Growing Telehealth

Getting from Here ... to There

Stewart Ferguson Ph.D., Director of Telehealth, ANTHC
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Here: Functional Telehealth Programs and Projects

Current successes and lessons learned for policies and funding objectives.
“Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve patients' health status.”

“... "telehealth" .. is often used to encompass a broader definition of remote healthcare that does not always involve clinical services.”

ATA Defining Telemedicine
Telehealth Workflow Challenges

- Multi-provider, multi-region, multi-organization, multi-jurisdiction, patient participant...

- Focus on integrating with the way providers work and formalizing relationships and mutual responsibilities:
  - Who accepts referrals?
  - Do they have specific data requirements?
  - How fast must they answer?
  - How do you track what is happening?
  - How is everyone paid?
  - Who gets notified and must respond when the patients telemetry data tanks?
AFHCAN Telehealth

- 8 year Operational History
  - 12,000 cases / year
- Research and Production Telehealth System
  - Design → Installation → Training → Support → Marketing

- Installed Customer base includes:
  - Alaska: 248 sites, **44 organizations**
    - 37 Tribal organizations
    - US Army sites (6) & US Air Force bases (3)
    - State of Alaska Public Health Nursing (26)
    - US Coast Guard clinics (5)
    - US Coast Guard cutters and ice breakers (6)
  - Lower 48, Panama, Greenland
Store & Forward vs Real-Time Telehealth

Store & Forward

- Asynchronous Interaction
- Documents & Images
- Electronic Medical Records
- Patient Education

Real-Time (VtC)

- Face-to-Face Interaction
- Immediate Feedback

Remote consultation

Clinical specialties for telemedicine

- Radiology
- Dermatology
- Pathology
- Oncology
- Ophthalmology
- Dental

- Cardiology
- ENT
- GI
- Pulmonary
- Rheumatology

- Psychology/ Psychiatry
- Neurology
- Speech therapy
- Physical therapy
Case originated...
...Case received.
A Primary Care Tool

- **Ear Disease**
  - Audiometer, Tympanometer, Video Otoscope
- **Heart Disease**
  - ECG & Vital Signs Monitor
- **Respiratory Illness**
  - Spirometer & Vital Signs Monitor
- **Trauma, Skin & Wound**
  - Digital Camera
- **Dental Problems**
  - Dental Camera
- **General**
  - Scanner & Forms
- **Urgent Care / Critical Care**
  - Video Camera
A User Interface Designed by Clinicians

- Simplicity is key for Case Creation.
  - Minimize need for keyboard skills
  - Touchscreen
  - Color coded

- Rich Web Interface for Specialists
Fitting Existing Clinical Workflow

- The AFHCAN software supports existing referral patterns ...
  - The software enables and facilitates healthcare delivery without generating new business rules.

- ... and serves as a platform for new clinical relationships.
  - Trust Relationships can be established between one or many organizations

Provides controlled, secure and robust data sharing consistent with HIPAA Privacy and Security requirements
ANMC Departments now accepting Telehealth cases

- Cardiology
- CHA/P Training
- Dermatology
- Endocrinology
- Emergency Room
- ENT
- Ophthalmology
- Inpatient Pediatrics
- Pediatric Critical Care
- Podiatry
- SCF Pediatrics
- SCF Family Medicine
- SCF Women’s Health
- Surgery
- Urology
- Trauma Follow-Up
Appropriate application of telehealth technologies creates a more efficient care delivery system.

This is shown through more rapid access, decreased burden on resources, and lower “system” costs.
THE ALASKA NATIVE HEALTH CARE SYSTEM

Location Names and Service Level

- HOSPITALS
- MGH HEALTH CENTERS
- PA/NP HEALTH CENTERS
- CHA CLINICS

Bold Face Names indicate that a higher level of Contract Health Care is available in that town.

Air travel required:

Provider

Patient
Patient travel is prevented for almost 80% of all specialty consults.

Travel is prevented for about 20% of all primary care cases.

Responses were received to the travel question on 13,510 cases.
### Impact of Preventing Patient Travel

<table>
<thead>
<tr>
<th></th>
<th>Primary Care</th>
<th>Specialty Consults</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Annual (2007)</td>
<td>TOTAL</td>
</tr>
<tr>
<td>Number of Cases</td>
<td>8614</td>
<td>38,061</td>
</tr>
<tr>
<td></td>
<td>2605</td>
<td>10,685</td>
</tr>
<tr>
<td>% Preventing Travel</td>
<td>20.5%</td>
<td>20.7%</td>
</tr>
<tr>
<td></td>
<td>77.8%</td>
<td>72.5%</td>
</tr>
<tr>
<td>Savings</td>
<td>$0.79 m</td>
<td>$3.55 m</td>
</tr>
<tr>
<td></td>
<td>$2.73 m</td>
<td>$10.45 m</td>
</tr>
</tbody>
</table>

Travel savings generated by the use of AFHCAN telehealth amounts to approximately $14 million for 15,600 patients.

