TELE-AUDIOLOGY: ENHANCING PATIENT-CENTERED CARE AND CLINICAL EDUCATION TRAINING

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College of Health

Department of Communication Sciences & Disorders

AuD Program

Speech-Language Pathology Program
AUD PROGRAM

• 10 – 12 AuD students per year

• 4 semesters in-house clinical training
  ➢ Fall Year 1 through Fall Year 2
U OF U SPEECH-LANGUAGE-HEARING CLINIC

- Serve infants through geriatrics
  - Adult and pediatric diagnostics
  - Amplification
  - CI mapping
  - Aural Rehabilitation
  - APD Evaluations
  - Electrophysiology
MINERS OF UTAH

• Mining in Utah accounts for 4.2% of Utah’s GDP (2014)

• 2.8% of Utah’s employment (2012)
MINING INDUSTRY IN UTAH

• Hazards to the hearing health of workers
• Mining industry has highest incidence of harmful noise exposure compared to other major industries (NIOSH)
• Second only to railroad industry in workers reporting hearing problems
MINERS HOSPITAL AT U OF U

• Miners Trust Health Plan established to provide health insurance benefits for “mining related illness or injury”.

• Noise-induced hearing loss is considered a mining related injury under the plan.

• 2006 U of U Speech-Language-Hearing Clinic became primary provider for hearing health management for the miners.
UTAH CITIES

• Currently serving more than 500 miners across the state

• Where they come from
SATELLITE CLINIC

- 2012 -2014
- Meetings with U of U Hospital administration
- Satellite clinic locations
- New option: Tele-Audiology Practice
TELE-AUDIOLOGY CLINIC - THE BEGINNING
TELE-AUDIOLOGY CLINIC

• Goal of the tele-audiology clinic
  – Reduce barriers to care associated with:
    1. Travel Costs
    2. Weather
    3. Time away from work
    4. Patient schedules
    5. Reduction in time spent without amplification
    6. Reduce burden on family members
TELE-AUDIOLOGY CLINIC-THE BEGINNING

• University of Utah Telemedicine Department
  – Assisted with:
    • Development of workflow model, Charter & Scope
    • Searching for a location
    • On-site set up of the remote clinic
    • Ongoing assistance with equipment, video-conferencing platforms, internet
    • Data analysis and management
TELE-AUDIOLOGY CLINIC - THE BEGINNING

- Scheduling
- Pre-Clinic Communication
- First Appointment
- Continue w/all subsequent appointments
- Termination of Appointment
- Clinician Assessment
- End of Clinic
- Patient Follow Up
- Administrative Tasks
TELE-AUDIOLOGY CLINIC - THE BEGINNING
TELE-AUDIOLOGY CLINIC-THE BEGINNING

• Staffing
  – Training
• Site set up
  – Equipment and Supplies
• Community Outreach
  – Notifying our demographic
    • Sent out 439 letters covering a 3 county area
    • Miner’s Hospital
TELE-AUDIOLOGY-CURRENT SERVICES

• Went live on 11/10/2015
• Skype for Business and NOAH software
• Monday and Tuesday 8:30-11:30
• Services Provided: hearing aid troubleshooting and programming
• To date 143 telehealth appointments
TELE-AUDIOLOGY CLINIC-PRESENT

• Synchronous (real-time) services
• Six hours a week
• Services Provided:
  – Hearing aid services (excluding first fittings)
    • Video-otoscope
    • Ability to make software changes
    • Clean and replace hearing aid parts and accessories
• Twenty-five dollar fee
TELE-AUDIOLOGY-CURRENT SERVICES
### TELE-AUDIOLOGY-WHAT IT HAS COST

Year 1: Operational costs, startup costs and generated revenue

<table>
<thead>
<tr>
<th>Cost</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary and taxes</td>
<td>$2,700.00</td>
</tr>
<tr>
<td>Lease</td>
<td>$2,400.00</td>
</tr>
<tr>
<td>Supplies, postage and equipment</td>
<td>$1,800.00</td>
</tr>
<tr>
<td>Travel</td>
<td>$300.00</td>
</tr>
<tr>
<td>1(^{st}) Year total annual expense</td>
<td>$7,200.00</td>
</tr>
<tr>
<td>Year 1 Total Revenue</td>
<td>$3,775.00</td>
</tr>
<tr>
<td>Total Revenue to date</td>
<td>$4,272.00</td>
</tr>
</tbody>
</table>
## TELEAUDIOLOGY-PATIENT OPINION

<table>
<thead>
<tr>
<th>Question</th>
<th>Rating Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seen within 5 minutes of scheduled appointment</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Telehealth Consent Form was adequately explained</td>
<td>Yes/No</td>
</tr>
<tr>
<td>Clinician was competent and knowledgeable</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>Understood role in telehealth procedure and felt comfortable</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>Health Information and Privacy was maintained</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>Quality of the audio (sound) and video (visual) was satisfactory</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>The telehealth care was as good as a face-to-face appointment</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>Recommend telehealth appointment to others</td>
<td>1-5; N/A</td>
</tr>
<tr>
<td>If telehealth was not available, the required travel distance would be</td>
<td></td>
</tr>
<tr>
<td>How could we improve our telehealth services</td>
<td></td>
</tr>
<tr>
<td>Briefly describe why access to tele-audiology is important</td>
<td></td>
</tr>
</tbody>
</table>
# Teleaudiology-Patient Opinion

