



## **Value of Telemedicine/Telehealth to Various Stakeholder Groups**

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# Value of Telemedicine/Telehealth to Various Stakeholder Groups

## Background

The expanded use of telemedicine/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 for increased economic development , and savings in time and travel related costs.

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.<sup>1</sup>

Telemedicine is not a separate medical specialty. It is a tool to extend the traditional practice of medicine outside the walls of the typical medical practice or hospital.<sup>2</sup>

Historically, telehealth services in Wyoming focused on educational and administrative activities. However, the implementation of clinical services has become 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.

Some of the most common/popular uses of telehealth include

- A specialist participating in a remote consult with a family physician to assist with a diagnosis
- A family physician facilitating a consultation with a specialist by transmitting radiology images and/or video along with patient data to a specialist for viewing

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<sup>1</sup> American Telemedicine Association (ATA)

[http://www.americantelemed.org/files/public/abouttelemedicine/What\\_Is\\_Telemedicine.pdf](http://www.americantelemed.org/files/public/abouttelemedicine/What_Is_Telemedicine.pdf)

<sup>2</sup> American Telemedicine Association, Telemedicine, Telehealth, and Health Information Technology, [http://www.americantelemed.org/files/public/policy/HIT\\_Paper.pdf](http://www.americantelemed.org/files/public/policy/HIT_Paper.pdf)

- Patients and health professionals sharing audio, video and remotely captured medical data to design or monitor treatment plans, verify prescription refills or provide advice
- Using devices to remotely collect and send data to a monitoring station for interpretation, such as telemetry devices that capture a specific vital sign (blood pressure, glucose, ECG or weight), and to supplement the use of visiting nurses
- Medical education and mentoring, such as the provision of continuing medical education credits, special medical education seminars for targeted groups, and/or interactive expert advice during a medical procedure
- Utilization of the Internet by consumers to obtain specialized health information or to access online discussion groups and peer-to-peer support.<sup>3</sup>

Telehealth/telemedicine services are delivered in various ways, including as networked programs linking hospitals, point-to-point service deliveries, telehealth monitoring, telehealth homecare services, and web based patient and provider services.

## Value/Benefits of Telemedicine/Telehealth to Stakeholder Groups

A number of stakeholder groups can benefit from expanded use of telehealth/telemedicine;

- Consumers/patients;
- Physicians/other healthcare professionals;
- Hospitals;
- Employers;
- Insurers/payers – both public and private;
- Government – economic development and quality of life.<sup>4</sup>

### **Consumers/Patients**

Healthcare consumers and patients benefit from telemedicine through improved access to services, savings in time and travel, and improved opportunities for home care and remote health monitoring,

One of the most important benefits of telemedicine is access to specialty and emergency care in rural areas. Telemedicine provides a means to electronically link patients with specialists in other areas. A recent study of operations of network in Louisiana found shortened wait times for rural patients to access specialists.<sup>5</sup>

Additionally, use of telemedicine can save time, travel expenses, and other costs associated with a visit to a specialist in another community. This could include automobile travel expenses, and emergency air evacuations or other forms of

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<sup>3</sup> American Telemedicine Association, Telemedicine, Telehealth, and Health Information Technology, [http://www.americantelemed.org/files/public/policy/HIT\\_Paper.pdf](http://www.americantelemed.org/files/public/policy/HIT_Paper.pdf)

<sup>4</sup>Telemedicine Association of Oregon (TAO), Benefits of Telemedicine, <http://www.ortcc.org/PDF/BenefitsofTelemedicine.pdf>

<sup>5</sup> CMIO, Health Information Exchange: Patient Data on the Move, [http://www.cmio.net/index.php?option=com\\_articles&view=article&id=18851:health-information-exchange-patient-data-on-the-move](http://www.cmio.net/index.php?option=com_articles&view=article&id=18851:health-information-exchange-patient-data-on-the-move)

transporting patients. Reduced travel time can reduce the effect of illness on productivity at home, work, and school.<sup>6</sup>

