Innovations and Possibilities in Connected Health

Elizabeth A. Krupinski, PhD
Learning Points

1) Describe TM fundamentals

2) Understand advantages TM practice

3) Appreciate role TM standards & guidelines
Transfer medical info via telecommunication technologies for consulting or remote procedures or exams

Separate subspecialty
MGH – Logan Airport Medical Station
4 Miles by Tunnel Under Boston Harbor
1968 - 1975
Dr. Ken Bird (circa 1968)
Medical World News
July 26, 1968

MGH Psychiatrists
Now Turning to TV
To Interview Patients

St. Anthony's
Attracts
TM Early Efforts

• MGH inspired other programs
  – NASA

• Limited by technology
  – Microwave, satellites (i.e., no Internet!)
  – TV studio equipment
  – Unwieldy

• Expensive

• Waxed & waned until 1990s
Western Governors’ Association
Telemedicine Action Report - 1995

- Infrastructure Planning & Development
- Telecommunications Regulation
- Reimbursement for Telemedicine Services
- Licensure & Credentialing
- Medical Malpractice Liability
- Confidentiality
Inmate shot trying to flee clinic

He’s expected to live, lose ‘low-risk’ rating

By M. Scot Skinner
© 1999 The Arizona Daily Star

A convicted rapist with a history of escape was shot yesterday morning after assaulting a guard and bolting from a Tucson radiology clinic, authorities said.

Arizona prison officials had assigned Stewart Bradley Carver a low-security rating, despite his having a lengthy record of violent crime and twice escaping from jail in Missouri.

Carver, convicted of robbing, kidnapping and raping a Phoenix woman in 1986, was serving a life sentence plus 28 years at the Eyman unit in Florence.

He and another inmate were taken to the midtown clinic in shackles yesterday, accompanied by two Department of Corrections officers. The inmates were there for MRI scans, ordered by prison doctors. The shackles had to be taken off for technicians to do the scan.

Moments after Carver’s restraints were removed, he attacked the guard assigned to him and tried to take the officer’s gun. He then ran from a trailer housing the MRI machine and ignored warnings to halt, said Michael Arra, a DOC spokesman.

The other officer, a three-year DOC veteran, fired two shots from his 9mm handgun — one missed, the other grazed Carver’s neck, authorities said. Carver is expected to survive.

Arra refused to identify the guards.

Carver, 36, was transported to University Medical Center.

According to law enforcement officials in Arizona and Missouri, Carver’s felony criminal record dates to 1981, when he was convicted of...
AZ Telemedicine Program

- 1996 AZ State Legislature pilot proposal
  - Senator Bob Burns (Appropriations Committee)
  - $1.2 million per 3 years, 8 sites
  - UofA CoM Ronald Weinstein, MD Director
  - AZ Telemedicine Council
  - Statewide HealthCare Telecom system
  - ATP program personnel
  - Types of activities & services
2013 Membership

Legislators

Senate President Robert Burns (retired)
Representative Matt Heinz, M.D.
Representative John Kavanagh

Agency Members

Bureau of Emergency Medical Services - Ben Bobrow, MD
United Healthcare - Donald A. Graf
Joint Legislative Budget Committee - Steve Grunig
Arizona Lottery - Jeff Hatch-Miller
Arizona Department of Health Services - Will Humble, MPH
Arizona Health Care Cost Containment System (AHCCCS) - John Molina, MD
Arizona Strategic Enterprise Technology (ASET) - Galen Updike

Public Members

Native American Health - Mark Carroll, MD
Northern Arizona Area Health Education Center (NAHEC) - Sean Clendaniel
Mayo Clinic Hospital - Bart Demaerschalk, MD, MSc, FRCP(C)
Copper Queen Community Hospital – James Dickson, CEO
University of Arizona, College of Medicine Phoenix - Stuart D. Flynn, MD
AZ Telecommunications & Information Council - Ralph Gierish
University of Arizona, College of Medicine - Tim Hunter, MD
Keeling Law Offices - Michael C. Keeling, Esq.
AZ College of Osteopathic Medicine Midwestern University - Lori A. Kemper, DO
University of Arizona, College of Medicine - Stephen A. Klotz, MD
Barrow Neurological Institute - Alan Pitt, MD
Northern Arizona Regional Behavioral Health Authority (NARBHA) – Nancy Rowe
Arizona Health-e Connection - Melissa Rutala
Flagstaff Medical Center - Gigi Sorenson, RN, MSN
Good Samaritan Regional Medical Center - Mark Smith, MD
Vitaphone USA - Brad Tittle
Mayo Clinic - T’Nita Waters
Carondelet Health Network - Donn Zazworsky, RN, MS, CCM, FAAN

Ex-Officio Members – Guests

Michael Adu-Tutu, DDS, MBA, CCHP-A
AZ Department of Education - Bruce Groll, PhD
Banner Health System - Steve Sowards
Goals

