Clinical Telemedicine for Rural Applications
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Discussion Topics

- Why telemedicine is being used worldwide to deliver healthcare
- Examples of clinical telemedicine application in rural health
- How telemedicine has made a difference for Sevier County Schools and local community
- Characteristics of a successful program
MAN, THIS TELEMEDICINE THING IS GREAT-- I DON'T EVEN HAVE TO PUT MY PANTS ON!
10 Million Americans ...

... directly benefited from a telemedicine service over a 12-month period from 2012-2013.
Reasons Telemedicine is Used

- Gaps in patient care: 42.7%
- Adding additional services: 27.0%
- Remove patient barriers to receiving care: 13.5%
- Healthcare policy changes: 7.2%
- Cost reduction: 3.1%

HIMSS Analytics 2015 Telemedicine Study
Most Common Medical Specialties

Primary Care
Dermatology
Women’s Health
Pediatrics
Cardiology
Radiology
Emergency
Ears, Nose, Throat
Ophthalmology
Telemedicine Applications Areas

- Rural Health
- Developing Countries
- Corrections
- Schools
- Mobile Health
- Military
- Shipping and Transportation
- Industrial Health
- Retirement Communities
DID YOU KNOW?

In urban areas, there are 134 medical specialists for every 100,000 people. In rural areas of the country, that number is just 40 specialists for the same number of patients.

Source: federal Office of Rural Health Policy, Rural Healthy People 2010 report—"Healthy People 2010: A Companion Document for Rural Areas".
Telemedicine Benefits Rural Healthcare

- Patient care remains in their home community
- Increases access to additional medical specialties
- Reduces out-of-pocket travel expenses
- Immediate and real-time access to healthcare
- Increases physician utilization and bring specialists to smaller community hospitals.
TN Regulations/Reimbursement for Telemedicine

- Tennessee telemedicine parity law was enacted in 2014 and went into effect in 2015 and includes
  - Coverage for Medicaid
    - Managed care plans
    - State employee health plans
  - Limits coverage to specific patient settings
  - Includes telemedicine in school settings
  - Includes telemedicine to the home under the home health benefit
    - Does not include coverage for remote patient monitoring
  - Includes both coverage for live interactive audio-video as well as store-and-forward technology

- Tennessee scores well in the American Telemedicine Association 2014/2016 - 50 State Telemedicine Gaps Analysis with an A grade

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Applications for Clinical Telemedicine in Rural Healthcare
Critical Access/Rural Hospitals

- Connect patients with additional medical specialists “on the spot”.
- Increases physician utilization by reducing transit time to various clinics/offices.
- Provides healthcare organizations ability to offer additional services (remote).

Baystate Health, MA

St. Luke’s, MN

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Retail/Pharmacy Clinics

- Primary care clinics are placed in retail pharmacies making it convenient for patients and brings in new customers and revenue for the pharmacies.

- Patients can be seen for a quick check up for things like coughs, colds, skins rashes, simple injuries, etc. If needed prescriptions can be filled before leaving the store.
Correctional Facilities

Deliver quality primary care and infectious disease management without the cost and dangers of inmate transportation or the need for a clinical specialist to enter the facility.

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Continuing Care Retirement Communities (CCRCs)

Nursing homes, skilled nursing facilities, assisted living, etc:

- Without leaving the facility, a patient can have a telemedicine visit with a physician, primary care doctor or specialist.
Country-Wide Deployment into Rural Communities

Bolivia

- Large rural population
- Extreme geography and distances (1/3 of Bolivia are the Andes range)
- 11.5M people over 425,000 sq. miles.
- Concentration of medical experience in urban areas
- Currently undergoing many infrastructure improvements
- National pride continues to increase

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A New Healthcare Delivery System!

- A complete technology based system designed to:
  - Create unprecedented access
  - Better utilize limited urban based specialty resources
  - Address some country specific challenges;
    - For example; Birthing rate success
Scope and Timeline

New national healthcare model in less than 18 months!

- 339 (Phase 1- 280, Phase 2 – 59) Patient Exam systems total
- Systems deployed across the 9 states in Bolivia
- Centralized consultation command center with 27 stations
- Data Center established for;
  - Multiple party video conference management system – Vidyo
    - Telehealth Consult Patient record system
- Elapsed time from Specification – Award – Delivery – Live
  - 12 months – Phase 1

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Mobile Medical Clinics

- Visits community centers, churches, and schools in the most impoverished areas of Miami-Dade County, Florida.

- The unit is fully equipped to handle medical emergencies and has three complete exam rooms, and a lab.

- 2013: started telehealth program to link uninsured children to much needed specialists.