<table>
<thead>
<tr>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Onsite technician was able to manage my in-office needs</td>
<td>Yes</td>
</tr>
<tr>
<td>Current service charges are too costly</td>
<td>2 Yes/ 21 No</td>
</tr>
<tr>
<td>Satisfied with interaction and rapport with the clinician</td>
<td>4/3</td>
</tr>
<tr>
<td>Utilization of additional services such as annual hearing testing and hearing aid fittings</td>
<td>4/3</td>
</tr>
<tr>
<td>If insurance does not cover additional services, would you be willing to pay out of pocket</td>
<td>2/2</td>
</tr>
<tr>
<td>How likely are you to return for another teleaudiology appointment?</td>
<td>VL:14, L:6, NL:3</td>
</tr>
<tr>
<td>Is there another location that would further decrease your travel time?</td>
<td>Locations w/in 45 minutes of Price</td>
</tr>
<tr>
<td>How could we improve our telehealth services?</td>
<td>Have Miner’s Hospital cover the cost</td>
</tr>
</tbody>
</table>

1=Strongly Disagree, 2=Disagree, 3=Agree, 4=Strongly Agree; VL=Very Likely, L=Likely, NL=Not Likely
TELEAUDIOLOGY-STUDENT INVOLVEMENT

• Advanced Audiological Assessment II
  – Covers the topic of telehealth and tele-audiology
• Review expectations and do's and don'ts of our tele-audiology clinic
• Typhon daily tele-audiology grade sheet
TELEAUDIOLOGY-STUDENT INVOLVEMENT

• Telehealth/Tele-audiology Learning Objectives
  1. What are the benefits of telehealth?
  2. Discuss the differences between the two telehealth models including technology used for both models
  3. Know the 4 equipment considerations.
  4. Why is the telehealth facilitator so important?
  5. What are patient considerations and tests to avoid when working with tele-audiology.
  6. What are the benefits of using a telehealth model for audiology and what are the clinical applications?
TELEAUDIOLOGY-STUDENT INVOLVEMENT

• Initial Students:
  – Those working on their Capstone project
• Semester rotation
  – Expressed a direct interest in the program
• New Model
  – Rotate students every week
    • Every student participates in tele-audiology
TELE-AUDIOLOGY-STUDENT INVOLVEMENT

Tele-audiology Checklist/Protocol

Listed below are the minimum requirements for the tele-audiology clinic rotation.

Prep before the appointment:

1) Arrive 30 minutes prior to first appointment. The remote technician typically calls in 15-20 minutes before the first appointment.
2) Prior to beginning each appointment determine if they need to fill out a telemedicine consent form. You can determine this by checking to see if they have had a previous tele-audiology appointment in Counselor. If yes, they do not need to fill out the form (telemedicine consent forms are good for 3 years). The student clinician is responsible for making sure this is completed.
3) Have a working understanding of the patient’s visit. What was done, warranty of the hearing aids, battery size, acoustic coupling (receivers, domes, slim tubes, custom earmolds, standard earmolds, etc.).
4) Be able to identify the necessary programming cables.
5) You will need to enter any new audiology data into the NOAH portal if needed.

Tasks will be required during each appointment:

6) A portion of your grade will be dependent on your communication skills with the technician. How prepared and successful are you on educating him/her regarding the supplies and steps needed for each appointment.
7) New patients must: 1) Sign the telemedicine consent form prior to services being provided, 2) fill out a survey at the end of their appointment.
8) At the beginning of each appointment remind the patient of the $25.00 service fee, if they are required to pay at that visit.
9) Following the day’s appointments, the student clinician is expected to write chart notes, fill out billing slips, and prepare any repair forms or place supply orders that might be needed.
10) Grading on the amplification and counseling topics will be the same as an in-house appointment.
TELE-AUDIOLOGY-STUDENT INVOLVEMENT

• Telehealth Daily Performance
• Preparation Before the Appointment
  – Arrives 30 minutes prior to first appointment
  – Determine if telemedicine consent form is required
  – Has an appropriate understanding of the patient’s last visit based on expected level of knowledge
  – Correctly able to identify the appropriate programming cables
  – Correctly enters new data into the NOAH portal if needed
TELE-AUDIOLOGY-STUDENT INVOLVEMENT

• Telehealth Daily Performance
  – Appointment Skills
    • Successfully communicates with the technician
    • Ensured that the telemedicine consent form was signed prior to the beginning of service delivery
    • Reminded the patient of the $25.00 fee
    • Chart notes completed on time and with the expected notations for tele-audiology
    • Billing Slips were completed on time and correctly
TELE-AUDIOLOGY-STUDENT INVOLVEMENT

• Resulted in 3 Capstone projects
  1. Determination of need and feasibility, development of patient satisfaction survey, demographics and location
  2. Remote Technician Training
  3. Expansion of services and review of current data
TELE-AUDIOLOGY-LOOKING AHEAD

1) Managing the Price clinic
2) Second office
3) Provide more services
4) Continued student involvement and the evolution of that involvement