Audiology Telehealth

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Presenter Financial & Nonfinancial Disclosures

I have no financial or non-financial disclosures to report

Objectives:

Describe rationale for telehealth

Identify what is needed to establish a telehealth program

Discuss some challenges and resolutions in telehealth

Share some case studies

Simulation of an audiology telehealth encounter

What are we talking about?

- Tele medicine
- tele health
- tele practice
- tele audiology
- eHealth
- mHealth

Telemedicine is the use of medical information exchanged from one site to another via electronic communications to improve a patient's health.

A Few Common Terms

Synchronous

- Real Time

Asynchronous

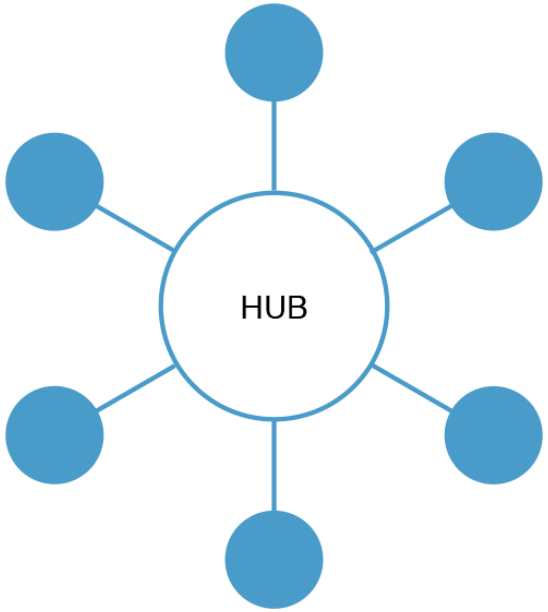
- Store and Forward
- Different time

Hub Site

- Provider Location

Spoke Site

- Patient Location



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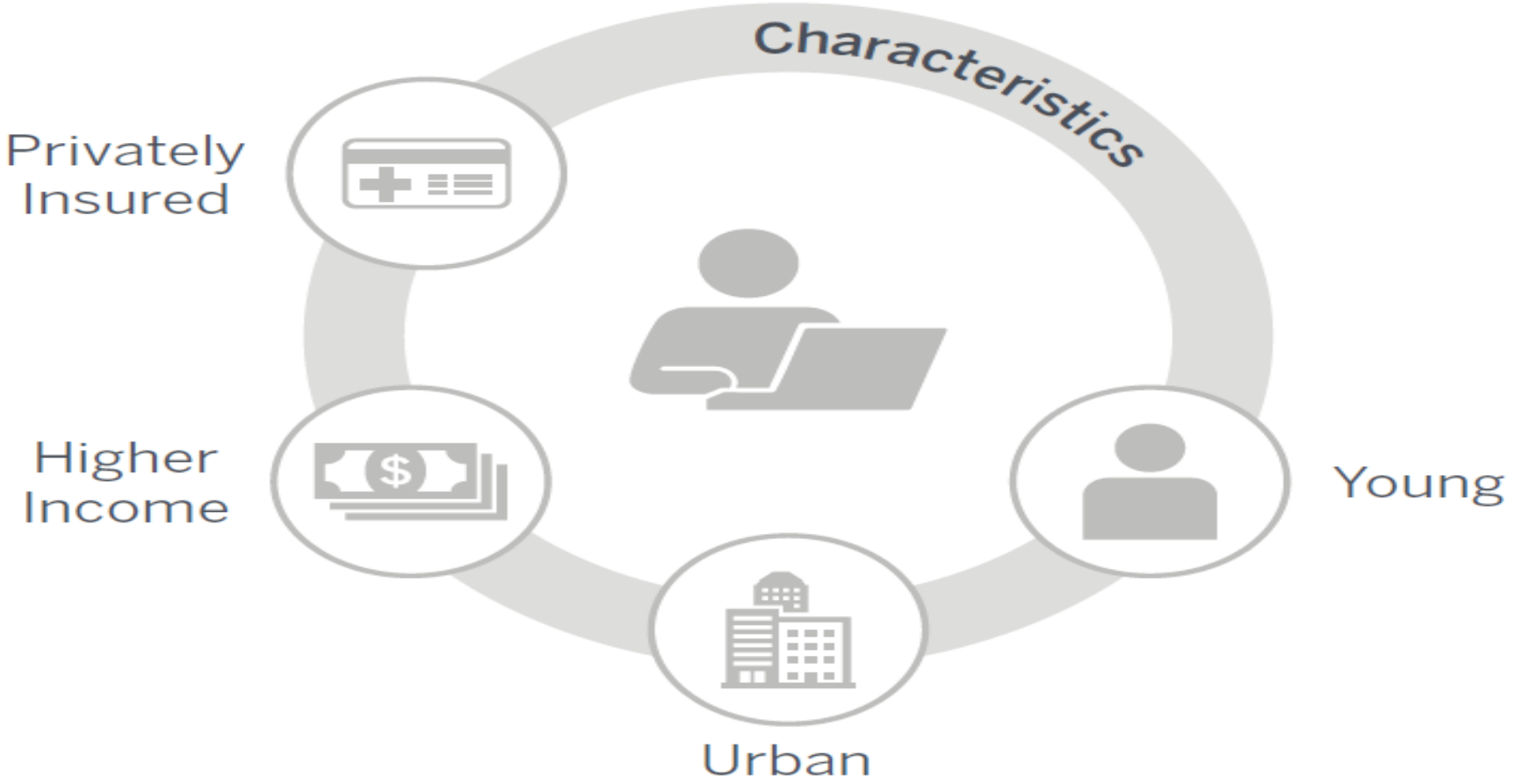
Executive Research Briefing|April 27, 2017

