, 2001). Interoperability refers to the ability of two or more systems (computers, communication devices, networks, software, and other information technology components) to interact with one another and exchange data according to a prescribed method in order to achieve predictable results (ISO ITC-215).

Multi-point Control Unit (MCU): A device that can link multiple videoconferencing sites into a single videoconference. An MCU is also often referred to as a “bridge”.

Multi-point Teleconferencing: Interactive electronic communication between multiple users at two or more sites which facilitates voice, video, and/or data transmission systems: audio, graphics, computer and video systems. Multi-point teleconferencing requires a MCU or bridging device to link multiple sites into a single videoconference.

Originating Site: The originating site is where the patient and/or the patient’s physician is located during the telehealth encounter or consult (CMS). Other common names for this term include – spoke site, patient site, remote site, and rural site.

Peripheral Devices: Any device that is attached to a computer externally, i.e. Scanners, mouse pointers, printers, keyboards; and clinical monitors such as pulse oximeters, weight scales, are all examples of this.

POTS: Acronym for Plain Old Telephone Service.

Presenter (Patient Presenter): Telehealth encounters require the distant provider to perform an exam of a patient from many miles away. In order to accomplish that task an individual with a clinical background (e.g., LPN, RN, etc) trained in the use of the equipment must be available at the originating site to “present” the patient, manage the cameras and perform any “hands-on” activities to successfully complete the exam. For example, a neurological diagnostic exam usually requires a nurse capable of testing a patient’s reflexes and other manipulative activities. It should be noted that in certain cases, such as interview based clinical consultations such as Telemental Health or Nutrition Services, that a licensed practitioner such as an RN or LPN, might not be necessary, and a non-licensed provider such as support staff, could provide telepresenting functions.

Router: This device provides an interface between two networks or connects sub-networks within a single organization. It routes network traffic between multiple locations and it can find the best route between any two sites. For example, PCs or H.323 videoconferencing devices tell the routers where the destination device is located and the routers find the best way to get the information to that distant point.

Standard: A statement established by consensus or authority, that provides a benchmark for measuring quality, that is aimed at achieving optimal results (NIFTE Research Consortium, 2003).

Store and Forward (S&F): S&F is a type of telehealth encounter or consult that uses still digital images of a patient for the purpose of rendering a medical opinion or diagnosis. Common types of S&F services include radiology, pathology, dermatology and wound care. Store and forward also includes the asynchronous transmission of clinical data, such as blood glucose levels and electrocardiogram (ECG) measurements, from one site (e.g., patient’s home) to another site (e.g., home health agency, hospital, clinic).

Switch: A switch in the videoconferencing world is an electrical device that selects the path of the video transmission. It may be thought of as an intelligent hub (see hub

above) because it can be programmed to direct traffic on specific ports to specific destinations. Hub ports feed the same information to each device.

Synchronous: This term is sometimes used to describe interactive video connections because the transmission of information in both directions is occurring at exactly the same period.

System/Network Integration: The use of software that allows devices and systems to share data and communicate to one another.

T1/DS1: A digital carrier or type of telephone line service offering high-speed data, voice, or compressed video access in two directions, with a transmission rate of 1.544 Mbps.

T3/DS3: A carrier of 45 Mbps.

TCP/IP (Transmission Control Protocol/Internet Protocol): The underlying communications rules and protocols that allow computers to interact with each other and exchange data on the Internet.

Telecommunications Providers: An entity licensed by the government (the Federal Communications Commission in the U.S.) to provide telecommunications services to individuals or institutions.

Teleconferencing: Interactive electronic communication between multiple users at two or more sites which facilitates voice, video, and/or data transmission systems: audio, graphics, computer and video systems.

Telehealth and Telemedicine: Telemedicine and telehealth both describe the use of medical information exchanged from one site to another via electronic communications to improve patients' health status. Although evolving, telemedicine is sometimes associated with direct patient clinical services and telehealth is sometimes associated with a broader definition of remote healthcare services.

Telemonitoring: The process of using audio, video, and other telecommunications and electronic information processing technologies to monitor the health status of a patient from a distance.