• Create shared TH communications network
• Develop comprehensive business plan
• Diversify funding sources so don’t rely too heavily on any one source
• Satisfy requests for different levels & types TH services
Program Sites

- Community Health Centers
- Prisons and their service providers
- Jails
- Non-Indian Rural Hospitals
- Schools
- Indian Healthcare
- Distance Learning Affiliates
- International sites
- Urban Hospitals
Virtual Organization

- AZ Telemedicine Network
- AZ Telemedicine Program
- AZ Diabetes Virtual Center of Excellence
- T-Health Institute Advanced TM & TH
- Southwest Telehealth Resource Center
- ATP High School Summer Fellowship
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• Application Service Provider (ASP)
  – 3rd party enterprises act as brokers
  – Shared cost model capitalize on economies of scale
  – Advantages = low capitalization, low management & staffing overheads, pay-per-use format
• In TM some apps underutilized & others not so share services across orgs
<table>
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Fee Structure

• All services managed by ATP (turn-key operation)
  – Equipment selection & installation
  – Network design & installation
  – Formal training theory & use
  – Coordination CE events
  – Network mngt, tech services & support
  – Training & support billing & reimbursement
  – FCC Universal Services fund reimbursement
Fee Structure

• Select services only
  – CE/CME only
  – Network consultation only
  – Network connection only
  – Training costs for non-members

• Membership-derived revenue ~ 30%
  – 45% state, 24% grants, 1% University
Fees

- Full membership: $5400
- Multisite discount: $2700
- CME/CE only: $1620
- VPN only (ATP set up): $1620
- VPN only (no ATP set up): $540
- Hourly network charge: $165
- Training course: $300

Do not include equipment or telecom
Services

- Teleradiology ~ 2,000,000
- Telemedicine hub > 30,000
  - 24% SF, 76% RT
  - > 55 clinical sub-specialties
  - Newborn – geriatric
  - Rural, DoC, IHS, border, school, home etc.
- External telemedicine > 150,000 + other programs
- Administrative hub > 8500
- CE hub > 15,000 attendees / 1800 events
Subspecialty Consultations

Anesthesiology
Cardiology
Dental
Dermatology
Endocrinology
Gastroenterology
Genetics
Geriatrics
Hematology/Oncology
Hepatology
Infectious Disease
Integrative Medicine
Internal Medicine
Molecular Diagnostics
Nephrology
Neurology
Trauma

Neurosurgery
Ob/Gyn
Ophthalmology
Orthopedics
Otorhinolaryngology
Pain Clinic
Pathology
Peds. Cardiology
Peds. Dermatology
Peds. Endocrinology
Peds. Gastroenterology
Peds. Hem/Onc
Peds. Infec. Disease
Peds. Nephrology
Peds. Neurology
Peds. Ophthalmology
Peds. Oral Surgery

Peds. Orthopedics
Peds. Psychiatry
Peds. Pulmonology
Peds. Rheumatology
Peds. Urology
Psychiatry
Radiology
Reprod/Infertility
Rheumatology
Sports Medicine
Surgery
Surgical Oncology
Transplantation
Toxicology
Urology
Vascular
Wound Mngt
Tele-Orthopedics & Tele-Rehab
Neonatal Intensive Care Unit (NICU) Services for Yuma, AZ including tele-ECHO Cardiology
Colostomy

Urostomy
Impact

• Continual network growth
• High clinician & patient satisfaction
• Improved technology & clinical services @ rural sites
• Reduced xfer & travel rates
  – Cardiology, stroke, ID
  – Trauma services
  – DoC
Impact

• Reduced waiting times
  – DoC
  – Dermatology
  – Radiology

• Increased compliance
  – NA adolescent psych

• Costs – depends! ~ 38% difference

"Sorry the doctor is running behind. You can keep today's appointment or I can fit you in tomorrow...whichever comes first."
Reimbursement

“I'm sorry, but stress caused by trying to figure out your health insurance is not covered by it.”
50 State Medicaid Today

- All cover imaging
- 44 states cover something
  - 39 telemental health
  - 17 home telehealth
  - 11 remote patient monitoring
  - 7 store-and-forward
- Comprehensive risk-based managed
  - 29.1M (51%)
  - 26 states with >50% of recipients
AK State Law

• “Telemedicine means the practice of health care delivery, evaluation, diagnosis, consultation, or treatment, using the transfer of medical data through audio, video, or data communications that are engaged in over two or more locations between providers who are physically separated from the patient or from each other.”

