

Telehealth Video Resource Center Planning Meeting Summary Report

Prepared for

The Honorable Ted Strickland
Governor of the State of Ohio

And

The World Bank

Prepared by

Charles R. Doarn, MBA
Associate Professor of Surgery and Biomedical Engineering
Deputy Director, Advanced Center for Telemedicine and Surgical Innovation
University of Cincinnati

Michael J. McGill, PhD
Internet 2 Health Sciences

David A. Gray
Regional Knowledge Management Coordinator
The World Bank

May 2008

Executive Summary

In April 2008, a distinguished panel gathered physically and virtually at the Ohio Supercomputer Center in Columbus, Ohio, to discuss the concept of creating a Telehealth Video Resource Center. Organized by Internet2 and the World Bank, the meeting was hosted by the Honorable Ted Strickland, Governor of the State of Ohio. The overall purpose of the meeting was to evaluate the challenges and opportunities in using advanced networking for the international health community to create a Telehealth Video Resource Center.

Clearly the integration of medicine and telecommunications has benefited the practice of medicine throughout the world and has significantly impacted education. In this wired – or in many cases wireless – world, access to health information and expertise is making a difference.

The assembled group was comprised of participants from many parts of the United States and several foreign countries, including Egypt, Brazil, and Jordan. Those who could not travel to Columbus participated through a robust videoconferencing connection. The meeting followed an agenda that included discussion and video demonstrations. Every participating member contributed, providing valuable comments. The open discussions were focused on current activities and perceived needs of a centralized virtual clearinghouse to provide expertise, content, knowledge and technology resources. The concept of establishing a center was discussed with a focus on the use of high-quality video for health, including education, research and clinical practice; technical solutions or attributes, including network and video standards, support, and testing and operation; and coordination and prioritization.

A number of key points were made by several of the participants, which helped direct the discussion along a discrete path. The group endorsed and adopted a concept established within the American Telemedicine Association (ATA). This was a report that Mr. Charles Doarn, University of Cincinnati, introduced. This report was the ‘Global Forum on Telemedicine: Connecting the World Through Partnerships – An International Roadmap for Action.’ This roadmap included several recommendations, including an international resource center. The group felt that this document could serve as the foundation of the Telehealth Video Resource Center.

After very productive and thought-provoking discussions on what such an entity should be, the group established a name for the center and a draft mission statement – ‘*Provide a comprehensive and enabling environment for regional, national, and international collaboration for the healthcare community through information and communication technology.*’ The group also agreed that the entity also needed an external advisory board, which should include a wide range of individuals from diverse backgrounds. It was also recommended that this group assemble in the coming month or so.

The following report summarizes the events that unfolded during this meeting.

Table of Contents

Executive Summary	1
Meeting Purpose and Organization	3
Meeting Summary	4
Mission Statement	9
External Advisory Board	9
Conclusion	9
Next Steps	10
Acknowledgements	10
Appendices	11
A. Agenda	12
B. Participants	14

Meeting Purpose and Organization

The integration of telecommunication, medicine and education has gained momentum over the past decade. It is the basis for the future of medical care, as it possesses the capability of increasing access to care. Numerous organizations utilize bandwidth to broaden their reach and share knowledge across the globe. The World Bank and the Ohio Supercomputer Center (OSC) are only a few of those organizations that have provided a wide variety of such activities. Working with Internet2 and the Governor's Office of the State of Ohio, a meeting was organized at OSC in Columbus, Ohio, to discuss the creation of an International Telehealth Video Resource Center in Ohio. The meeting was held on April 16, 2008. Such a resource could consistently and reliably support the use of video resources and advanced networks to support telehealth.

This invitation-only planning meeting brought together a distinguished group of individuals from around the world. This group included telemedicine/telemedicine experts, clinicians, and technologists. International representation was from Brazil, Egypt, and Jordan. U.S. government representation included: the Fogarty International Center and National Library of Medicine, both of NIH, and the Indian Health Service. Academic representation included: the University of Cincinnati, Columbia University, the University of Maryland, the University of Missouri, The Ohio State University, Ohio University, University of Southern California, the University of Vermont, and the University of Washington. Nationwide Children's Hospital of Columbus was also represented.