Universal Service Administrative Company (USAC): The Universal Service Administrative Company administers the Universal Service Fund (USF), which provides communities across the country with affordable telecommunication services. The Rural Health Care Division (RHCD) of USAC manages the telecommunications discount program for health care.

Videoconferencing Systems: Equipment and software that provide real-time, generally two way transmission of digitized video images between multiple locations; uses telecommunications to bring people at physically remote locations together for meetings. Each individual location in a *videoconferencing* system requires a room equipped to send and receive video.

Videoconferencing: Real-time, generally two way transmission of digitized video images between multiple locations; uses telecommunications to bring people at

physically remote locations together for meetings. Each individual location in a *videoconferencing* system requires a room equipped to send and receive video.

WiFi: Originally licensed by the Wi-Fi Alliance to describe the underlying technology of wireless local area networks (WLAN) based on the IEEE 802.11 specifications. It was developed to be used for mobile computing devices, such as laptops, in LANs, but is now increasingly used for more services, including Internet and VoIP phone access, gaming, and basic connectivity of consumer electronics such as televisions and DVD players, or digital cameras. (Wikipedia).

Appendix B, Five-year Cost and Revenue Estimates

The budget provides an estimate of the five-year costs of operating the Wyoming Telehealth Network, with explanations covering the major functional areas. The budget estimate is based on experience with the development and operation of the SEWTN, a recently approved FCC Rural Healthcare Pilot Program grant application, and discussions with various hospital staff, telehealth vendors, and other regional telehealth networks.

The primary focus of efforts in the first two years will be completion of the physical network, delivery of Continuing Medical Education, and development and expansion of clinical applications. These first two years will prove the value of telehealth in Wyoming, and set the stage for increase usage. Beginning in year 3, the network membership and usage is expected to increase substantially, with the associated delivery of additional and more complex clinical applications.

The budget anticipates all costs associated with network development and operation, including the value of any in-kind contributions that may be made by network participants. The intent is to give the reader a sense of the total cost of operating the network. Once the budget has been approved, existing revenue sources and anticipated in-kind contributions will be allocated to the approved expenditures and shortfalls identified.

