Affordable Telemedicine Solutions
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Live tweet - #telehealth2014
Goals

• Demystify Telemedicine Low Cost Technologies
• Think outside of the marketing machine
• Learn the benefits and challenges of switching to wireless and smart technologies
• Q&A to discuss all Telemedicine IT questions
History

• Fads Come and Go

Mullet Hair Cut, Who’s This?

Rubik’s Cube

Dances & Clothes
Blackboard & Chalk

Whiteboard & Dry Erase Markers

Are you still holding chalk, should you be?

Smartboard
History

• We learn about history to not repeat the past?
History

• We learn about history to not repeat the past?

Huge camera, plastic camera lens instead of glass, size of the lens, no optical zoom only digital.
Current Video Conferencing Systems
New Hardware Solutions & Applications
Smartphones, Tablet, Laptops, Split Laptop, etc.
New Smart Hardware Solutions
Video Conferencing Systems

Pros

• Less Expensive
• Much Smaller
• Lighter Weight
• Wireless
• New Applications
New Smart Hardware Solutions
Video Conferencing Systems

Cons

- Only wireless network access depending on the device
- Susceptible to viruses attacks
- Software corruption
- File saving capabilities
- Difficult or no ability to convert files to other formats such as PDF’s
- EMR support
- No local FECC
- Audio Quality
- Video movement (hand held)
- No automated video input selection
- No video inputs for legacy medical peripherals
Big Myths?

• Technology, it just works
Make the Connection

• How do medical peripherals connect to video conferencing systems monitors, networks and remote locations?
Standard Cable Connections

- Composite (RCA) Audio
  - White and Red

- Composite (RCA) Video
  - Yellow
    - Chrominance/Luminance
    - Ground

- S-Video
  - 4 pins
    - 1 Chrominance
    - 2 Luminance
    - 3 & 4 are grounds
Standard Cable Connections

- Component Video
  - R – Red
  - G – Green
  - B – Blue

- HDMI
  - Includes audio and video
Make the Connection

Basics of Electronics
Flows just like water

1 - “Out” of the Faucet

2 - “In” to the hose
3 - “Out” of the hose
4 - “In” to the sprinkler
Make the Connection
Basics of Electronics
Flows just like water

1 - “Video Out” of the Medical Peripheral

2 – To “Video In” on VC

3 - “Video Out” of the VC

4 - “Video In” to the Monitor
Choosing Medical Peripherals

• Specialty (some scopes can support multiple)
• Current video system
  – Audio/video connections
  – Standard Definition
  – High Definition
  – Many of the new VC systems don’t even have composite and s-video connectors any more.
• What system does the site you are connecting to have?
  – Electronic Stethoscopes
Should you make the switch to wireless?

• Considerations
  – What will be on the wireless network
  – Broadband
  – Utilization
  – Latency
  – QOS
  – Floors, walls, windows, etc.

• Spectrum analysis required
What is Bluetooth?

- Bluetooth wireless technology is built into a wide range of products, from cars and mobile phones to medical devices and computers. Bluetooth technology you share voice, music, photos, videos, and other information wirelessly between two paired devices. (2400–2480 MHz)
What is the “Cloud”
What is the “Cloud”
Big Myths?

• Telemedicine is only for rural locations
• Bigger is better…
• Light weight
• Easy to move
• UPS
• Monitor - Max size 22”
• Are you ready to make the switch from high-end video conferencing systems to laptops, ipads, and smart phones?
  – Texting medical data?
  – What specialties do you plan to support?
  – No physical inputs available, must use wireless.
  – What medical peripherals do you currently have?
    • Are they blue tooth enabled?
  – Do the sites you connect to have mobile technology and using the same applications. May or may not be an issue
  – 3g/4g are internet based networks, will that be an issue

• Cloud Computing
  – Patient data storage – risk management
  – All data images are on the cloud
    • No local storage
Big Myths?

• Doing Telemedicine over the Internet

– “Please have a seat, the doctor will see you in a couple of minutes or not at all”
Internet Connection
High Speed Broadband
“Your Private Onramp...”

The Internet
“The Freeway”
Extremely Cyclical
Big Myths?

- Internet **may** be a viable solution in the following circumstances
- One phone company end to end
- QOS (quality of service)

Internet Connection
High Speed Broadband
“Your Private Onramp...”
California Telehealth Network

• A state wide broadband network dedicated to expanding health care access in rural and medically underserved communities
Future of Affordable Telemedicine Technology

• Healthcare Internets like the CTN in each state connected together to create a nationwide matrix
• Wireless handheld devices designed specifically for Telemedicine with embedded sensors
• Wider selection of Bluetooth medical peripherals
• Combined Cloud Services of EMR, Video Conferencing, Store & Forward, etc.
• Home health systems that tie-in with cable TV subscriptions
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