The agenda is appended to this report in Appendix A. The complete attendance is listed in Appendix B.

The moderators of the meeting were Mr. David Gray of the World Bank and Dr. Michael McGill of Internet2. The meeting was hosted by the Honorable Ted Strickland, Governor of the State of Ohio. The facility host was Dr. Stanley Ahalt, Executive Director of OSC. Those who could not travel to Columbus participated via videoconferencing.

The following is a summary of the meeting, which closely follows the agenda.

Meeting Summary

The meeting moderator, Mr. David Gray, opened the meeting with a review of the agenda and general introductions of every participant. He noted that all of the health disciplines depend on technology that is reliable and affordable, delivered smoothly, without difficulty to busy professionals. This is a key attribute to sustaining a robust resource center.

Ms. Janetta King, Policy Director, representing Governor's Strickland's Office, made several remarks about the importance of this work and the role that Ohio has played in the advancement of health. She also noted that the Federal Communications Commission recently awarded \$27M to Ohio to connect rural health institutions to urban institutions and provide Ohio's health community with broadband access to resources available locally, statewide and nationally. She noted that OSC has already supported numerous global telehealth videoconferences.

She stated that Governor Strickland was very supportive of bandwidth and connectivity for healthcare in Ohio. She also introduced a short video clip from the Governor, who was a mental health provider prior to being elected as Ohio's 68th Governor. The following is a transcript of that video.

“Good morning, I want to thank you for convening in Columbus from many regions around Ohio and the globe to consider this very important telehealth proposal. I welcome those participants sitting around this room as well as those are attending today by way of video conference. We have been fortunate here in Ohio to be a leader in natural resources, agriculture, manufacturing and innovative ideas. Ohio is also known as a world leader in the field of medicine serving as the home of the world class, The Cleveland Clinic, many other fine hospitals and clinics, seven excellent medical schools and numerous nursing schools. Recently Ohio was recognized for its medical leadership when the Federal Communications Commission awarded more than \$27 million – the most of any state in the nation – to build and expand high speed networks among medical facilities. These new state of the art networks will allow the facilities to share vital medical records across their systems and across the country. Ohio has also been fortunate to have the nationally recognized technological expertise of the Ohio Supercomputer Center. The OSC has been a primary technical resource for many high quality health related video experiences including road trauma conferences, live orthopedic surgeries, medical education sessions, such as those offered by the John Hopkins Center for Clinical Global Health Education and numerous activities supported by the World Bank. These video experiences have brought together experts from around the world and have provided worthwhile educational and clinical experiences. Local, regional and national advanced networks have increased opportunities to provide healthcare and education in ways not previously possible. For example, Nationwide Children’s Hospital now provided neonatal care to rural and remote areas of Ohio to alleviate the need to transport infants from their birth hospitals. As the use of advanced networking increasing within the health community, a greater need exists for high quality and easy to use video resources to support these activities. The outcome of today’s meeting should be a set of recommendation for developing a self sustaining, world class, telehealth resource center that will have world wide impact. Again, we welcome you to Ohio. Thank you for your service to the field of medicine and to the many patients who will be the beneficiary of your efforts down the road.”

– Ted Strickland, Governor, State of Ohio

Description of Ongoing Events and Resultant Need

This session was led by Mr. Ed Johansen, Mr. David Gray, Dr. Michael McGill, and Dr. Arif Khan.

Mr. Ed Johansen from the University of South California (USC) gave a presentation on the work in which he has been involved. As a facilitator in organizing global videoconferences in orthopedic surgery, road trauma and other topics, he noted that with

available technology today, connecting is a social issue. He reviewed the many networks that are now linked across the globe, highlighting the importance of getting doctors involved early in the process to be sure their needs are met. The expense of these programs was apparent, with work done in Europe, the Middle East, China, Africa, etc.

