The Future is Now: Enhancing Pediatric Healthcare Through Telehealth

Kelli Garber MSN, APRN, PPCNP-BC
Lead Nurse Practitioner
School-Based Health
The Center for Telehealth
The Medical University of South Carolina

Disclosures

• I have no disclosures

Learning Objectives

- Define telemedicine/telehealth
- Identify at least 3 applications of telehealth in pediatric healthcare
- Describe how the standard of care is maintained through telehealth
- Describe how telehealth can enhance pediatric practice.

Pre-Session Questions

What is your experience with telehealth?
- a. I am currently utilizing telehealth in my practice.
- b. I am not currently utilizing telehealth in my practice and am not interested in doing so.
- c. I am not currently utilizing telehealth in my practice but I am interested in doing so.

Pre-Session Questions

Telehealth refers to which of the following?
- a. Real time audio video conferencing
- b. Asynchronous (store and forward) review of images
- c. Smartphone medication monitoring
- d. Video only visits (E-Visits)
- e. All of the above
- f. I don’t have any idea what these are?

Pre-Session Questions

Telehealth always leads to fragmentation of care (disrupts the medical home).
- a. True
- b. False
Pre-Session Questions

Which of the following is true about the standard of care provided to pediatric patients via telehealth?

a. The standard of care does not change from that of in-person care
b. There are no standards for the care provided via telehealth
c. There are no guidelines for the utilization of telehealth
d. Both b and c
e. None of the above

Pre-Session Questions

It is possible to provide high quality pediatric health care via telehealth.

a. True
b. False

What is Telemedicine/Telehealth?

Telemedicine is the use of medical information, exchanged from one site to another via electronic communications, to improve a patient’s clinical health status. This includes a variety of telecommunications technology.

Telehealth refers to a broader definition of remote healthcare that does not always involve clinical services.

Terminology

- Synchronous
- Store and Forward (asynchronous)
- E-visit
- Video visit

Terminology

- Spoke site
- Hub site

History of Telehealth

Science and Invention magazine (February 1925 — “Radio Doctor”)

Source: http://www.smithsonianmag.com/history/telemedicine-predicted-in-1925-124140942/#rqRkorTkUcLrx22e.99

Source of http://thesource.americantelemed.org/resources/telemedicine-glossary


Photo: Ashley Heffernan, Charleston Regional Business Ecto
History of Telemedicine

1948 Transmission of radiologic images by telephone
1959 Two-way interactive television to transmit neurological examination
1960s-1970s NASA utilization/res search

1963 Mass. General establishes telecommunication with a medical station at Boston’s Logan Airport

Telehealth on the Rise

• There were an estimated 100 million e-visits globally in 2014, up 400% from 2012
  • North America accounted for 75 million e-visits
  • By 2024, an estimated 15% of all visits will occur virtually
    • 260 million virtual visits
    • 85% will continue to be in person

Why is Telehealth on the Rise?

• Consumer Demand
  • Fast, convenient technology
• Improved technology
  • Web 2.0
  • High-Speed Broadband Connectivity*
    • 3% of homes in 2000
    • 70% of homes in 2013
• Mobile Devices
• Value-Based Care
  • Changing payer system

Benefits of Telehealth

• Improves efficiency of the care system
  • Increases numbers of patients served
  • Extends reach of expertise
  • Improves appropriateness of referrals to medical subspecialists
  • E-referrals
    • Reduces cost to the health care system
      • Fewer inappropriate referrals
      • Fewer inappropriate ED visits
      • Fewer redundant diagnostic studies

Benefits of Telehealth

• Enhances care
  • Faster and more accurate assessment than can be provided by telephone consultation
  • Reduced missed appointments
  • Increased adherence to recommended therapy
  • Ensures appropriate frequency of follow up

Benefits of Telehealth

• Extends the continuum of care
  • School-based care
  • Daycare
• Improves access to care
  • Transportation
  • Financial
    • Cost of travel
    • Lost wages for time away from work
Criticisms of Telehealth

• Poor quality of care
• Fragmentation of Care/Fractures the medical home

Criticisms of Telehealth

• Direct to consumer virtual health care models
  – Provide health care services via web-based cameras on smartphones, laptops, tablets or video kiosks
  – No provider-patient relationship
    • May not even be in the same state
  – No access to previous medical history
  – No peripheral technology to facilitate a thorough exam
  – No access to basic laboratory testing (strep tests, urine cultures)
  • Risk of overprescribing

What Does High Quality Pediatric Telehealth Care Look Like?