Annual travel savings, based on 2007 data, is approximately $3.5 million for 3,800 patients.
# Medicaid Study

*Decreased Travel = Cost Savings*

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**Notes:**
- Only specialty clinic travel is being saved.
- 86% of cases were from village → region
- Assume all cases had an escort
- Travel costs average $307.57 RT per person
- No lodging / per diem calculated

**Net Savings Realized by Medicaid**

$48,467

**Note:** For every $1 spent by Medicaid on reimbursement, $7.95 is saved on travel costs.
Successful Telehealth Usage

Telehealth is most successful when it obviates a need for a further “in–person” visit with a specialist.

In a recent study of 1,933 telehealth cases created from 2002–2007 at one regional partner, 90% of the patients did not need to see a specialist.

- Cost savings: $514,200 for travel alone.
- The 219 patients requiring an “in–person” could be appropriately triaged.
Impact of Telehealth on Causing Patient Travel

“Our team and the community health aide utilized the EKG capability of the telemedicine cart, captured the EKG and sent it to the regions hospital for closer review. … We were later briefed it probably saved his life.”

WILLIAM E. SORRELLS, Capt, USAF, MSC, FACHE, CPHIMS. 3rd Medical Group, Elmendorf AFB
Meeting “Standards of Care”

- Post-surgical follow-up is difficult for patients from remote settings.
- Telehealth provides ability to monitor and followup.

- Validated model
- “Reverse Consult” empowers CHA/Ps and midlevels to respond to requests from specialists.

“Many simple problems, such as tympanostomy tube follow-up can be done with telemedicine without asking the patient to leave their village. “

ENT Specialist
A review of 56 telehealth cases that led to direct surgical referrals found:
- **92.9% accuracy** in predicting procedure
- **31 minute average** difference in predicted versus actual operative time.

By comparison, a matched selection of 56 non-telehealth referrals for surgery:
- **87.5% accuracy** in predicting procedure
- **36 minute average** difference in predicted versus actual operative time.
Clinical Feedback

Post cochlear implant rehab
Telehealth Impact on Extended Waiting Times (> 4 months)

Percent Appointment Availability With 5 Month or Longer Wait Time

- Pre-Telemed 1991-2001 (n=1216)
- With Telemed 2002-2004 (n=276)
- With Telemed 2005-2007 (n=210)

Data courtesy of Phil Hofstetter
Data courtesy of Phil Hofstetter
Example of Dynamic Re-Distribution of Telehealth

- Village Clinics
- SubRegional Clinics
- Regional Hospital

<table>
<thead>
<tr>
<th>Year</th>
<th>Village Clinics</th>
<th>SubRegional Clinics</th>
<th>Regional Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>200</td>
<td>50</td>
<td>100</td>
<td>350</td>
</tr>
<tr>
<td>2006</td>
<td>300</td>
<td>100</td>
<td>80</td>
<td>480</td>
</tr>
<tr>
<td>2007</td>
<td>500</td>
<td>200</td>
<td>150</td>
<td>850</td>
</tr>
<tr>
<td>2008 (Proj)</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td>1300</td>
</tr>
</tbody>
</table>
Traveling Audiologist Program

<table>
<thead>
<tr>
<th>Patient Visits</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,458</td>
<td>($141,000)</td>
</tr>
</tbody>
</table>

Patient Travel Prevented

<table>
<thead>
<tr>
<th>Patient Visits</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>755</td>
<td>$310,000</td>
</tr>
</tbody>
</table>

Assumptions:
- Only travel to hub is being saved.
- Escort required if patient less than 18 years old
- No lodging / per diem calculated

Note: 502 less than 18 yrs old

Net Savings in Travel Costs

$169,000
(120% ROI)
About 69% of the patients seen needed something done (meds, surgery, ongoing monitoring) and 27% needed to be screened out.