Mr. David Gray provided an overview of the involvement of the World Bank. In 2002, the president of the World Bank stated that building the Knowledge Economy was as important as the monetary economy. The Global Development Learning Network (GDLN) of 17 countries was created. It was very successful but very expensive for individual sites. Cooperation with Internet2 expanded the capability, while significantly decreasing the cost. An important aspect of the GDLN is understanding what people in the participating countries need and how this network infrastructure can help meet that need. It is necessary to move beyond random medical programs and focus on those that are needed by the participants. Mr. Gray described the work of Frank Brady and the Medical Missions for Children, with a rich human network of pediatricians, but lacking in the technical network that he could put to amazing use.

OSC's Arif Khan made a few comments regarding networks, linking the world and bridging the digital divide, especially in underserved countries. He commented that it took 10 years to go from Microsoft's NetMeeting to the global conference of today. Distributed meetings such as this one are now possible. Images and instrumentation data can now be shared. The capability rides on top of a number of services already in use, such as e-mail and the web.

Dr. Michael McGill of Internet2 described the value of having health resources available, in real-time, to remote sites. Demonstration of this capability and its potential to the FCC really excited them, and led to their \$417 million program to connect rural healthcare sites around the U.S. It also became clear that healthcare, research, and education all had to be delivered.

Open Discussion

The points made above sparked discussions about objectives and processes. Early in the discussions, it became clear that the flow of knowledge among countries of the world may be as important as financial aid. Health information and knowledge of best practice in the delivery of healthcare have proven to be areas where this is true. There is tremendous interest in sharing information and taking advantage of the expertise of others.

The creation and use of a telehealth video resource center is uncharted territory. While the need has been expressed and demonstrated by the interest and ad hoc use of the resources provided by OSC, the group felt it is not obvious that we know how a global network should be organized or used. We know it is not about the technology, but to meet the need we must have the technology. It must be a communal and collaborative effort. The system should be sustainable, and we believe and understand that the private sector should be able to make good use of this resource and participate in its operation. Yet the neediest participants are often those who do not have the resources to help sustain the organization. There is a significant question of how we stay in sync with multiple organizations worldwide.

Currently, we conduct sessions very randomly. Can we plan the educational component? Can we establish priorities? For example, should we, as some people have suggested, focus on very specific areas such as maternal and child health? How do we prioritize research interactions? What about time zones, cultures and multiple languages that may be barriers. There must be a Network Operations Center 24/7 that provides support.

Comments were solicited from all remote sites and from those gathered in the room. Each of these comments highlighted similarities and differences. Views, concerns, lessons learned and experiences were conveyed. All expressed the need for such a resource and pledged their support.

Demonstration – Nationwide Children’s Hospital

Dr. Rachel Brown, neonatologist at Nationwide Children’s Hospital in Columbus set the stage for a video of telemedicine capability between Children’s Hospital and Adena Regional Medical Center in Chillicothe, Ohio. The regional medical center is linked to Children’s to support clinical needs. The video highlighted how a network can be utilized to support unmet medical needs, connectivity of parents and children, the continuum of care, and review of clinical case often resulting in limited or no expensive transportation from rural to urban setting. The utility of this system has been measured in a reduction on unnecessary transportation in 12 cases to date over a six-month period.

Open Discussion

This demonstration provided for interactive discussion on processes, cost avoidance, access to knowledge, medical records (documentation), legalities, cost benefit, Health Insurance Portability and Accountability Act (HIPAA), reimbursement, videoconferencing capabilities, standards like H.323, Coder/Decoders (CODECS), and technologies/tools.

Additional comments were made by several individuals on their experiences with different technologies and various telemedicine settings. The discussion stressed that it is not just the technologies, but relationships, reliability and access. A key point was made that distributed networks increase access to knowledge. The size and scope was also discussed in relation to pilot studies. Hub-and-spoke structures – a sort of networks of networks – was discussed.