Maintain Standard of Care

• Telemedicine does NOT change the standard of care!
• Follow guidelines and protocols for telemedicine
  – ATA, AAP
  – Establish a provider-patient relationship via real-time audio visual technology
  – Consult primary provider as needed
• State Laws
  – SC Telemedicine Act
• Follow evidence based guidelines for clinical practice
• Acknowledgement of limitations of telehealth
  – Refer to in person care when indicated

Provider-Patient Relationship via Telehealth

• Communication
  • Not inferior to that of in person consultations
  • Fewer utterances of empathy/praise
• Personal experience
• Expert Opinions
  • American College of Physicians
  • American Academy of Pediatrics
  • American Medical Association

Telehealth Exam

• Secure, HIPAA compliant videoconferencing
  – Vidyo
  – Jabber
• Peripheral devices
  – Digital stethoscopes, otoscopes and exam cameras
• Trained telepresenter at the spoke site with the patient
  – Nurse
  – Medical Assistant
  – Provider
Equipment

- Exam Camera and Otoscope

Peripherals

- Electronic Stethoscopes
  - Digital vs analog
  - Bluetooth vs wired

- Exam Camera

Maintaining the Medical Home

- Assist Patients to Connect with a Medical Home
- Communicate with Medical Home After Each Visit
- Medical Home

Medical Home May Provide the Care to its Patients
**Telehealth Applications**

- **Teleeducation**
  - Live or stored education material
  - CME, CNE
  - Variety of audiences
    - Healthcare providers
    - Health occupations students
    - Patients
    - Families
- **Teleresearch**
  - Dissemination of translational research from an academic center to primary care providers
  - Broaden a population base under study
  - Collaboration between researchers

---

**Telehealth Applications**

- **Telepractice**
  - Links providers to patients in other locations
    - Schools, daycares, juvenile detention centers, homes
- **Teleconsultation**
  - Local provider, patient and specialist at a distant medical center

---

**Pediatric Telehealth Applications**

- **Telepractice**
  - School-Based Telehealth
  - Lactation support
- **Teleconsultation**
  - Maternal Fetal Telemedicine
  - Virtual Teleconsults
  - Emergency Department/Critical Care

---

**School-Based Telehealth**
What is School-Based Telehealth?

- High quality healthcare for children in the school setting using telehealth technologies
- A telemedicine cart is placed in the school nurse's office
  - Secure, HIPAA Compliant video conferencing
  - Digital stethoscopes, otoscopes and cameras
- A thorough exam is done with the use of telemedicine peripherals and the assistance of the school nurse or telepresenter
  - Children are treated as they would be in a regular clinic setting

How Does it Work?

Scope of Care

- Over 80% of visits can be completed by telemedicine alone
- Common childhood illnesses
- Sick visits for most low acuity conditions
- Chronic disease: management with a special focus on Asthma
- Special needs
  - Interventions early in the school year
  - Respiratory therapy/behavioral activation
  - Care Coordination & Case Mgmt.
- Specialty Care
  - Pediatric specialists
  - Children with special healthcare needs
  - Mental health

Charter School for Children with Multiple and Severe Disabilities

- Multifaceted service agency
  - Services include:
    - Private therapy practice
    - Family support services with a focus on early intervention
    - Education
    - Therapeutic summer camp
- School-Based Telehealth
  - Primary care
  - Follow up visits with specialists