Five Year Budget

Statewide Telehealth Network Build-out and Operations								
5 Year Cost Estimate								
as of December 3, 2009								
	Units	Unit Cost	- Network Build Out -		----- Network Operations -----			5 Year Total
			7/1/09 to 6/30/10	7/1/10 to 6/30/11	7/1/11 to 6/30/12	7/1/12 to 6/30/13	7/1/13 to 6/30/14	
Video Conferencing and Network Support								
FTE for network support	1	78,000		81,900	85,995	90,295	94,809	352,999
FTE for network support	0.62	78,000	48,675					48,675
FTE for network support	1	78,000			85,995	90,295	94,809	271,099
Contract network support manager	0.33	112,500	37,220					37,220
Telecommunications bridge support	0.25	87,500	21,875	22,969	24,117	25,323	26,589	120,873
Contract support as needed			10,000	15,000	10,000	10,500	11,025	56,525
			117,769	119,869	206,107	216,413	227,233	887,391
Content Mngt. & Event Coord.								
FTE for user and environmental support	1.00	65,000			71,663	75,246	79,008	225,916
Development/delivery of initial training		30,000	30,000					30,000
Educ/tech Coordinator	1	65,000	65,000	68,250	71,663	75,246	79,008	359,166
Contract Medical Director	120	125	15,000	15,750	16,538	17,364	18,233	82,884
			110,000	84,000	159,863	167,856	176,248	697,967
Accounting/Administration								
Contract Network Coordinator	0.73	112,500	82,510	90,967	95,515	100,291	105,306	474,589
Contract Network Coordinator	1	112,500		124,031	130,233	136,744	143,582	534,590
FTE for USAC recovery/project admin.	0.50	56,250		31,008				31,008
FTE for USAC recovery/project admin.	1	56,250			62,016	65,116	68,372	195,504
			82,510	246,006	287,764	302,152	317,260	1,235,691
Network Management Support Costs								
Space rental			3,750	7,875	13,230	13,892	14,586	53,333
Utilities			1,500	3,150	6,615	6,946	7,293	25,504
Equipment			8,000	1,500	7,575	3,750	1,575	22,400
Supplies			2,500	3,780	7,938	8,335	8,752	31,305
Travel			3,840	5,250	7,500	7,875	8,269	32,734
Printing/duplicating			1,500	1,575	3,969	4,167	4,376	15,587
Internet access			900	1,890	2,646	2,778	2,917	11,132
Insurance			0	8,000	8,400	8,820	9,261	34,481
Training			1,875	3,938	6,615	6,946	7,293	26,666
Annual audit			0	17,000	27,000	28,350	29,768	102,118
			23,865	53,958	91,488	91,859	94,089	355,258
FCC Project Management								
Coordinator - FCC & ORHP	1.00	73,500	73,500	77,175				150,675
Supplies/Equipment			1,575	1,654				3,229
Communications			1,470	1,654				3,124
Travel - ORHP meeting			2,500	2,625	2,756			7,881
Travel - in state			3,875	3,606				7,481
Board support			2,625	2,894				5,519
			85,545	89,608	2,756	0	0	177,909
Scheduling System and Maintenance								
Preliminary estimate				0	100,000	200,000	20,000	320,000
Hardware/Software Upgrades								
Software licenses			28,000					28,000
Firewall traversal				23,011				23,011
HD Equipment for testing			7,710					7,710
New teleconference bridge					164,300	54,767	54,767	273,833
Teleconference bridge maintenance			10,800	11,340	16,430	16,430	16,430	71,430
			46,510	34,351	180,730	71,197	71,197	403,984
Content Purchase								
As Needed				10,500	11,025	11,576	12,155	45,256
Support for New Initiatives								
Incentives to network members			30,000	20,000	20,000	22,500	22,500	115,000
Equipment/Line Charges								
Equipment purchase, installation, site configuration				329,639				329,639
Line charges and maintenance				363,015	508,221	533,632	560,314	1,965,182
			0	692,654	508,221	533,632	560,314	2,294,821
Performance and Value Measurement								
Independent evaluation of network value				35,000	27,500	28,875	30,319	121,694
UW Overhead								
20% of Direct Costs to UW			30,000	30,000				60,000
Total All			526,199	1,415,945	1,595,454	1,646,059	1,531,314	6,714,971

The following briefly describes the items included in each of the major budget categories.

Audio Visual and IT Support

The primary activities under this component are expected to be technical in nature, covering items such as the following:

- Provide education/training for facility technical and non-technical personnel
- Develop policies and procedures for the technical aspects of events
- Periodically test systems throughout the state to ensure readiness for events
- Coordinate timely connections for events and monitor connections during events
- Provide reporting about connectivity
- Provide telephone support and facilitate vendor support as necessary
- Develop standards for connectivity
- Ensure appropriate communication with site facilitators and ensure feedback about technical aspects of events are routinely provided
- Stage, deploy, test, configure and operate all central network telecommunications equipment and systems - bridge, associated devices, video codec, software, etc.
- Assess and resolve network technical problems.
- Coordinate and implement network scheduling software installation, upgrades, training

Success in this area will be determined by the stability of the systems during the events, and the growth in the number of number of clinical events and participants in those clinical events.

Expenditure items in this component fund salaries and benefits for technical staff in support of the network, as well as a limited amount of contract support to augment regular staff, on an as-needed basis.

In the first year, one technical staff member will be hired part time. That staff member will move to full time in second year, with a second technical staff anticipated to be needed as membership and clinical applications grow substantially in the third year.

Bridge support is anticipated to require the equivalent of a quarter-time staff member, and is expected to be provided by central IT staff at CRMC.

A modest allocation for contract services was anticipated in each of the five years of network operations.