A structure for a resource center would need linkages through a reliable and robust network, and more importantly it would need content. Retail space, like a Kroger grocery store, was used to illustrate. The material you may need is there, but you only get it when you need it. Building the network or store (metaphorically) is easy. It is filling it up that is the challenge. It’s the content, the quality, the language, the culture, the documentation, etc. that are the challenges a resource center faces. These are by no means insurmountable!

Mr. Charles Doarn, University of Cincinnati, gave a summary of what the American Telemedicine Association (ATA) is involved in, including the recent meetings and the international scope of activities. He presented the ATA’s recent report ‘Global Forum on Telemedicine: Connecting the World Through Partnerships – An International Roadmap for

Action,' which was spearheaded by Hon Pak, immediate past president of the ATA. The document was made available for all to view. Dr. Mark Carroll of the Indian Health Service and a member of that ATA board of directors echoed Mr. Doarn's comments regarding the document. Further discussion on global networks and previous activities helped reinforce the need for such a resource center, perhaps in partnership with the ATA as well as others.

Mr. Doarn commented that Boeing and Lockheed plan to launch satellites to help support health initiatives. India uses its EduSat. Broadcast video works very well. But live interactive video will not work over satellite, because it will be too expensive. How can we tap into such initiatives and foster collaboration and not competition?

Pat Molholt, Columbia University, discussed the need for a resource broker, as well as developing trust and communication. The broker would have the responsibility of bringing together resources and users in a rational and effective way. The idea took hold with significant encouragement resulting from the discussion. For example, the Fogarty Center of the National Institutes of Health (NIH) expressed interest in the research broker. They have grantees in many countries. A kind of social network may be one tool to further the idea of a broker.

The most precious resource is the time of the medical experts. This has to be worth their while in terms of lost productivity. Humanitarianism is not enough. For telemedicine, we need guidelines and malpractice coverage. We need brokers who link available capability with existing need.

What Will it Take to Make this Happen

The ATA roadmap can help to serve as a guide from which we can move the Telehealth Video Resource Center forward. This document's Recommendations 2 and 5 can serve as key building blocks:

- Recommendation 2 – Develop a collaborative international resource center to support the flow of information to the global community
- Recommendation 5 – Assist in development of new models and strategies to support connectivity and infrastructure requirements for telemedicine

The assembled group adopted the document as a framework for moving forward. The entire document can be obtained at the following URL: http://www.atmeda.org/conf/Mid-Year%202007/Global_Forum_FINAL03062008.pdf .

With the adoption of this document and its underlying theme(s), the concept of a resource center needs definition and an organization. It was recommended that the center might be virtual, would require funding, staffing and have an external advisory board. The center would need content, a system of storage, and access through a network. It was suggested that such a center could be modeled after Amazon.com, using a web portal.

The concept of membership was also discussed along with other ways of sponsoring the center, including corporate and philanthropic partners.

The group focused its efforts on finalizing some organizational structure issues for a center, including a mission statement, preliminary advisory board, and potential partners.

Draft Mission Statement of the Telehealth Video Resource Center

Provide a comprehensive and enabling environment for regional, national, and international collaboration for the healthcare community through information and communications technology.

Initial Invitees to Participate in the External Advisory Board

The external advisory board would provide guidance to the Telehealth Video Resource Center. The following is an initial list of potential members.

Governor's Office	State of Ohio
Frank Brady	Medical Missions for Children
Mark Carroll, MD	Telehealth lead, Indian Health Service
Charles Doarn	University of Cincinnati, Advanced Center for Telemedicine and Surgical Innovation
Erica Frank, MD	University of British Columbia
David Gray	World Bank
Fdar Islam	PAHO
Arif Khan	Ohio Supercomputer Center
Pat Molholt	Independent (formerly Columbia School of Medicine)
Hon Pak, MD	Advanced Information Technology Group
	Telemedicine and Advanced Technology Research Center U.S. Army (TATRC-ATA)
Dena Puskin	Office for the Advancement of Telehealth Health Resources and Services Administration

Potential Collaborators

The following is a preliminary list of potential collaborators who could provide technical support, content and perhaps funding.