Note 1: 1,458 patients

Note 2: Percentages may not add to 100% due to multiple outcomes per case.
734 Medicaid Patients (50.3% of 1,458 total)

- Travel was saved for 646 (83%) of the patients
  - Most of these (533) would have required a parent or guardian to travel.
  - Mean savings is $443/patient ... compared to $100/patient for running the program.

- 29% were directly referred to Anchorage for surgery or testing.
ANMC: Access To Care

4,457 consult requests received at ANMC from Sep 2006 to Sep 2008

Median Time Spent by a Consultant Responding to a Case

ANMC provides same day turnaround time on 65% of all telehealth cases, and completes 84% of all telehealth cases by the next business day.

50% of all cases being turned around in one day are actually turned around in 1 hour.

Average response rate for “same day” turnaround is 2.5 hours.

Median Time per Case

<table>
<thead>
<tr>
<th>Originating Site</th>
<th>Consultant Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>20.5 min.</td>
<td>6.0 min.</td>
</tr>
</tbody>
</table>
ANMC Consultation Time to 5 Organizations

Annual Consult Time (days)

2002 2003 2004 2005 2006 2007

0.0 2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0

2002 2003 2004 2005 2006 2007

Annual Consult Time (days)
80% of all consult prevent patient travel

Each year, 1 to 2 cases caused travel
Three remote sites (Jan ‘09)

96 Patients imaged
- 66 patients → follow up in 12 mo.

30 patients have pathology that require an in-person visit with an ophthalmologist
- 11 with diabetic retinopathy
- 19 with additional pathology: Large optic cups, hard exudates, macular drusen, pseudophakia, ungradeable images with hx

Diabetic Retinopathy is the leading cause of new blindness among adults

Blindness due to diabetes can be eliminated by timely Dx and Tx
For this case, rate the following statement:

Telemedicine helps me COMMUNICATE with a doctor. \( (n=2,672) \)

- Strongly Disagree: 4%
- Disagree: 0%
- Neutral: 8%
- Agree: 39%
- Strongly Agree: 49%
<table>
<thead>
<tr>
<th>Percentage</th>
<th>Description</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>64%</td>
<td>Helped <strong>EDUCATE</strong> patient</td>
<td>N=2,605</td>
</tr>
<tr>
<td>76%</td>
<td>Made <strong>JOB MORE FUN</strong></td>
<td>N=2,852</td>
</tr>
<tr>
<td>77%</td>
<td>Improved <strong>PATIENT SATISFACTION</strong></td>
<td>N=2,441</td>
</tr>
<tr>
<td>86%</td>
<td>Improved <strong>QUALITY OF CARE</strong></td>
<td>N=2,512</td>
</tr>
<tr>
<td>88%</td>
<td>Helped <strong>COMMUNICATE</strong> with doctor</td>
<td>N=2,672</td>
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Percentages of cases created to which the provider “Agreed” or “Strongly Agreed” with the statement.
Consistent with Federal efforts to increase access to, and completeness of, health record.

- S&F Telehealth creates an extraordinary health record.
  - Multimedia, rich, timely, appropriate.
- “Forces” providers to create better documentation.
- Highly auditable

Agencies are discussing how to connect disparate technologies.
New Consultative Models

Regional Hospital
- Referral Request
- Referral Complete

Alaska Native Medical Center
- Front Desk
- Case Managers
- Assistant Case Managers
- Physicians

Referral Request Office

Referral Complete
There: Efficient and Timely Health Care Delivery ... that leverages our existing telehealth expertise.

What will be needed from policy, resource, structure standpoint to expand telehealth
In the simplest terms, our behavior in medical systems is driven by:

- Our commitment to deliver quality care
- Considerations of the cost of delivering that care
- And what is reimbursed and what is not
Alaska enjoys a very supportive “reimbursement” climate.
  ◦ Medicaid, Medicare, 3rd party payers.

There is no current system to “quantify” store and forward effort for reimbursement.
  ◦ The current Evaluation and Management (E&M) coding system is an imperfect fit.

The payment system is misaligned with costs and benefits for telehealth.
  ◦ Method of reimbursement provides no incentive to create and send case.
# Coding Levels

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<th>Code</th>
<th>Level</th>
<th>Description</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>99201</td>
<td>1</td>
<td>New Patient, E&amp;M Level 1</td>
<td>2%</td>
</tr>
<tr>
<td>99212</td>
<td>1</td>
<td>Established Patient, E&amp;M Level 1</td>
<td>44%</td>
</tr>
<tr>
<td>99241</td>
<td>1</td>
<td>Consult Level 1</td>
<td>53%</td>
</tr>
<tr>
<td>99202</td>
<td>2</td>
<td>New Patient, E&amp;M Level 2</td>
<td>0%</td>
</tr>
<tr>
<td>99213</td>
<td>2</td>
<td>Established Patient, E&amp;M Level 2</td>
<td>0%</td>
</tr>
<tr>
<td>99242</td>
<td>2</td>
<td>Consult Level 2</td>
<td>0%</td>
</tr>
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</table>
For those who send...