Home care and health monitoring services are becoming an increasingly important part of total healthcare service. Reasons often cited for this include patients leaving the hospital sooner and needing some additional care at home. Treating patients at home is less expensive than treating them in the hospital, and many patients prefer to stay in their homes before moving onto a nursing home or hospice.<sup>7</sup>

Increased disease monitoring and management can lead to better patient health, including a reduction in complications and less need for hospitalization and emergency room visits. Patients with chronic diseases, such as diabetes and congestive heart failure, can be potentially benefit most from health monitoring and follow-up.<sup>8</sup>

Telehealth can also provide a convenient and effective method of providing education for patients and their families.

### **Physicians/Other Healthcare Professionals**

Physicians and other healthcare professionals benefit from telehealth in a number of areas: consultation with other physicians, reduced medical errors, improved efficiency and convenience, convenient access to continuing medical education, and improved collaboration among healthcare team members.

One benefit to primary care physicians is consultative advice from specialists. The patient is "seen" by the specialist without the need for travel to a distant site. In some cases, the primary care physician may choose to attend the telehealth consult with the patient and discuss the case directly with the specialist.<sup>9</sup>

A similar analogy could apply in an emergency situation, where access to a specialist is critical to treating the patient appropriately.<sup>10</sup>

Similar to the above is the potential for improved diagnosis and reduction of medical errors through easier access to specialists via a telehealth consult. This can be a

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<sup>6</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview  
<http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

<sup>7</sup> Telemedicine Association of Oregon (TAO), Benefits of Telemedicine,  
<http://www.ortcc.org/PDF/BenefitsofTelemedicine.pdf>

<sup>8</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview  
<http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

<sup>9</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview  
<http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

<sup>10</sup> Doctor Online, 30 September 1997, [http://www.medindia.net/Press\\_reports/presstext4.asp](http://www.medindia.net/Press_reports/presstext4.asp)

supplement to local care, and provide an increased level of sophistication that can be delivered by clinicians practicing in the local community.<sup>11</sup>

Healthcare provider efficiency can be improved through the use of telehealth. Travel time can be reduced, as providers can see patients in distant communities without the need to travel to those locations. One project experienced a 33% to 50% decrease in costs associated with reduced visit times by home care nurses through the use of telehome care over traditional homecare visits.<sup>12</sup>

A telemedicine program at the Mass General pediatric ICU provides both increased convenience, and time and travel savings for physicians. Through the use of telemedicine equipment in the ICU, on-call physicians can control cameras and scopes to view the medical monitoring equipment in the patient's room and examine the patient.<sup>13</sup>

Telehealth provides the opportunity for convenient access to continuing medical education for physicians and other healthcare professionals. The education can be delivered at a local hospital or directly to the professional's home or office, saving both time and travel costs.

Telehealth provides additional opportunities for other types of conferencing and collaboration among professionals, again saving both time and travel expense.<sup>14</sup>

### **Hospitals**

Telemedicine/telehealth benefits to hospitals include improved treatment and outcomes for patients, reduction in number of transfers between hospitals, access by rural hospitals to specialists as needed, and reduced costs and travel time for staff delivery of clinical services, education, and administrative conferencing.

One study found a positive improvement in mortality, a reduction in length of stay, and a reduction in cost from the implementation of telemedicine capabilities in the ICU of a large academic hospital.<sup>15</sup>

A 2007 study found significant savings could be obtained by reducing the number or transfers between emergency departments across hospitals.<sup>16</sup> This would also allow rural hospitals to keep local patients at their facilities by obtaining needed telemedicine services from other hospitals or specialists.