NSF – Cyber Infrastructure
Various Associations
Government – State / Federal
NIH
UN
WHO
PAHO
USAID
CDC
Internet2

Conclusion

This Telehealth Video Resource Center planning meeting was very successful. From the opening remarks from Governor Strickland to the comments of all participants, the foundation from which to move forward has clearly been laid out. Establishing a Telehealth Video Resource Center, accessible from around the globe, will provide an extremely useful tool for education in public health and medical care in areas of the world with unmet needs, and serve as a highly effective bridge by minimizing or eliminating the digital divide.

It will take a dedicated team and funding to build and sustain such a center. Using the ATA's global forum roadmap as a guide and through partnerships with Internet2 and the World Bank, the Telehealth Video Resources Center will grow. This document will serve as the first step in achieving the goal of creating this center.

Next Steps

This document serves as the report from the Telehealth Video Resources Center planning meeting held on April 16, 2008. An advisory board will be formed and it will meet in the coming months to advise on the structure, organization, and funding needs of this center.

This document and the outcome of the advisory board will serve as the foundation from which to finalize the business plan, seek funding and establish the center.

Acknowledgments

This meeting was made possible by efforts put forward by Dr. Michael McGill, Mr. David Gray, and the staff at the OSC. We also acknowledge Governor Ted Strickland for hosting this meeting. We extend our appreciation to all of the participants and support staff who made this planning meeting possible.

Appendices

Appendix A

Telehealth Video Resource Center Planning Meeting
Wednesday, April 16, 2008
8:00 AM to 4:30 PM Eastern
Ohio Supercomputer Center (OSC)
1224 Kinnear Road, Columbus, Ohio 43212

- 7:15 OSU Shuttle picks up guests from Hampton Inn, N. High Street, Columbus and travel to OSC
- 7:30 Continental Breakfast
- 7:30 -8:00 Video Conferencing Staff ensures all sites are connected
- 8:00 Introductions and purpose of the meeting
David Gray, World Bank serves as Moderator for the meeting
- Participants have been selected because of credibility
 - Result should be of value to all
 - Discussing the need for and approaches to a center(s) to:
 - Support High Quality Telehealth video
 - Act as a clearing house of expertise, technology resources
 - Provide a virtual gathering place to mutually determine priorities, goals and requirements
- 8:15 Welcome from Ted Strickland, Governor of the State of Ohio
- 8:30 Description of the ongoing events and resultant need
- Ed Johansen
 - David Gray
 - Arif Khan
 - Mike McGill
- Open discussion**
- 9:00 Description and discussion of the proposed center
- Encourage, promote and support -- David Gray
Use of high quality video for health:
 - Education
 - Research
 - Clinical Practice
 - Technical (Sample Recommendations) – Arif Khan
 - Network and video standards
 - Network and video support
 - Testing and operation
 - Coordination and prioritization (draft process) – Mike McGill

Steering committee to decide

- Priorities
- Agenda
- Use of resources
- Build on existing activities

Open discussion

10:00 Break

- 10:30 Setting the stage – the Neonatal case study
Steve Welty and Rachel Brown, MDs, Nationwide Children’s Hospital
- Standard practice a year ago
 - The opportunity
 - What we needed to make it happen
 - Demo
 - The experience since this was put in place
 - Benefits
 - Cost savings
 - What it costs to do it

Open discussion

12:00 Lunch

- 1:00 What will it take to make this happen—Stan Ahalt and Pankaj Shah
- Involved people
 - Technology
 - Organization
 - Marketing
 - Seed Money

Consideration of Operation and Sustainability Models -- David Gray

- Steering Committee
 - Make up and representation
 - Activities and responsibility
- Organization
 - Goals and objectives
 - Activities and responsibilities
- Start up
 - Seed Funding
 - Structure
- Fiscal - ongoing / sustainability