- Surveyed 4879 people on virtual visit preferences
- 77% would consider seeing a provider virtually
- 19% have
- https://www.advisory.com/research/market-innovation-center/research-briefs/2017/virtual-visits-briefing?WT.mc_id=Email|DailyBriefing+Spotlight|LB|MIC|2017May11|telehealth|&elq_cid=1191788&x_id=003C000001QUKqbIAH

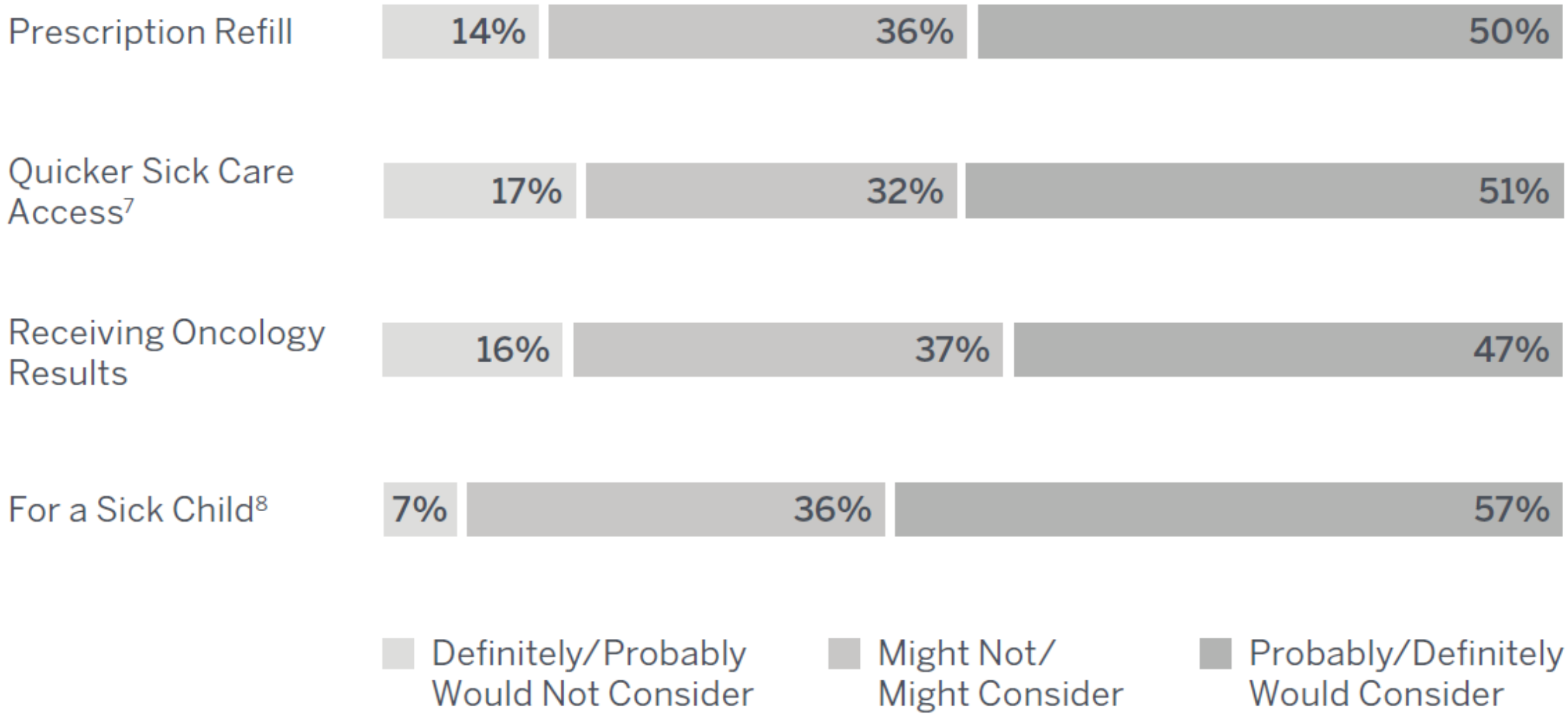
4 Common Characteristics



Young = 30 - 49 years old
Higher income = >$71,000

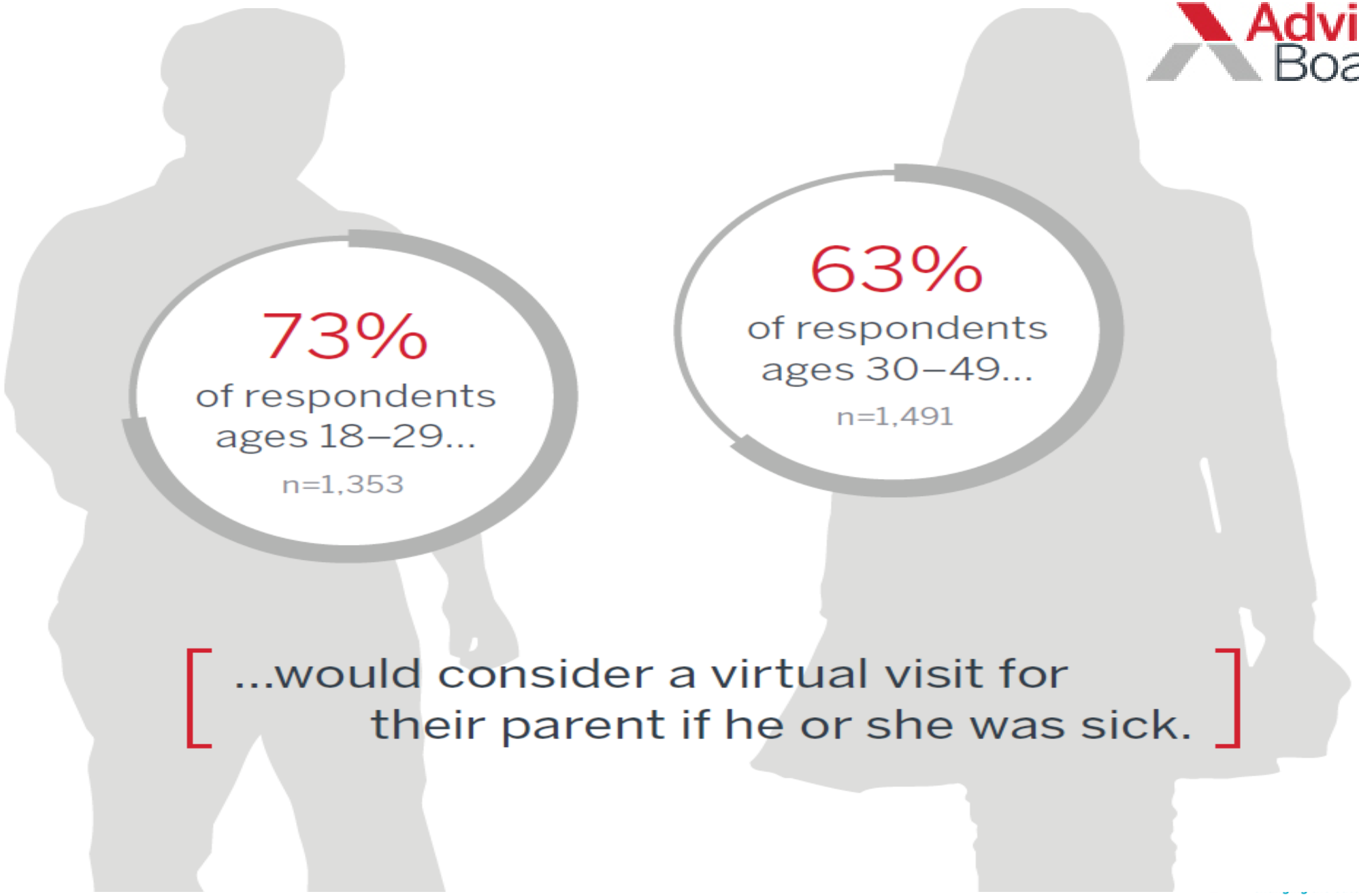
Consumer Interest in Most Popular Use Cases for Virtual Visits