Content Management and Event Coordination

Activities under this area would provide environmental and user support, education and outreach, and training and clinical application development. Specific activities would include those listed below:

- Assess educational needs of hospitals and providers throughout the state
- Prioritize educational needs by coordinating with participating hospitals and providers
- Develop and implement processes to ensure that educational credit is provided to participants, and coordinate with medical staff and education offices at hospitals

- Seek out educational offerings within and outside the state that meet the priorities of the hospitals and providers
- Promote educational events through calendar and other means
- Monitor participation in events and provide reporting to constituent groups
- Assist facilities in developing environments conducive to education
- Develop policies and procedures to ensure successful educational events and deliver or clinical services
- In conjunction with healthcare providers, develop and implement clinical applications
- Coordinate and schedule statewide educational and clinical events
- Ensure the quality of clinical services delivered via the telemedicine network
- Provide other related services to network members/users as necessary

Success in this area will be determined by the number of events and participants, CMEs and CEUs awarded as a result of the program and the savings in travel time accrued to hospital clinical and administrative staff and providers.

Accounting/Administration

The University of Wyoming will provide management and administrative services related to the federal grants supporting network design and implementation through the grant periods. The network will assume responsibility for those services upon termination of the grants, as well immediate responsibility for accounting and administrative activities outside the scope of those grants.

Anticipated activities would include the following

- Provide support to the Network Board of Directors and network working committees
- Oversee contractors providing network operating and educational services
- Monitor program compliance regulations and quality improvement activities.
- Market and promote the network to the community and region
- Oversee the planning and implementation of program changes, equipment and system acquisition, licensing, and services
- Identify and apply for grants and other financial and in-kind support for the network
- Provide financial and accounting services for network operations
- Secure USAC reimbursement for all eligible network telecommunications charges
- Participate in annual network audit

Network Management and Support Costs

This expense category provides an estimate of the support costs needed to operate the central network staff, office, and non-technical business operations. This would include items such as the following:

- Space rental
- Utilities
- Equipment
- Supplies
- Travel
- Travel - ORHP meeting
- Printing/duplicating

- Internet access
- Insurance
- Training
- Annual audit

FCC Project Management

This category would support those University of Wyoming and other costs associated with the design and build out of the physical telecommunications network, procurement and oversight of a telecommunications vendor, and accounting and disbursement for the FCC and another project-related federal grant.

The FCC grant will support only those costs directly related to the design of the network and the equipment and telecommunications infrastructure. Federal grant funds from another source will be used in this area, and will support University of Wyoming staff in this effort. Once the network is complete in year 3 of the project, no additional expenses are expected in this category.

Scheduling

NOTE: Information in this section will be updated following discussions with vendors. The \$100,000 in this category is a placeholder for costs that would support the purchase, installation, and maintenance of a scheduling program for multi-site events.

Hardware and Software Upgrades

Costs in this category are anticipated to include the following:

- Software licenses
- New teleconference bridge
- Teleconference bridge maintenance

The Cheyenne Regional Medical Center has made its telecommunications bridge available to the network. However, by year 3 that bridge will need to be replaced. The cost of a new bridge is the single largest item in this category.

Content Purchases

The bulk of the training available through the network is expected to be provided by network participants or other parties who provide fee-based training to participants. However, it is anticipated that the network may directly sponsor some training courses, which may have to be purchased from third parties. A small amount is budgeted for this purpose.

Support for New Initiatives

To help spur development of new, innovative clinical applications, a small amount of "seed money" has been budgeted. This would be available to network participants on a competitive basis, as determined by the Board of Directors.

Equipment/Line Charges

Costs in this category would include

- Equipment purchase, installation,
- Site configuration
- Line charges and maintenance

The network design calls for the installation and recurring cost of a T-1 line to any hospital and mental Health/Substance Abuse Center which needs the connectivity, into the second year of the grant period. After that point, additional funding will be needed to cover the recurring equipment, line charges, and maintenance.

Performance and Value Measurement

To ensure the network and related services provide value to members and citizens of Wyoming, an independent, annual assessment of value provided will be conducted beginning in year 2 of the project. It is expected these assessments will provide the Board of Directors with information for planning and direction setting.