Open discussion

2:30 Break

- 3:00 Action Plan Development
An action plan will be developed by OSC, Internet2, World Bank and the State of Ohio Governor's Office and circulated/posted subsequent to and as a result of today's meeting
- Build on the previous discussion
 - Very short term needs and processes
 - Responsibilities and roles

Open discussion

- 4:30 Dismiss

Appendix B Attendance List

<u>Name</u>	<u>Organization</u>	<u>Location¹</u>
Stan Ahalt, PhD	Ohio Supercomputer Center	Ohio
Eric Andrew	Nationwide Children's Hospital	Ohio
David Barber	Ohio Board of Regents	Ohio
Rachel Brown, MD	Nationwide Children's Hospital	Ohio
Mark Carroll, MD	Indian Health Service, Health and Human Services	VTC
Jane A. Coury	Office of Global Affairs, Health and Human Services	Washington, DC
Nancy Carovassit	US Department of State	Washington, DC
Parvati Dev, PhD	Innovation in Learning, Inc	California
Robert Dixon	Ohio Supercomputer Center and The Ohio State University	Ohio
Charles R Doarn, MBA	Advanced Center for Telemedicine and Surgical Innovation, Department of Surgery, University of Cincinnati	Ohio
Linda Flickinger	Ohio Supercomputer Center	Ohio
Louis Fox	University of Washington, UW Technology	Washington
Larry Fruth, II, PhD	SIFA	
David Gray	World Bank	Ohio
Naser Hamdi, PhD	Jordan University of Science & Technology, Biomedical Engineering Department	Jordan
Tonia Harper	The Ohio State University Medical Center, Center for Minimally Invasive Surgery	Ohio
His Excellency Prof Hossam Hamdy	University of Sharaj, Medical & Health Sciences College	
Juan Homlek		
Ed Johansen	California Orthopedic Research Network	California
Jerry Johnson, PhD	The Ohio State University, College of Medicine, Department of Surgery	Ohio
Maha M. Kamel MD, PhD	Egyptian Embassy	Egypt
Arif Khan	Ohio Supercomputer Center	Columbus
Mohammad Adnan Khalil, MD	King Fahad Medical City Liaison, Basic Medical Sciences	Jordan
Kathryn Kelly	Ohio Supercomputer Center	Ohio
Janetta King	Governor's Office – Ohio	Ohio
Judy Levin	Fogarty International Center, National Institutes of Health	Washington DC
Thomas Cherian Mampilly, MPH	Fogarty International Center, National Institutes of Health	Washington DC
Michael McGill, PhD	Internet 2 Health Services	Ohio
Dave Melvin	Nationwide Children's Hospital	Ohio
Luiz Ary Messina	Rede Nacional de Ensino e Pesquisa	Brazil
Bill Mitchin	Isthmus, LTD	Ohio

Pat Molholt	Columbia University Medical Center	New York
Ivan Moore	Missouri Research & Education Network	Ohio
Brian O'Phillips	Ohio University, College of Osteopathic Medicine	Ohio
Don Patty	University of Maryland	Maryland
Rex Plouck	State of Ohio, Office of Information Technology	Ohio
Donald R. Rile, PhD	University of Maryland, R.H. Smith School of Business	Maryland
Dwayne Sattler	Ohio Supercomputer Center	Ohio
Paul Schopis	Ohio Supercomputer Center	Ohio
Pankaj Shah	Ohio Supercomputer Center	Ohio
Shuji Shimizu, MD, PhD	Kyushu University Faculty of Medicine, Department of Endoscopic Diagnostics and Therapeutics	Jordan
Margaret Spurgeon	Ohio Council of BH Providers	Ohio
Chad Smith	University of Southern California	California
Anil Srivastava	i-Bharti Health Foundation	VTC
H. David Todd, PhD	University of Vermont, Enterprise Technology Services	Vermont
Stephen E. Welty, MD	Nationwide Children's Hospital	Ohio

¹Note: Location – Some attendees participated by VTC – video-conference