n=4,879



Percentage of Parents Who Would Consider a Virtual Visit

...if their child was sick[9]	*...if their child was sick and away at college*[10]
22% definitely	22% definitely
35% probably	17% probably
28% might	17% might

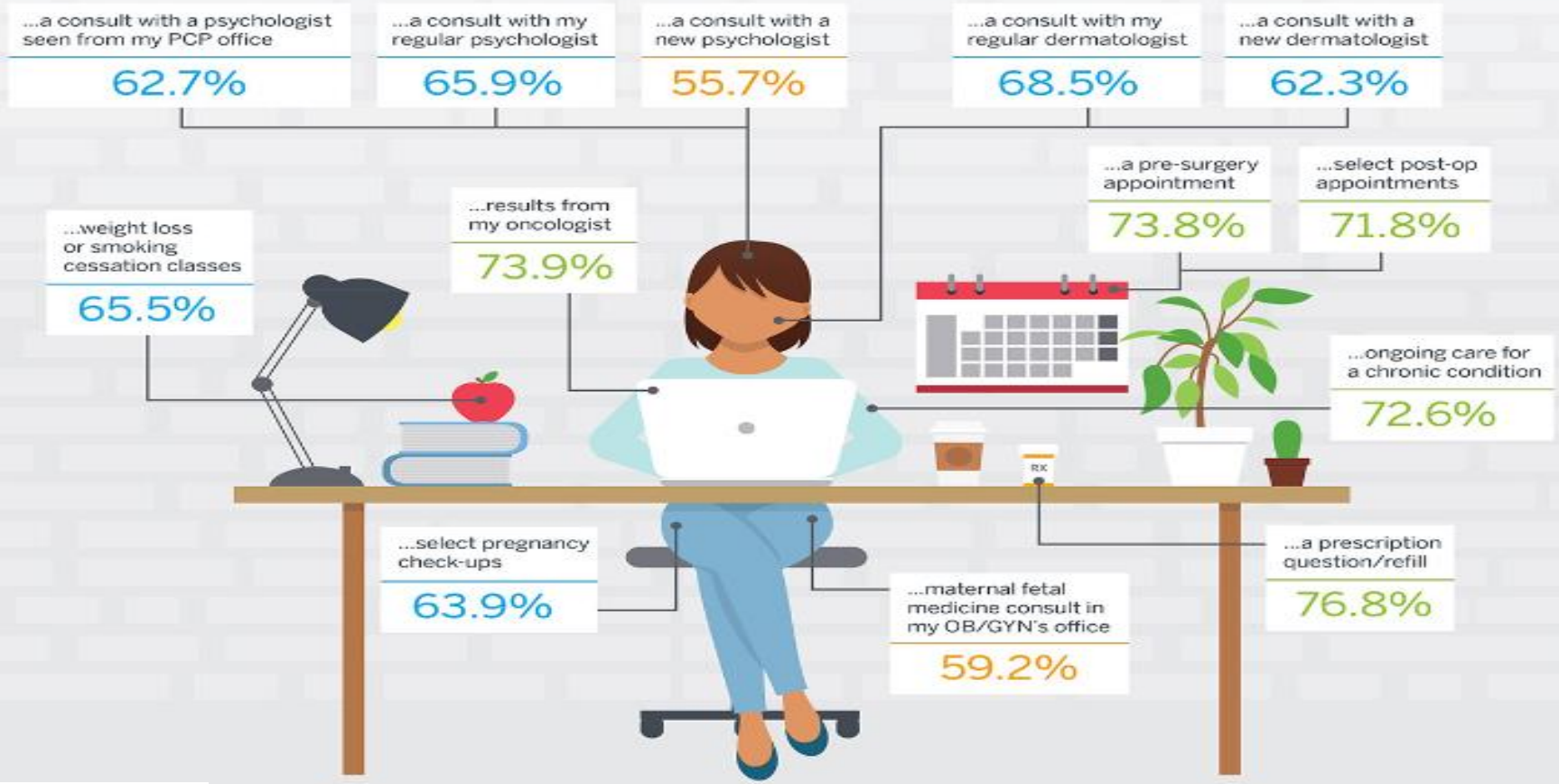

73%
of respondents ages 18–29...
n=1,353
63%
of respondents ages 30–49...
n=1,491
...would consider a virtual visit for their parent if he or she was sick.

Consumers are ready for SPECIALTY VIRTUAL VISITS. Are you?

As consumers increasingly shop for convenient, affordable health care, provider and patient interest in virtual visits continues to grow. Many providers already offer virtual visits for on-demand primary care, but few have expanded into specialty and chronic care because they question consumer willingness to utilize these virtual services.