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<sup>11</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview, <http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

<sup>12</sup> Telemedicine Association of Oregon (TAO), Benefits of Telemedicine, <http://www.ortcc.org/PDF/BenefitsOfTelemedicine.pdf>

<sup>13</sup> McGee, Information Week, February 4, 2010, Telemedicine Links Remote Docs With Ill Kids, <http://www.informationweek.com/authors/showAuthor.jhtml;jsessionid=ZPTJY3SPDR5SNQE1GHPCKHWA TMY32JVN?authorID=1114>

<sup>14</sup> Hjelm, Telemedicine: academic and professional aspects, [http://www.hkmj.org/article\\_pdfs/hkm9809p289.pdf](http://www.hkmj.org/article_pdfs/hkm9809p289.pdf)

<sup>15</sup> Kohl, et al., Anesthesiology and Critical Care, University of Pennsylvania, Crit Care Med, 2007;35(12);A26

<sup>16</sup> Center for Information Technology Leadership, Partners Health Care System, Inc., The value of Provider-to-Provider Telehealth Technologies, 2007

Access to specialists can be critical in an emergency situation, where time would not permit the transfer of a patient to a remote facility where the specialist is available.<sup>17</sup>

Historically in Wyoming, education and administrative conferencing were the most widely used telehealth applications. The primary benefits to hospitals are savings in travel time and travel costs. The Cheyenne Regional Medical Center has tracked estimated savings associated with telehealth education and administrative conferencing. As an example, in December 2009, savings at CRMC were \$5,750.00.<sup>18</sup>

### **Nursing Homes**

Nursing homes are often required to transport patients to physicians' offices, and emergency rooms for treatment. One study documented reductions in costs associated with both transportation costs, and reduced number of emergency room visits as a result of implementation of telemedicine.<sup>19</sup>

A second study showed reductions in both the number of hospital bed days and the number of hospital admissions due to telemedicine use.<sup>20</sup>

### **Employers**

Telemedicine/telehealth benefits to employers include reduced loss of employee work time associated with medical treatment, increased workforce health, and reduced healthcare costs for those employers supporting healthcare benefits to employees.

With the use of telemedicine, employers in rural areas experience less loss of employee work time due to travel associated with medical care outside the local community. This translates to less employee down time with more timely care, and both perceived and actual increases in workforce health.<sup>21</sup>

Additionally, use of telemedicine/telehealth has shown to be an effective method of reducing healthcare costs. The following section, covering Insurers, provides numerous cites for savings associated with telemedicine/telehealth.

### **Insurers/Payers – both Private and Public**

Increased use of telemedicine/telehealth can result in additional telehome monitoring services to improve outcomes, reduced complications and hospitalizations associated with chronic diseases; lower costs through substitution of homecare for inpatient care; general reductions in cost; increased caregiver efficiency; and reductions in transfers between emergency departments.

Increased disease monitoring and management can lead to better patient health, along with reduction in complications and less need for hospitalization and emergency room

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<sup>17</sup> Doctor Online, 30 September 1997, [http://www.medindia.net/Press\\_reports/presstext4.asp](http://www.medindia.net/Press_reports/presstext4.asp)

<sup>18</sup> Cheyenne Regional Medical Center, Telehealth Report, December 2009

<sup>19</sup> Center for Information Technology Leadership, Partners Health Care System, Inc., The Value of Provider-to-Provider Telehealth Technologies, 2007

<sup>20</sup> Darkins, et. al., Telemedicine and eHealth, December 2008, 14(10), Critical Care/Home Telehealth: The Systematic Implementation of Health Informatics, Home Telehealth, and Disease Management to Support the Care of Veteran Patients with Chronic Conditions

<sup>21</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview, <http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

visits, especially in patients with costly chronic diseases, such as diabetes and congestive heart failure.<sup>22</sup>

One study reviewed the use of telehome care as a cost-effective substitute for acute care services, and found a correlation between home health use and reduced use of inpatient hospital care.<sup>23</sup>

Other studies followed use of telehome care for patients with specific conditions, and found savings. These included

- Psychiatric care
- Terminally ill patients
- COPD
- Congestive Heart Failure.<sup>24</sup>

A study of telemonitoring of patients in a senior living facility showed a 36% reduction in billable medical procedures, a 78% reduction in hospital days, and a 68% reduction in the cost of care.<sup>25</sup>

Significant savings are possible with telemedicine in correctional facilities, through reduced transportation costs to physicians' offices and emergency rooms, and reduced numbers of emergency room visits.<sup>26</sup>

### **Government and Business - Economic Development and Quality of Life**

Economic development benefits include keeping more healthcare dollars in local communities, improved medical services as an aid to business recruitment, and workforce development through addressing shortages in healthcare professionals. Quality of life can be improved through enhanced healthcare services and increased life expectancy.

