Telemedicine at the University of Vermont Medical Center

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Professor of Psychiatry and Family Medicine,
University of Vermont College of Medicine
Medical Director, Telemedicine and Psychiatry Consultation Services,
University of Vermont Medical Center
PI, Northeast Telehealth Resource Center
Burlington, VT
We try to serve: Vulnerable or Underserved

- Rural or far away
- Poor
- Minority
- Very old or very young
- Mentally ill
- Physically challenged
- Urgent needs that cannot wait for routine appt.
- Complex medical comorbidity
History of Telemedicine at the UVM Medical Center

• Began mid-90s
• Mike Ricci, first Medical Director
  o Major growth through grants, recruitment, word of mouth
• TR succeeds MR in 2005
  o Three OAT grants to develop Northeast Telehealth Resource Center (NETRC)
  o Continued growth of pediatric critical care and NH telepsychiatry; implementation of palliative care, MFM, telederm, teleneuro, teleortho
  o Research collaborations with Brown and Cornell; Sherbrooke, QC
• Network links 16 hospitals and three nursing homes in VT and NY
• Delivers distance education (e.g., Grand Rounds), facilitates administrative contacts, and delivers tele-consultations in pediatric critical care, psychiatry (NH, child and adolescent), palliative care, maternal and fetal medicine, wound care, and other areas as requested/needed
• Research collaboration
  o Nursing home telepsychiatry, PTSD treatment for veterans and trauma responders, palliative care, homebound elders
• Website: [www.fahc.org/Telemedicine/](http://www.fahc.org/Telemedicine/)
UVM Medical Center Telemedicine Team

- Judy Amour, Projects and Grants Administrator
- Harry Clark, Telemedicine Coordinator
- Tara Pacy, Operations Director
- Terry Rabinowitz, Medical Director
- Mike Wehner, Manager
Thanks for Supporting Telemedicine!

John Brumsted  Charlie Jones
Claude Deschamps  Howard Schapiro
Steve Leffler  Norm Ward
Christina Oliver  Eileen Whalen
Mark Fung  Adam Buckley
Charlie Miceli  Bob Pierattini
Some Current TM Users!

- Julie Lin, MD
  - Dermatology
- Marj Meyer, MD & Eleanor Capeless, MD
  - MFM
- Mark Gorman, MD & Rup Tandan, MD
  - Neurology
- Pam Gibson, MD
  - Pathology
- Wendy McKinnon, Genetics Counselor, Marie Wood, MD
  - Oncology/Hematology
- Barry Heath, MD, Amelia Hopkins, MD, & Iris Toedt-Pingel, MD
  - Pediatric Critical Care
- Meg O’Donnell & Jason Williams
  - Government Relations, UVMMC
Opportunities to Help

• We are always looking for opportunities to help
  o If you have a need or an idea regarding patient care, research, collaboration, distance education, or administrative needs, it’s very likely we can come up with a telemedicine solution
An act relating to telemedicine

It is hereby enacted by the General Assembly of the State of Vermont:
Sec. 1. 8 V.S.A. chapter 107, subchapter 14 is added to read:

Subchapter 14. Telemedicine

§ 4100k. COVERAGE FOR TELEMEDICINE SERVICES

(a) All health insurance plans in this state shall provide coverage for telemedicine services delivered to a patient in a health care facility to the same extent that the services would be covered if they were provided through in-person consultation.
Telehealth Resource Centers
Telehealth Resource Centers

Office for the Advancement of Telehealth (OAT)

...provides support for the establishment and development of Telehealth Resource Centers (TRCs). These centers are to assist health care organizations, health care networks, and health care providers in the implementation of cost-effective telehealth programs to serve rural and medically underserved areas and populations.
We (UVM Medical Center, MCD, RMCL) competed for and were awarded two grants from OAT to develop and implement the Northeast Telehealth Resource Center (NETRC)