Our Virtual Visit Consumer Choice Survey, which asked nearly 5,000 consumers across the United States about their interest in telehealth, found that **most consumers are willing to use virtual visits for select specialty care services**. Here, we've highlighted the specialty care services consumers prefer to access virtually and their top concerns with virtual visits to help inform your telehealth investment strategy.

Percentage of respondents who would consider using a virtual visit for...



Your Top Specialty Virtual Visit Priorities

- >70% of consumers willing to try service; highest priority
- 60%–70% of consumers willing to try service; medium priority
- <60% of consumers willing to try service; lower priority

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Make way for Millennials

8:51 AM on April 23, 2015 By **Emily Zuehlke**

Gen Y Factors Technology, Others' Reviews into Their Care Decisions

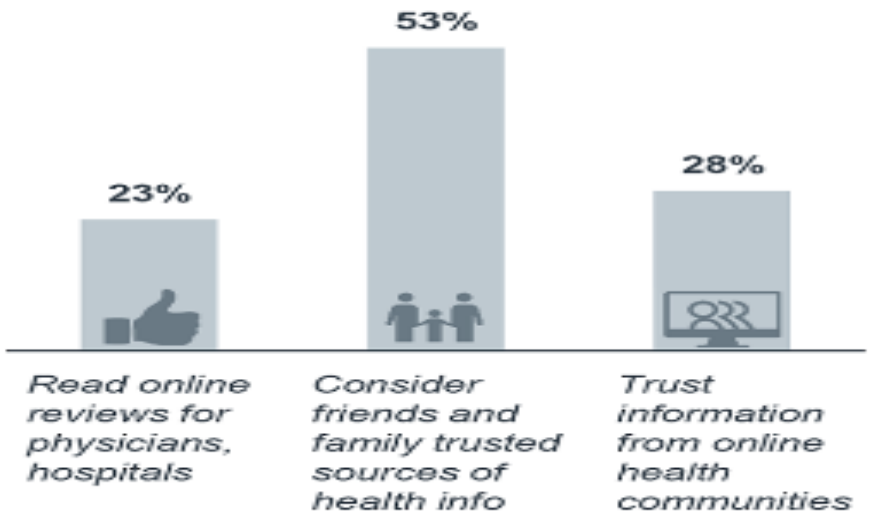
Technology a Welcome Care Alternative for Millennials