**YES**
- Time
- Effort
- Equipment
- Network costs
- Training
- Upkeep

**NO**
- Reimbursement
- Incentive
## Medicaid Study

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Reimbursement is critical for...

- **Technology development**
  - Hardware
  - Software

- **Clinical applications**
  - Correlation studies

- **Pilot projects**
  - Promote usage

- **Expand Reinvest**

- **Sustainability Reimbursement**

- **Incorporate as standard clinical operation**

- **Sustaining and expanding existing systems and demonstration projects**

- **Promoting creation of new systems and applications for telehealth**
Perception:

“ It does not appear that teleotolaryngology has appeared on most practitioner’s radar since there is little or no reimbursement.

... Until that happens, I think it will be of minimal interest ”
A Systems Approach to Large Scale Deployment

- Workflow processes and relationships must be in place prior to telehealth
- Systematic approach to training and support
- Promote and sustain utilization
  - Key to cost savings
  - Marketing, promotion, incentives for use

- Creating large scale provider networks to get the full benefit of telehealth investment
  - Benefits are mostly realized when large scale is achieved.
Costing Model

System Variables include:

- Patient location
- Patient age
- Provider location
- Reimbursement rates
- Denial rates
- Predicted coding levels
- Payer mix
- Facility fee
- Telehealth originating fee
- Encounter type
- Travel costs
- Lodging costs
- Per diem costs
- No Show rate
- Patient lost work time
- Provider lost work time
- Length of encounter
- Support staff cost
- Clinic space costs
- Clinic equipment costs
- Hardware costs
- Software costs
- Support costs
- Connectivity costs
- Provider salary
- Training costs

Estimating the COST PER ENCOUNTER for delivering specialty care … by traditional versus telehealth model

- Telehealth is more cost effective at higher volumes.
- Highly sensitive to:
  - How often telehealth eliminates the need for subsequent in-person encounter.
  - Originating telehealth from patient’s location.
TRAINING NEW USERS
Each year, 35% of the users are using the AFHCAN system for the first time.

EMPOWERING EXPERIENCED USERS
Each year, 85% of the cases involve only “experienced” AFHCAN users.
A Centralized Approach

- **Design Services**
  - “Readiness” Assessment
  - Technology Assessment
  - Design: Interfaces, Software/Hardware Platforms

- **Deployment Services**
  - Installation, Certification, Training

- **Clinical Services**
  - Specialty Centers
  - Care delivery Models

- **Support Services**
  - Information Technology, Interface
  - Training
  - Marketing

- **Business Services**
  - Legal, Regulatory, Contractual, Coding, Reimbursement

- **Evaluation and Outcomes**
Other Opportunities

- Leverage simplicity of existing design:
  - User Interface, Portable Systems
  - Custom Forms – e.g. Federal Disaster Health Form

- Public Health Preparedness and Emergency Response
  - Multimedia / Secure reporting
  - Secure response to “last mile”

- Epidemiology and Disease Surveillance
  - Simple interface & equipment at “last mile”

- Environmental Public Health
  - Aggregation and Reporting of test results – e.g. arsenic / lead

- Prison systems
Added Benefits

- S&F Telehealth results in a better medical record, especially with EHR integration.

- S&F Telehealth provides an excellent audit log to minimize fraud and abuse.

- Improved communication can play a role in:
  - Public Health Preparedness and Emergency Response
  - Epidemiology and Disease Surveillance
  - Environmental Public Health
Recommendations

- Keep Medicaid reimbursements for Telehealth.

- Determine if State of Alaska should / will play a role in supporting the expansion of telehealth within Alaska.
Recommendations – Growth

- Create a more appropriate reimbursement model.
  - Fee structure for “creating” a telehealth case (Q3014). Supported by time studies.
  - Create an “all in one” fee structure for telehealth consultations.
- Legislate 3rd parties payers to reimburse for telehealth.
- Support initiatives to grow usage within private sector, prisons, and other markets.
- Create a small telehealth advisory board to provide feedback and suggestions to the state.
Thank You

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