Lactation Support

- Web-Based monitoring of breastfeeding
- Secure video conferencing to deliver lactation support
  - Real-time audiovisual communication
  - Ability for lactation consultant to visualize breast feeding
Maternal Fetal Telemedicine

- Real-time audiovisual consultations between a Maternal Fetal Medicine specialist and a patient and her local provider
- Review of ultrasounds done at the local site
- Genetic counseling pre and post testing visits
- Prescription opioid counseling for moms addicted to opioids
- Reproductive Infectious disease Care (HIV, hepatitis, syphilis, herpes, congenital infections)
  - Specialized care for women during pregnancy
  - Works with interdisciplinary team to coordinate care for mom and infant postpartum

Program at MUSC began in 2005
- Donna Johnson, M.D., Chair of Obstetrics and Gynecology at MUSC

Helps to reduce the premature birth rate, neonatal death rate and maternal death rate!
- A premature birth can cost one to two million dollars
- If those pregnancies could be carried to 32 weeks the cost could be reduced to half a million
- Initial data showed that 50 more babies were born at term; $1.2 million was saved in a 4 year period

Virtual Teleconsults

- Pediatric specialists
  - Dermatology
  - Burn
  - Pulmonology
  - Neurology
  - Cardiology
- Mental Health
  - ADHD Management
  - Trauma Focused Cognitive Behavioral Therapy
  - Other mental health conditions
- Nutrition
- Weight management

Pediatric Inpatient and Emergency Teleconsultation

- Dr. S. David McSwain

http://academicdepartments.musc.edu/newscenter/2016/pediatric-emergency-telehealth-receives-high-rating.html#.V6ozXZMrLow
### Pediatric Inpatient and Emergency Teleconsultation

<table>
<thead>
<tr>
<th>Teleconsultation Outcomes</th>
<th>Percentage of Teleconsults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impacted Triage Decision</td>
<td>43%</td>
</tr>
<tr>
<td>Transferred to a Lower Acuity Setting</td>
<td>40%</td>
</tr>
<tr>
<td>Allowed to Stay at Local Facility/Avoided Transfer (critical care teleconsultations only)</td>
<td>11%</td>
</tr>
<tr>
<td>Averted Air Transportation</td>
<td>12%</td>
</tr>
<tr>
<td>Allowed Transport by Local EMS Team</td>
<td>15%</td>
</tr>
<tr>
<td>ICU Admission Rate (Telephone)</td>
<td>73%</td>
</tr>
<tr>
<td>ICU Admission Rate (Telemedicine)</td>
<td>41%</td>
</tr>
</tbody>
</table>

### Pediatric Telehealth

From Science Fiction to Reality, The Future is now!

Photo credit: Sarah Pack, MUSC Public Relations

### Post-Session Questions

**What is your experience with telehealth?**

a. I am currently utilizing telehealth in my practice.

b. I am not currently utilizing telehealth in my practice and am not interested in doing so.

c. I am not currently utilizing telehealth in my practice but I am interested in doing so.

### Post-Session Questions

**Telehealth refers to which of the following?**

a. Real time audio video conferencing

b. Asynchronous (store and forward) review of images

c. Smartphone medication monitoring

d. Video only visits (E-Visits)

e. All of the above

f. I don’t have any idea what these are?

### Post-Session Questions

**Telehealth always leads to fragmentation of care (disrupts the medical home).**

a. True

b. False

### Post-Session Questions

Which of the following is true about the standard of care provided to pediatric patients via telehealth?

a. The standard of care does not change from that of in person care

b. There are no standards for the care provided via telehealth

c. There are no guidelines for the utilization of telehealth

d. Both b and c

e. None of the above
Post-Session Questions

It is possible to provide high quality pediatric health care via telehealth.

a. True
b. False

References


References


Contact Information

Kelli Garber MSN, APRN, PPCNP-BC
Lead Nurse Practitioner
School-Based Health
The Center for Telehealth
The Medical University of South Carolina
169 Ashley Ave. MSC 332
Charleston, South Carolina 29425
garberk@musc.edu