27%
Used a health or fitness app in the past year

21%
Would consider using a webcam visit with a doctor

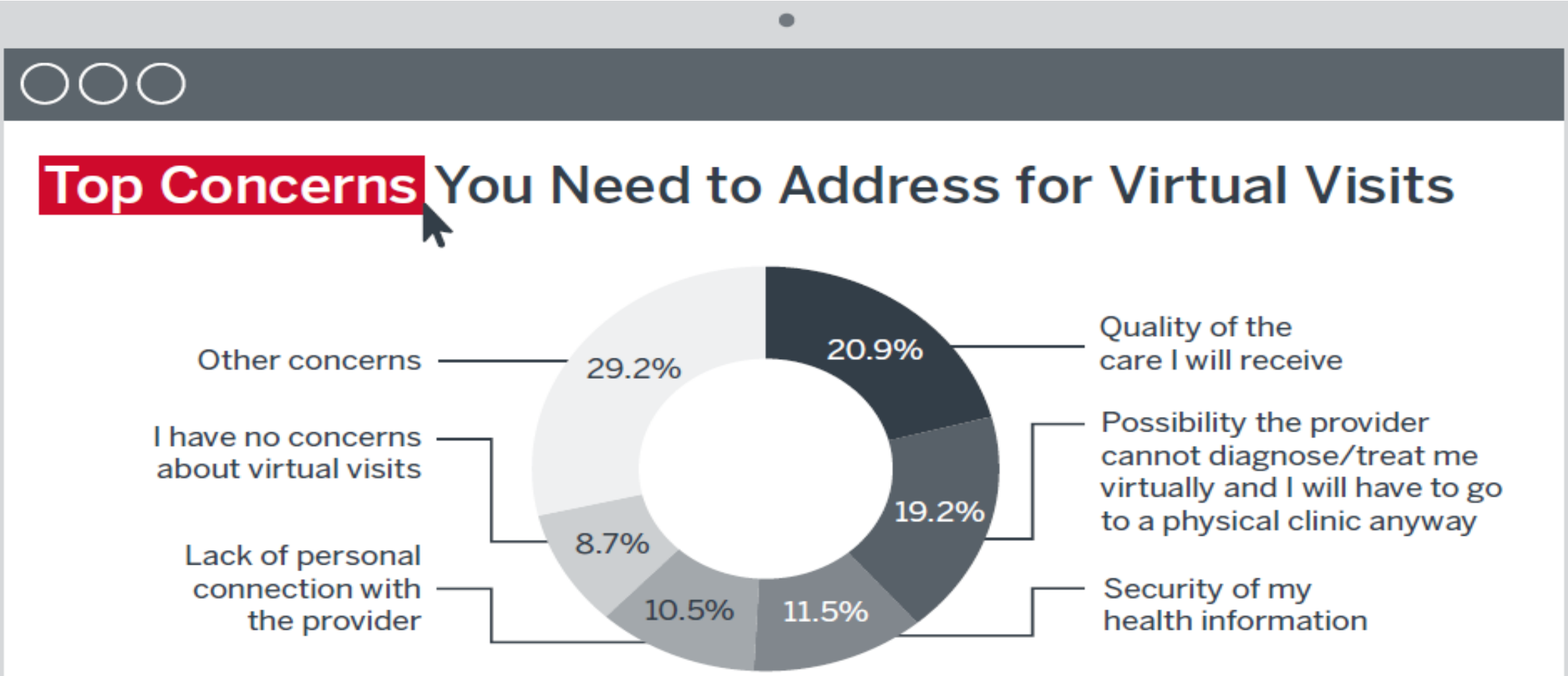
26%
Would consider emailing with a doctor

Millennials Rely on Others for Health Information



Consumers are ready for specialty virtual visits. Are you?