- We are currently on our third cycle
<table>
<thead>
<tr>
<th>Resource Center</th>
<th>Regions Covered</th>
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<tbody>
<tr>
<td>Arizona Board of Regents, University of Arizona (Southwest Regional Telehealth Resource Center)</td>
<td>Arizona, Utah, Colorado, New Mexico, Nevada</td>
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<tr>
<td>Regents of the University of Minnesota (Great Plains Telehealth Resource &amp; Assistance Center)</td>
<td>North Dakota, South Dakota, Nebraska, Iowa, Minnesota, Wisconsin</td>
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<tr>
<td>University of Arkansas for Medical Sciences (South Central Training Resource Center)</td>
<td>Arkansas, Tennessee, Mississippi</td>
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<tr>
<td>University of Hawaii (Pacific Basin Telehealth Resource Center)</td>
<td>Hawaii and U. S. Affiliated Pacific Islands</td>
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<tr>
<td>Georgia Partnership for Telehealth, Inc. (Southwestern Telehealth Resource Center)</td>
<td>Georgia, Florida, South Carolina</td>
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<tr>
<td>Indiana Rural Health Association Upper Midwest Telehealth Resource Center Consortium</td>
<td>Indiana, Illinois, Michigan, Ohio</td>
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<tr>
<td>University of Kansas Medical Center Research Institute (Heartland Telehealth Resource Center)</td>
<td>Kansas, Oklahoma, Missouri, Texas</td>
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<tr>
<td>Center for Telehealth and eHealth Law — CTEL (National Telehealth Resource Center)</td>
<td>National</td>
</tr>
<tr>
<td>California Telemedicine &amp; eHealth Center — CTEC</td>
<td>California</td>
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<tr>
<td>Medical Care Development Northeast Telehealth Resource Center — NETRC</td>
<td>Connecticut, Maine, Massachusetts, New Hampshire, New York, New Jersey, Rhode Island, Vermont</td>
</tr>
<tr>
<td>The Rectors and Visitors of the University of Virginia Mid-Atlantic Telehealth Resource Center</td>
<td>Delaware, DC, Kentucky, Maryland, North Carolina, Virginia, West Virginia</td>
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</table>
UVM Medical Center

- Network links 16 hospitals and nursing homes in VT and NY
- Delivers distance education (e.g., Grand Rounds) and tele-consultations in multiple specialties including psychiatry (NH, child and adolescent), palliative care, maternal and fetal medicine, neurology, & dermatology
- Research collaboration
  - Nursing home telepsychiatry, PTSD treatment for veterans and trauma responders, palliative care, homebound elders
NETRC Partners

Medical Care Development (MCD), Augusta, ME

- Program and Fiscal Management
- Outreach and Marketing
- Business Plan Development
Regional Medical Center (RMCL) at Lubec, ME
- Consultant to NETRC
- Formerly supported Maine Telehealth Services
- Enhance the capacity of rural providers
- Support a favorable policy environment
- Program analysis
- Conduct innovative projects that explore new technologies and contexts for use
Goals of NETRC

- Foster development of telehealth programs through technical assistance and clinical program support
- Enhance the capacity of rural providers
- Support a favorable policy environment
- Conduct innovative projects that explore new technologies and contexts for use
In a Nutshell

- TMEd at the UVM Medical Center & NETRC are here to help you deliver care to more folks in need
  - Telemedicine is a cool way to do this
    - Patients, clinicians, and families appreciate the time and effort that goes into providing care through telemedicine
  - And it works!
Thanks!
Technology Transformations in Health Care: Telemedicine in Vermont

The NETC Network

Presented by Jim Rogers, ProInfoNet
Jim Rogers’ Biography

President of ProInfoNet, Independent Telecom Consulting Firm, Founded in 1995

Founded New England Telehealth Consortium (NETC) in 2006

Formed HealthConnect Networks, to take the success of the New England project nationwide.
HealthCare Interconnectivity - Why?

- Share Information between HCPs
- Centralized applications or databases
- Multi-site communications
- Central access to public networks
- Reliability
- Quality of Service
HealthCare Interconnectivity - How?