Source: AK Admin. Code, Title 7, 12.449
AK Medicaid Will Pay For

• **Interactive:** Provider & patient interact RT using video/camera &/or dedicated audio conference equipment

• **Store-&-forward:** Provider sends digital images, sounds, previously recorded video to consulting provider at different location; consulting reviews info & reports back analysis

• **Self-monitoring:** Patient monitored in home via TM application with provider indirectly involved from another location
Live Video Reimbursement

• Covered under traditional, non-TM methods
• Provided by treating, consulting, presenting or referring provider
• Appropriate for provision via TM
  – Initial or 1 FU office visit
  – Consultation made confirm diagnosis
  – Diagnostic, therapeutic or interpretive service
  – Psychiatric or substance abuse assessments
  – Individual psychotherapy or pharmacological management services
Live Not Reimbursed

- Home & community-based waiver services
- Pharmacy
- Durable medical equipment
- Transportation
- Accommodation services
- End-stage renal disease
- Direct-entry midwife
- Private duty nursing
- Personal care assistants
- Visual care, dispensing or optician services
- Tech equipment & systems associated with TM
SF Reimbursed

- To be eligible for payment under store-&-forward service must be “provided through transference of digital images, sounds, or previously recorded video from one location to another to allow consulting provider to obtain information, analyze it, & report back to referring provider”
Remote Monitoring Reimbursed

• To be eligible for payment under self monitoring or testing “services must be provided by telemedicine application based in recipient’s home, with provider only indirectly involved in provision of service”
Email/Phone/Fax

• No reimbursement for telephone
• No reimbursement for FAX
  – AK DHSS, AK Medical Assistance Provider Billing Manual, Section1: Physician, Advance Nurse Practitioner, Physician Assistant: Services, Policies, Procedures
• Reimbursement for phone, only if part dedicated audio conference system
• No fax
  – AK Admin Code, Title 7, 110.625
Online Prescribing

• Physicians are prohibited from prescribing medications based solely on a patient-supplied history received by telephone, FAX, or electronic format

  – AK Admin. Code, Title 12, Sec. 40.967
Site/Transmission Fee

• Will pay only for professional services for TM application service
• Will not pay for use technological equipment & systems associated with TM application to render service
Community Behavioral Health

• Will pay CBHS provider for facilitation TM session if:
  – TM communication equipment supplied by provider
  – Electronic connection used by treating provider & recipient established & maintained by provider
  – Provider remains available during TM session to reestablish failed connection before intended end session
  – Provider documents in recipient’s clinical record note summarizing facilitation each TM session (facilitating provider not required document clinical problem or treatment goal as are documented by treating provider)

• May be rendered to following eligible recipients:
  – Child or adult experiencing substance use disorder or emotional disturbance
  – Adult experiencing serious mental illness
No Specific References To

- Consent
- Location
- Cross-state licensure
- Private payers
Contacts

- **Medicaid Program:** AK Medicaid
- **Program Administrator:** AK Dept. Health & Social Services, Division of Public Assistance
- **Regional Telehealth Resource Center:**
  - Northwest Regional Telehealth Resource Center
  - 2900 12th Ave. N., Ste. 30W
  - Billings, MT 59101
  - (888) 662-5601
  - [www.nrtrc.org](http://www.nrtrc.org)
Medicare Today

- Originating sites
- Distant site practitioners
- Telehealth services
- Billing & payment professional services furnished via TH
- Billing & payment for the originating site facility fee
- Resources
- Lists of helpful websites and Regional Office Rural Health Coordinators
Medicare FFS Barriers

- Limited live video
  - Only rural counties (20% of beneficiaries)
  - Limited originating sites
- Limited providers
- Only specific procedures
- No store & forward
- No remote patient monitoring
Medicare Prospects

• Payment innovations
  • CMMI
  • ACOs
  • Bundled hospital and/or post-acute
• Bipartisan Harper bill
  • Payment innovations
  • More rural
  • Into metro areas
  • Into home
Private Insurance

- **Today**
  - 19 states + DC w/parity
    - 7 w/10+ years experience
    - Many insurers choose to cover
- **Prospects**
  - 31 w/o parity
  - 10 with 2014 proposals
Local considerations

- Parity legislation
- State level positions
  - [https://www.health.ny.gov/professionals/doctors/conduct/telemedicine.htm](https://www.health.ny.gov/professionals/doctors/conduct/telemedicine.htm)
- State level TM licenses
  - [http://www.nmmb.state.nm.us/pdffiles/MDAppTeleMedicine.pdf](http://www.nmmb.state.nm.us/pdffiles/MDAppTeleMedicine.pdf)
- FSMB & state MBs
Other Major Regulatory

• Federal
  • HIPAA privacy and security
  • FDA on medical devices
  • DEA for controlled substances prescribing
  • Medicare credentialing & privileging

• State
  • Prof licensure & practice rules at both ends
  • Facility licensure
Telehealth Resource Centers
We Are Here For You!
Mission

Serve as focal point for *advancing effective use telehealth & support access to telehealth services* in rural & underserved communities