Infographic | October 10, 2016



CCHMC Audiology's Telehealth Journey

We started discussing telehealth because…

- We want our patients to achieve the best possible outcomes
- Access to sound is essential to speech development
- Parents need to access audiologists for questions and support
- Students need access to audiologists for help with audiology equipment during the school day
- It can be challenging to schedule an appointment when the parent wants it
- Many of our patients have to travel to reach us
- Parents report many challenges

We reviewed the literature:

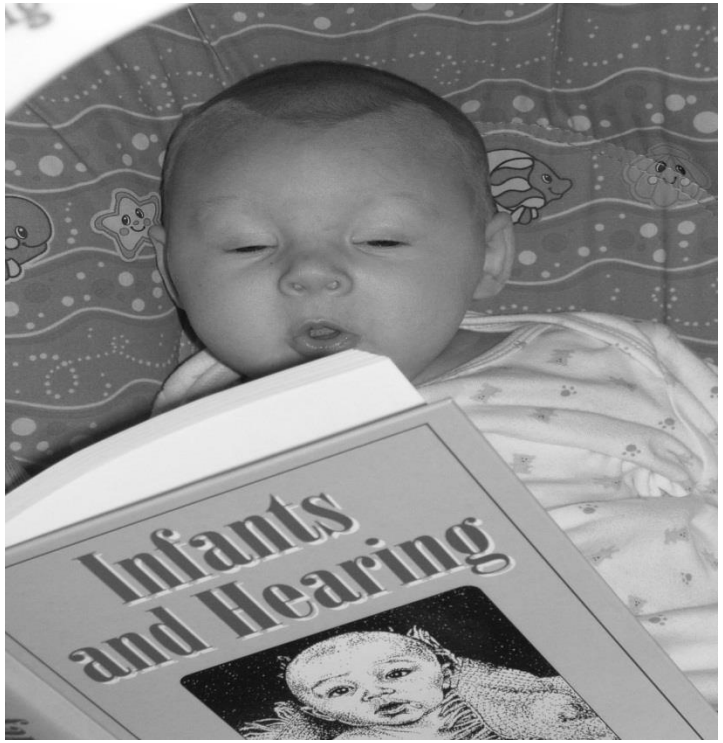
- Hearing loss is a world wide concern (WHO 2015)
  - 328 million adults
  - 32 million children
- 10% of population suffers from hearing loss. (Swanepoel, 2010)
- Audiology telehealth includes: screening, diagnostic, intervention and therapeutic services
- Specialized centers such as pediatric audiology and/or cochlear implant centers are typically located in larger metropolitan areas, whereas patients may live several hours away
- Creates a burden on families to make it to appointments
- Missed appointments may lead to poorer outcomes
- But… there is limited research in audiology telehealth

Parent Reported Challenges:

- Overwhelmed with information from audiologist
- Difficulty with daily hearing aid management
- Don’t do a daily hearing aid listening check
- Minimal confidence in their ability to troubleshoot hearing aid problems
- Difficulty dealing with emotions regarding their child’s hearing loss (Munoz, 2015)

Who is Providing Tele-Audiology?

- Survey of 201 audiologists and hearing aid dealers indicated that willingness to use audiology telehealth depends on the procedure that is needed. (Singh 2014)
- 48% of audiologists providing service via telehealth are employed in federal, state or local government agencies (Brown 2014)
- 37% of services were provided to patients in the VA or medical facilities and 30% were provided to patients in their homes (Brown, 2014)