- Increased compliance rates for follow up appointments from 30% to 90%
School-Based Health Centers

Delivers immediate access to primary care physicians without students having to miss school for an appointment.
Specific Examples of School-Based Telemedicine Programs
My Healthy Schools – North Carolina

Challenges

- Limited funding for smaller school programs (fewer than 100 students)
- Multiple school-based health clinics supported by just one nurse practitioner and a small staff of school nurses with frequent turnover
- More than 4,000 potential patients in a low income, rural area
- Limited on-site IT resources
My Healthy Schools – North Carolina

Solution – School based telemedicine

- Students now have immediate access to healthcare
- Increased program utilization with minimal on-site staff training and real-time access to remote provider
- Children are connected to pediatric cardiology and psychiatry specialists, improving student's adherence to follow-up schedules with fewer missed school days
- Expanded school based clinic sites from a 3 school pilot in 2011 to 30 schools in 2015
- 1/3 of consults are for teachers and staff keeping down substitute teacher payments
CHC Tele-Health - Michigan

- First school tele-health program in the state of Michigan – opened January, 2014
- 1,398 students enrolled in program
- 4700 patients serviced in the 2015/2016 school year
- 1026 telemedicine consults in the 2015/2016 school year
CHC Tele-Health - Michigan

- Specialties/conditions serviced with telemedicine, usually acute illness and minor injuries:
  - Dermatology
  - Sports physicals
  - Influenza
  - ENT
    - Strep throat
    - Ear infections

- Future expansion – working with University of Michigan for tele-epilepsy & tele-dentistry

- Since CHC Tele-Health opened in January, 2014 the MDHHS has incorporated tele-health into 6 additional school districts in the state
Cherokee Health Systems - Tennessee

Challenges to improve student health:

- Mitigate consistent problems with communicable illnesses from spreading across the school/county and causing school closures.
- Delivering high-quality healthcare services to 14,000 students across nearly 2 dozen schools.
- Lack of healthcare personnel onsite at schools to address daily medical issues with students.
- Promoting education and awareness among apprehensive parents.
Cherokee Health Systems - Tennessee

Results achieved through use of telemedicine technology:

- Over 11,000 telemedicine encounter visits completed.
- Sevier County has gone 5 years without a school closure due to seasonal flu.
- Students can now receive immediate diagnosis and treatment for ailments such as strep throat, flu and many other communicable illnesses.
- Patient's ongoing issues such as high blood pressure, diabetes or nutrition can now be tracked and monitored.
Challenges for Telemedicine
Existing Challenges & Barriers

- Acceptance by patients and care providers
- Missing Regulations, Legal Limitations and Licensure
- Workflow – work telemedicine into your practice not the other way around
- Missing business case or funding
- Concerns over patient privacy (Internet Security)
- Internet connectivity - Bandwidth
- Reimbursement issues
Characteristics of Successful Telemedicine Programs

- Establish a vision of your telemedicine program and future sites.
- Build a long term financial plan to support your project.
- Create a convenient and effective telemedicine work environment.
- Appoint a full-time coordinator.
- Find a champion leader who will be supportive for at least the first two years.
- Schedule training for staff and technical support.
- Establish dedicated sites, policies, procedures and manuals.
- Provide marketing of program to medical/nursing/patients.
- Plan and implement into standard patient care as soon as possible.
- Share learned experiences with others.

Mark VanderWerf
“In a world where income level, ethnic origin and geographical location serve as primary determinants of people’s access to healthcare, telemedicine constitutes a possible approach to overcoming many of the existing barriers to care”*

*Nora Eccles
Harvard College Global Health Review
February 1, 2012
In the future...
Thank You

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Coordinated School Health

"Where Health and Academics Merge"

CHEROKEE HEALTH SYSTEMS
SEVIER COUNTY SCHOOL SYSTEM
PRESENTS

S.M.A.R.T.

STUDENT MEDICAL ASSISTANCE RESPONSE TEAM
Julia Pearce
VP
Cherokee Health Systems

Don Best
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MASLOW AND COORDINATED HEALTH

Maslow's Hierarchy of Needs:

- Physical Health
- Free of Fear and In A Safe place
- Sense of Being Loved and Appreciated
- Sense of Belonging and Importance
- Sense of Self-Esteem
- Sense of Positive Self-Esteem
- Motivated and Learning

Coordinated Health Services:

- Food and Nutrition
- Counseling
- Health Services
- Integrated Community & School Health Promotion
- Health Education
- Staff Wellness
- Safe & Healthy Environment
- Physical Education
- Academic Opportunity
Demographics Sevier County, TN

- Approximately 80,000 people
- Large number of uninsured or TennCare recipients
- Many parents work part-time jobs in the tourist industry
- Over 14,800 students system wide
- 28 total schools
- Multiple rural schools
- Over 70% of students qualify for free or reduced lunch
Student Medical Assistance Response Team (S.M.A.R.T.)
The school system partners with Cherokee Health Systems (CHS) to provide SMART to the 23 district schools serving elementary, middle and high school students.