A significant benefit of telemedicine is the ability to access specialists remotely, and potentially keep patients in local communities for treatment. Spending on healthcare is a significant part of our economy, and a significant part of that spending currently goes out of state.

A 2007 study performed for the Wyoming Health Care Commission estimated the 2003 impact of out-migration of in-patient hospital services on Wyoming's hospitals at over \$100 million, as shown below.<sup>27</sup>

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<sup>22</sup> Stachura, Khasanshina, The Advanced Medical Technology Association, Telehomecare and Remote Monitoring: An Outcomes Overview, <http://www.advamed.org/NR/rdonlyres/2250724C-5005-45CD-A3C9-0EC0CD3132A1/0/TelehomecarereportFNL103107.pdf>

<sup>23</sup> Hughes, et.al. "Impact of Home Care on Hospital Days: A Meta Analysis," Health Services Research no.4 (1997):415-432.

<sup>24</sup> Basic Statistics about Home Care, November 2001, <http://www.nahc.org/Consumer/hcstats.html>

<sup>25</sup> Thielst, The Crossroads of Telehealth, Electronic Health Records & Health Information Exchange, *Planning for Rural Communities* <http://www.nrtc.org/documents/Crossroads%20of%20Telehealth%20White%20Paper.pdf>

<sup>26</sup> Center for Information Technology Leadership, Partners Health Care System, Inc., The value of Provider-to-Provider Telehealth Technologies, 2007

<sup>27</sup> RUPRI, Status and Future of Health Care Delivery in Rural Wyoming, June 2007, [http://www.wyominghealthcarecommission.org/images/reports/11-20-07WY%20Project%20Report%20071807\\_Final.pdf](http://www.wyominghealthcarecommission.org/images/reports/11-20-07WY%20Project%20Report%20071807_Final.pdf)

Patient destination state	2003 Dollar Estimates in Millions			
	CO	UT	NE	Total
Total charges incurred in the destination state	\$110	\$64	\$5.2	*
Estimated lost charges for WY hospitals	\$ 80	\$60	\$4.7	\$144.7
Estimated lost revenue for WY hospitals	\$ 56	\$42	\$3.3	\$101.3
Estimated less spending in WY communities	\$ 18	\$13.5	\$1	\$ 32.5

\*The total charges incurred in the destination states are not aggregated because of the difference in hospital charge practice among the states.

Two significant factors in recruiting new businesses are schools and healthcare. Use of telemedicine/telehealth can improve a community's ability to deliver clinical services locally.

Wyoming faces a severe shortage of healthcare workers, with the 19 of our counties having areas classified as healthcare professional shortage areas.<sup>28</sup> Through partnerships with Wyoming educational institutions, telehealth offers the opportunity to train more local residents for healthcare jobs.

As discussed earlier, delivery of healthcare services can be enhanced using telemedicine. This includes home health services, telemonitoring services, improved efficiencies for healthcare providers, and reduced travel time and costs for both patients and providers. Rural patients have improved access to specialists, and can remain in their local communities for treatment.

With improved healthcare, opportunities for a longer and more productive life span are increased.<sup>29</sup>

<sup>28</sup> <http://hpsafind.hrsa.gov/HPSASearch.aspx>

<sup>29</sup> Telemedicine Association of Oregon (TAO), Benefits of Telemedicine, <http://www.ortcc.org/PDF/BenefitsofTelemedicine.pdf>