Public Networks
Private Networks
Public Networks

Commodity Internet
Low Cost
Ubiquitous
No QoS or prioritization
No Guaranteed Bandwidth
Can run into excessive latency, especially with multiple ISPs
Issues with apps such as Telemedicine and PACS
Private Networks

HealthCare system WANs
Point to Point, cloud or packet
Guaranteed Bandwidth
Symmetrical Bandwidth
Quality of Service
Expensive
Support all Healthcare applications
  - Applications like Telemedicine that need prioritization, low latency and low packet loss
Why was NETC created?

To realize the vision of the FCC:

- *To connect all healthcare sites in the U.S. with a private, high bandwidth, quality of service network*

- *To Interconnect all healthcare sites with Commodity Internet and new high bandwidth networks like National Lambda Rail and Internet2*
What is NETC?

FCC/RHCPP award winner

$24.6 million award

Largest award and project in the U.S.

Non-profit, tax-exempt healthcare consortium of over 300 sites in Vermont, New Hampshire and Maine

Hospitals, Clinics, Behavioral Health, Medical Schools
What is the NETC Network?

Private Network
Supports all Healthcare Applications
Guaranteed Bandwidth
Symmetrical Bandwidth
Quality of Service
For applications that need prioritization, low latency and low packet loss
Designed by ProInfoNet
What the NETC Network Offers

- Eligible sites paid 15% of network costs
- Broadband 1.5 Mbps to 2 Gbps
- Quality of Service private network
- Commodity Internet and Internet2
- Support for IPv4 and IPv6
- Ethernet topology with Ethernet handoffs
- BGP peering services
- Redundant network core sites
- 24x7 NOC for management and support
NETC Participant Application Usage

% of Sites application Use

Centralized Nurse Call
Medical Info Displays
Remote Critical Care Monitor
Office Automation
Faxing Automation
Remote Med Specialist Diag
Communications Portal
Remote Rx Dispensing
Accounting
Digital Messaging
Practice Management
Email
Voice
Telemedicine
Video Conferencing
Electronic Health Records

Track 2: Technology Transformations in Health Care
Advantages of the NETC Model

Leverage of USF Subsidies saved millions
Lower prices through large group competitive bidding
Built a platform in which HCPs in 80 separate Healthcare Systems share information with high bandwidth and QoS
NETC cost effectively aggregates Internet and Internet2

Corporate Structure of Consortium
- Independent with a Board of HCP Participants
- Non-profit 501(c)(4)
The **New** Healthcare Connect Fund

HCF is the Successor to the RHCPP
Provides subsidies to Health Care Providers for Broadband connectivity
Eligible services include: network services, network equipment, Internet, I2/NLR
Urban and Rural Health Care Providers
Single site or Consortium of Health Care Providers
Advantages of HCF Subsidies

Admin and Data Center sites can receive subsidy
Better network pricing by leveraging large group Consortium purchasing
65% subsidy available
Secure 3 years of funding
Consortium uses less administrative labor than if done with separate HCPs
Definition of HCF Eligible Services

“Any advanced telecommunications or information service that enables HCPs to post their own data, interact with stored data, generate new data, or communicate, by providing connectivity over private dedicated networks or the public Internet for the provision of health information technology.”
Thank You!

- Jim Rogers, President, ProInfoNet and HealthConnect Networks
- 207-947-3636
- jrogers@healthconnectnetworks.com
Telehealth: The Real Gamechanger in Health Reform

Karen M Bell MD MMS
Director, Center for Sustainable Health and Care
JBS International, Inc.

kbell@jbsinternational.com  781-801-4145

Federal interest and support

• Payment Reform
• HIT
• Focus on quality as well as costs of care
• Focus on the needs of consumers and patients

But…..