Five Year Estimate of Telehealth Membership

		Estimate of Annual Telehealth/Telemedicine Membership										
		Estimated Number of Members										
Type of Member	Annual Support		7/1/09 to		7/1/10 to		7/1/11 to		7/1/12 to		7/1/13 to	
	Small	Large	'6/30/10	'6/30/11	'6/30/12	'6/30/13	'6/30/14					
			Small	Large	Small	Large	Small	Large	Small	Large	Small	Large
Hospital Organizations												
Large Hospitals		\$20,000		2		2		2		2		2
CAH/Small Hospitals	\$1,500		3		7		9		12		12	
Other Hospitals	\$5,000		4		6		9		9		9	
Hospital Associations		\$1,500		1		1		1		1		1
Subtotal			7	3	13	3	18	3	21	3	21	3
Health Professionals and Health Profession Organizations												
Physician practice	\$250	\$500	5	10	15	25	20	40	25	55	35	65
Dental practice	\$250	\$500	5		7		12		15		20	
Clinics	\$500	\$1,000		3		5		7		7		7
Pharmacies	\$250	\$500		5		10		12		15		20
MHSAs	\$500	\$1,000	5	10	10	15	10	15	10	15	10	15
Nurse practitioners	\$250		10		15		15		15		15	
Subtotal			25	28	47	55	57	74	65	92	80	107
Insurance Organizations	\$10,000	\$20,000	2	1	2	1	2	1	2	1	2	1
Government Organizations												
Cities/Towns	\$500	\$1,000	15	5	18	6	18	6	18	6	18	6
Counties	\$500	\$1,000	6	3	8	5	8	5	8	5	8	5
State Agencies	\$500	\$1,000		2		2		2		2		2
Subtotal			21	10	26	13	26	13	26	13	26	13
Professional Health Care Organizations	\$500	\$1,000		2		2		2		2		2
Quality Improvement Organizations	\$500	\$1,000		1		1		1		1		1
Business / Purchaser Organizations	\$500	\$1,000		7		9		9		9		9
Consumers / Public Interest	\$500	\$1,000	1		1		1		1		1	
Supporting Member Organizations	\$500	\$1,000	1	2	1	2	1	2	1	2	1	2
At-Large Individuals	\$25		25		30		30		30		30	
Non-Profit, Non-advocacy Technology Organizations	\$500	\$1,000										
Safety Net Organizations	\$500	\$1,000	1		1		1		1		1	
Total			83	54	121	86	136	105	147	123	162	138

Five Year Estimate of Membership Revenues

		Estimate of Annual Telehealth/Telemedicine Membership						
		Estimated Revenues						
Type of Member	Annual Support		7/1/09 to	7/1/10 to	7/1/11 to	7/1/12 to	7/1/13 to	Total
	Small	Large	'6/30/10	'6/30/11	'6/30/12	'6/30/13	'6/30/14	
Hospital Organizations								
Large Hospitals		\$20,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$200,000
CAH/Small Hospitals	\$1,500							
Other Hospitals	\$5,000							
Hospital Associations		\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$1,500	\$7,500
Subtotal			\$41,500	\$41,500	\$41,500	\$41,500	\$41,500	\$207,500
Health Professionals and Health Profession Organizations								
Physician practice	\$250	\$500	\$6,250	\$16,250	\$25,000	\$33,750	\$41,250	\$122,500
Dental practice	\$250	\$500	\$1,250	\$1,750	\$3,000	\$3,750	\$5,000	\$14,750
Clinics	\$500	\$1,000	\$3,000	\$5,000	\$7,000	\$7,000	\$7,000	\$29,000
Pharmacies	\$250	\$500	\$2,500	\$5,000	\$6,000	\$7,500	\$10,000	\$31,000
MHSAs	\$500	\$1,000	\$12,500	\$20,000	\$20,000	\$20,000	\$20,000	\$92,500
Nurse practitioners	\$250		\$2,500	\$3,750	\$3,750	\$3,750	\$3,750	\$17,500
Subtotal			\$28,000	\$51,750	\$64,750	\$75,750	\$87,000	\$307,250
Insurance Organizations	\$10,000	\$20,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$200,000
Government Organizations								
Cities/Towns	\$500	\$1,000	\$12,500	\$15,000	\$15,000	\$15,000	\$15,000	\$72,500
Counties	\$500	\$1,000	\$6,000	\$9,000	\$9,000	\$9,000	\$9,000	\$42,000
State Agencies	\$500	\$1,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000
Subtotal			\$20,500	\$26,000	\$26,000	\$26,000	\$26,000	\$124,500
Professional Health Care Organizations	\$500	\$1,000	\$2,000	\$2,000	\$2,000	\$2,000	\$2,000	\$10,000
Quality Improvement Organizations	\$500	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$5,000
Business / Purchaser Organizations	\$500	\$1,000	\$7,000	\$9,000	\$9,000	\$9,000	\$9,000	\$43,000
Consumers / Public Interest	\$500	\$1,000	\$500	\$500	\$500	\$500	\$500	\$2,500
Supporting Member Organizations	\$500	\$1,000	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$12,500
At-Large Individuals	\$25		\$625	\$750	\$750	\$750	\$750	\$3,625
Non-Profit, Non-advocacy Technology Organizations	\$500	\$1,000	\$0	\$0	\$0	\$0	\$0	\$0
Safety Net Organizations	\$500	\$1,000	\$500	\$500	\$500	\$500	\$500	\$2,500
Total			\$144,125	\$175,500	\$188,500	\$199,500	\$210,750	\$918,375