Telemedicine is a key component of SMART.

Full time nurses in all Sevier County schools play an integral role in SMART

- 2 part-time RNs, ensuring full-time coverage

Over 6,000 students enrolled

Utilized most often by rural schools
Telemedicine

- Telemedicine uses technology to assist schools in meeting the physical needs of students and staff.
- School nurses can access a pediatric nurse practitioner via the telemedicine system.
- Telemedicine provides a secure, two way video link with the child or staff and school nurse and the CHS medical provider.
- Students can be screened, examined, diagnosed, treated, and monitored through the telemedicine system.
Telemedicine Equipment
S.M.A.R.T. Policies

- Students must register each year with the SMART program.
- CHS bills the student’s insurance following telemedicine visits.
  - If the student does not have insurance, services are provided on a sliding scale, determined by income.
Megan has a Telehealth exam

- **Step 1**: Fill out Triage form
- **Step 2**: Call Parent with information
- **Step 3**: Call NP in Knoxville - how long it will take?
- **Step 4**: If the child is not contagious or seriously ill, RN will send the student back to class until NP is ready.
Megan has a Telehealth Exam
How has students’ health changed since program implementation?

**Don:** “We are able to eliminate multiple days of student absences by seeing students on site and immediately being able to treat them. The county wide attendance will increase as the program is implemented.”
How has students’ health changed since program implementation?

Nurse Nancy: “We have a lot kids that don’t have a lot of money and don’t get good health care. Most of them have TennCare, but it’s hard for them to get in to see the doctor. We can get them in here that day, and they get better sooner.”

Mrs. Clabo: “Depends on SES, telemed has had a positive effect on kids who have a lower SES. If they have an illness that can been addressed through telemed, they are more likely to be seen than if the situation was left up to their parents.”
Key Elements

Don:

- “The telemedicine equipment and full-time registered school nurse in every school operating on the SMART system. Nurses triage each patient, using CHS protocol, and then can access the telemedicine nurse practitioners.”

Nurse Nancy:

- “Parents need to understand the program. They cannot understand unless they see it. It’s not because they’re not educated; it’s because it’s new.”
- “They also need to understand we are not doing invasive things. Nothing ever hurts. We shut the door for privacy.”
Community and Parent Involvement

**Don:** “Parents are generally positive, but since the program is new, they are somewhat apprehensive. Educational materials are available for parents and the community through local T.V. and newspapers.”

**Nurse Nancy:** “Parents think this is great once they use it. No one has said they don’t want to participate anymore.”

- By the time parents get ready, the nurse has seen the student, tested him/her, and called in the prescription.
Community and Parent Involvement

**Mrs. Clabo:**

- *This year, parents were really on board.*
- *We didn’t have a full-time nurse until we received the telemed system.*
- *More students are being seen in the second year of implementation.*
- *Teachers were champions of the program trying to make sure students are signed up.*
Program Evaluation

**Don:** “The program is only five years old. Programs have recently been loaded in to assess how many students are registered, who is being seen and where they are being seen, and what kind of insurance they have. This year will provide baseline statistics.”
Needs Assessment & Prioritization

Don and key players at CHS meet to assess the needs and decide how to prioritize the needs.

Example: lice outbreak last year

CHS and CSH were able to order high-definition cameras for nurses to photograph lice to show to nurse practitioners for diagnosis.
Program Development

**Don:** Initiative of the superintendent to develop this program.

- Mississippi schools were visited for ideas and inspiration.
- Prior to this program, R.N.’s were traveling between schools and mainly able to provide minimal services to low numbers of children.
- Developed in conjunction with CHS, a non-profit health care provider.
Top 5 Health Problems

**Nurse Nancy:**

1. Strep
2. Flu
3. Ear infections
4. Bronchitis
5. Poison ivy
   (also, head lice)
Program Strengths

Don: “R.N.s in every school, the backing of the superintendent and principals.”

Nurse Nancy: “Getting kids better quicker, they will be back to school faster. They won’t miss as much school and won’t get behind.”
- Especially for kids whose parents wouldn’t take them to the doctor until they were very ill.

Mrs. Clabo: “So quick for kids that wouldn’t see the health care they need otherwise.”
Emergencies

- **Nurse Nancy**: Emergencies are not very different. If needed we call 911 or we just send them home with the parent to go to the ER.
  - In cases where the RN is unsure of what to do and the parent cannot make it, RN will call the NP with CHS for advice.
- Then calls 911
Thank You

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