• Alternative payment models have been around for a long time: Remember the capitation days of the early 90’s? Most common ACO payment model now: Shared savings with upside risk only --- essentially FFS with Q/C bonus
• Focus on care coordination not new: Remember Ed Wagner’s Chronic Care Model from 20 years ago?
• HEDIS quality measures have been around since early 1990’s
The Real Differences

Health Information Technology
- Electronic Health Records
- Health Information Exchange
- “Big Data” analytics
- Potential for improved communications

Delivery system culture change from autonomous to team based care
- Patient Centered Medical Homes
- Accountable Care Organizations

Acknowledgement that Population Health requires more than healthcare
- Social Determinants of Health: 40%
- Health behaviors: 30%
- Delivery system: 20%

Focus on patient and consumers: the Person at the Center
- Shared care management
- Seamless interaction with health/care system
- Self-management and prevention
Historical Silos  ➡️  Fragmented Care

**Payer: Focus on Members Costs, and Measures**
- Contracts with multiple providers
- Benefits vary per member
- Available networks per member
- Claims (what was paid for)
- Diagnoses (on claims)
- Clinical data extracted for quality measurement purposes (HEDIS) for NCQA, PQRI, etc.
- Emphasis on measurement

**Providers: Focused on the Patient and Internal Care Workflows**
- Reimbursed by multiple payers under multiple contractual arrangements
- Cares for multiple patients with multiple benefit structures/networks
- Cares for patients who see multiple other providers
- Has information on care generated at point of care only

**Community Based Care: Focused on Individual Needs**
- Outcomes and goals
- End of life wishes, living wills, etc.
- Cultural preferences
- Health risks
- Public Health programs
- Patient monitored data
- Pastoral, social, familial caregiver supports
- Independent of payer or provider
Telehealth: What is It?

Definitions -- varies within the Federal government and state by state. Vermont definition:

Telehealth is the **HIPAA-compliant** use of health information exchanged from one site to another via **electronic communications** to improve a person’s **health and well-being**. Telehealth includes a **growing variety of applications and services** using interactive audio-visual communication, asynchronous audio-visual transmission of information, secure email, remote monitoring of physiological parameters, and activities using remote monitoring devices, mobile applications, and other wireless tools and technologies.

ONC, recognizing that it is integral to the HIT infrastructure, currently developing a Federal definition
Telehealth: Why Now?

Payment reform, Payment reform, Payment Reform

1. Meaningful Use: Secure messaging
2. MSS/Upside risk only: Care coordination supported by remote monitoring, exchange of health information among providers, reminder systems
3. MMS/Downside as well as Upside financial risk: integration of BH and PH; tele-education, virtual encounters
4. Episode or Bundled payments: asynchronous store and forward technologies
5. Global budgets or capitation across the spectrum of care: tele-ICUs and specific programs from hub to community facilities, social networking.

How to Proceed?

Designate a Coordination Entity

- Develop an overarching strategy that aligns with organizational goals and objectives
- Engage stakeholders, coordinate implementation of, and monitor the strategy
- Monitor the state and national telehealth environment
- Advocate for, track, and promulgate policy changes
- Leverage purchase of products and services
- Create and monitor outcome measures of value
- Coordinate telehealth-related activities within the organization
- Prioritize areas where services can expand.
- Maintain a website where all information related to telehealth is readily accessible.
What to Consider

Technology
- Secure
- Data is interoperable with other systems (exchanged through an HIE)
- Cloud based where appropriate
- Can be supported by sufficient broadband or wireless platforms
- Useable

Policy
- Financially sustainable (reimbursement)
- Licensure related issues (avoid further fragmentation or care)

Culture
- Clinician workflow
- Patient/consumer expectations
- Guidelines for use
- Investment choices
Summary

Telehealth the key factor supporting the success of health reform initiatives by

- Improving the health of the population through self management and behavior change
- Providing access to necessary care where and when it is needed
- Supporting communication among providers and between clinicians and patients
- Enabling integration of care across settings
- Proven cost avoidance

Must be attentive to IOM’s direction for care: Safe, Effective, Efficient, Timely, Patient Focused, and Equitable