Funded by US DHHS Health Resources & Services Administration (HRSA) Office Advancement Telehealth (OAT) under Office Rural Health Policy (ORHP)
Telehealth Operations Module

Developed by: The Great Plains Telehealth Resource and Assistance Center under a HRSA Office for the Advancement of Telehealth grant

This module will address topics related to how a telemedicine service is established or developed and operated. In particular, it will focus on medical specialty consultation services provided via telemedicine where a medical specialist in any of a variety of fields from allergy and asthma to urology is involved with examining, diagnosing and treating a patient at another geographic location. Telemedicine is just one of several aspects of telehealth. If you are interested in home telehealth services, such as home monitoring, using telehealth technologies for distance learning or training, teleradiology, remote ICU services, telepharmacy, school based services or other types of services not listed here, you will need to consult other modules.

This module is intended to address the concerns and questions of organizations and providers who are interested in offering telemedicine services either within their own organization, to other medical care settings or even to individual patients. It is not intended to provide information to assist those who may be seeking health care via telemedicine.

This module is intended to provide assistance to those who are interested in establishing and operating telemedicine services for specialty consultations and direct patient care services, such as psychiatric evaluations, remote infectious disease evaluation and diagnosis, review and evaluation of pediatric echocardiograms, evaluation and treatment of skin conditions, genetic counseling, psychiatric medication management, to name but a few examples. The module will provide information about how to determine what kinds of services can be offered, how to obtain the support of a parent organization, how to organize the service within the parent organization, how to establish remote sites where patients are seen, how to execute the consultation process and how to maintain and improve the quality of that process.

View each section of this module by topic, at right »
Publications of TRCs

This section contains publications that have been created by Regional Telehealth Resource Centers.

CTRC Program Developer Guide
Step by Step Guide to Telehealth Development

This Guide provides in easy to follow steps the activities that should be undertaken during the development or expansion of a telehealth program. Includes templates, checklists and a variety of guides.

Read more
- Download CTRC Program Developer
- Download Staffing Guide
- Download Room Design Guide
- Download Marketing Guide
- Download Diabetic Retinopathy Guide
- Download 2012 Reimbursement Guide
- Download FQHC / RHC Reimbursement Guide
- Download Best Practices
- Download Performance Monitoring

National TRC Webinar Series calendar & archive
TM Trends

- Integration Health Information Exchange
- Develop Nationwide Health Information Network & Public Health Information Network
- Form Collaborative Alliances & Network of Networks; Infrastructure & Providers
- Reimbursement
TM Trends

• Interstate Licensure
• Security - HIPAA
• Shifting to the Consumer; PCHR
• Virtual Travel – Save $, time, improve efficiency, avoid travel risks, achieve Carbon Credits
• Sustainability/Business Plans
Future TH Technology

• Wireless & Ubiquitous
  – WIMAX, Microwave, Satellite, WIFI, WAN
• More Affordable Broad-band
• Bringing to home, work, school
• Hand-held devices
• High Definition Video
• Virtual Presence & 3-D Holograms
• International Collaboration & Connectivity
There’s an App For That

• Mobile devices
  – Cell phones
  – Still cameras
  – Video cameras
  – Image processing
  – Web-enabled
  – Programmable
  – Alarms & reminders
  – Physiological monitoring
  – GPS
Wearable/Usable Devices

Exmocare Emotion Detection Technology

Memento: Memory life book
Top 10 Targets Wireless

- **Alzheimer’s**: 5M Vital signs, location, activity, balance
- **Depression**: 19M Monitor med compliance, activity communication.
- **Diabetes**: 21M Monitor glucose, hemoglobin
- **Heart Failure**: 5M Cardiac pressure, fluids, wt, bp
- **Hypertension**: 74M BP, med compliance
- **Obesity**: 80M Wt, calories, activity levels.

(Am Assoc Technology in Psychiatry)
Top 10 Targets Wireless

- **Asthma**: 20M Respiratory rate, peak flow
- **Breast Cancer**: 3M Wireless US @ home & send scan to doctor
- **COPD**: 10M Monitor FEV1, air quality, oximetry.
- **Sleep disorders**: 15M Phases sleep, apnea vital signs

(Am Assoc Technology in Psychiatry)
New Issues

- Auditory quality (speaker phone, buds)
- Image quality (size, color, distance)
  - Send (camera) & receive (screen)
- Privacy & public spaces
  - Interruption protocols
- Contact protocols
- Texting, reminders etc.
  - Fonts, sizes, length, comprehensibility
- Data quality
- EMR integration
New Directions

• Adding & merging technologies
  – On-line education & training modules
  – Multi-point conferencing
  – Virtual reality
  – Simulations
  – Physiological monitoring
    • Medication analyses
  – EHR
  – Blogs, chats etc.
THANK YOU!

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