Appendix C, Consortium Legislation

Authority - The Consortium is established pursuant to Wyoming Statute § 9-2-117 (Supp. 2009).

Vision/Mission- The mission of the Consortium shall include:

- Facilitating the operation of a statewide interoperable telemedicine/telehealth network using existing internet protocol based communication and videoconferencing infrastructure and telecommunication services to the extent possible;
- Coordinating with appropriate state agencies to establish incentives to implement, promote and facilitate the voluntary exchange of secure telemedicine/telehealth network information between and among individuals, entities and agencies that are providing and paying for services authorized under the Medicaid program, in conformity with rules adopted by the state chief information officer;
- Develop and promote a common direction for a statewide interoperable telemedicine/telehealth network among state agencies, in conformity with rules adopted by the state chief information officer.

Activities - Initial Consortium activities will consist of the following:

- Coordinate the development and promotion of statewide standards for an interoperable telemedicine/telehealth network and, where applicable, promote definitions and standards for statewide electronic health transactions;
- Promote and conduct education programs that inform network users that information communicated through the use of telemedicine/telehealth shall conform with state and federal privacy and security laws and information security programs established by the state chief information officer;
- Seek funds and contract as necessary to carry out its statutorily authorized responsibilities;
- Establish operating policies and procedures as needed to carry out its responsibilities.

Appendix D. Business and Governance Interview Questions

Name:

Date:

Purpose: obtain participant's view on the future of telehealth/telemedicine in Wyoming, and on the need for, structure of, capabilities, and sustainability of a single telehealth network for Wyoming

1. What do you see as the future of telehealth in Wyoming?
2. Does Wyoming need a statewide telehealth network?
3. If no to #2, how do you think telehealth services should be provided?
4. If yes, how would you describe the ideal state of a statewide telehealth network in two years and five-years?
 - Characteristics
 - Capabilities
 - Priority initiatives
5. How should the statewide network be organized and governed? i.e. Wyoming Telehealth Consortium; stand alone corporation; public private partnership; roles/responsibilities of parties; membership based organization; any difference in short and long term views?
6. What are your thoughts on how operational and technical services should be provided? i.e. by the organization; by a third party contractor; state government; some combination?
7. What services/programs should be available through telehealth?
 - Educational
 - Administrative
 - Clinical
8. Who should provide the services offered through the network?

9. What legal/policy issues must be addressed?
10. Are there partnerships/alliances the network should pursue?
12. What is the value of telehealth to various stakeholder groups?
- Hospitals
 - Physicians
 - Insurers/payers
 - Employers
 - Consumers
 - Government
 - Other groups
11. What should the network do to build participation/usage?
12. Any thoughts on a maximum acceptable operations budget for the telehealth network?
13. What are your thoughts on how to financially support the network?
- Potential revenues by type and source
 - Memberships – by group and size
 - Services
 - Network usage
 - Value added services
 - Grants/contracts
 - Federal and state government
 - Foundations
 - Private sources
 - Specific appropriations
 - Federal
 - State
 - Facility fees
 - Educational sessions
 - Endowments
 - In-kind services/resources
 - Other