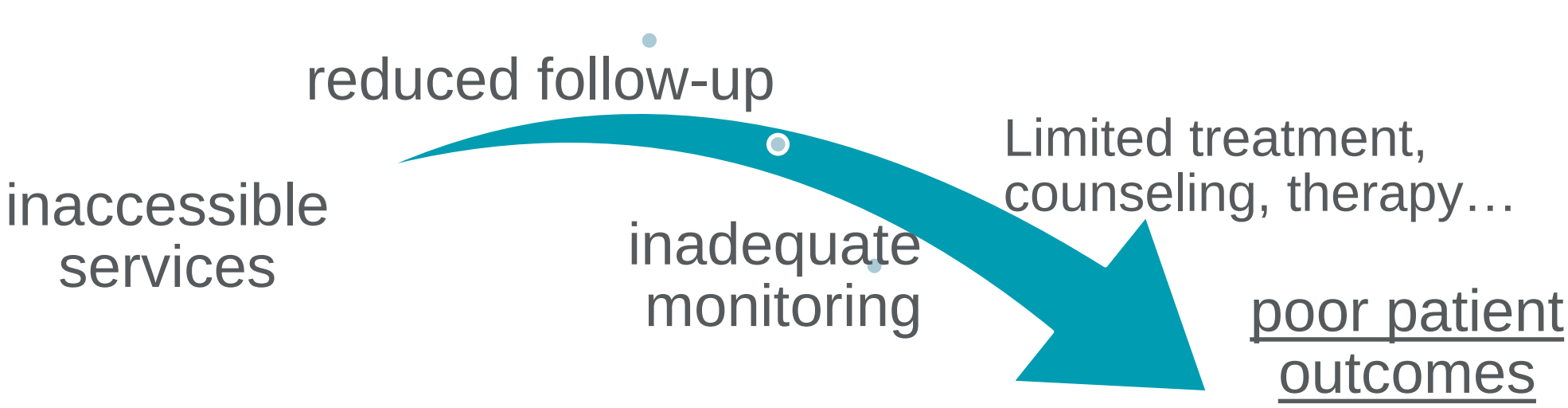
Will Telehealth work for audiololgy?

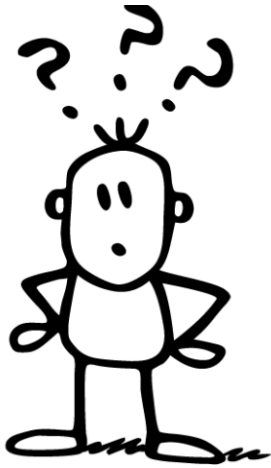
- Patient survey on attitude towards audiology telehealth: 32% would use telehealth and 10% would sometimes use it. (Eikelboom, 2005)

- Novak et al. (2016) reported on over 140 tele audiology encounters with overall positive outcomes with hearing handicap inventories, benefit profiles, and psychosocial scales.

Telehealth Justification: Audiology Landscape

Problem(s): Shortage of audiologists and expertise in satellite facilities, local schools and rural areas to serve the unique needs of children with hearing impairment





Potential Solution(s): Telehealth encounter with field expert(s) to either consultatively resolve a problem or provide direct intervention.

We had, and still have, some big challenges

- Licensure
- Reimbursement
- Audiology Technology
- Patient Technology
- Platform and Connection Issues
- Staff buy in

Cincinnati Children's Center for Telehealth

Early 2000-
- Radiology
- Psychiatry
- Cardiology

2010-2012
- Strategic priority- different owners
- Learned from leaders

2013
- Launched Center Telehealth
- 3500 encounters
- Mostly diagnostic

2014
- Opened physical Telehealth Center
- Infrastructure upgrade

2015
- OH Medicaid
- Liberty Opening
- Mobile Physician Access

2016/2017
- Community / Home
- International

We completed over 4500 telehealth encounters in FY15, and are on track to do 5000 in FY17!

TECHNOLOGY

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Technology

Audiologist needs

- State license
- A device with a camera and microphone: Laptop, desktop, tablet.
- Hippa compliant space
- Jabber software on computer that will be used for appointment
- Ability to email or text link to consent, appointment link, instructions on how to set up a link, and after visit summary link.

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Technology

Patient Needs for Direct Access

- A device with a camera and microphone: Laptop, desktop, tablet
- Connection to the Internet

Patient Needs for CI Mapping in a remote facility

- Professional
- Computer and equipment for mapping
- Computer for jabber
- Licensure

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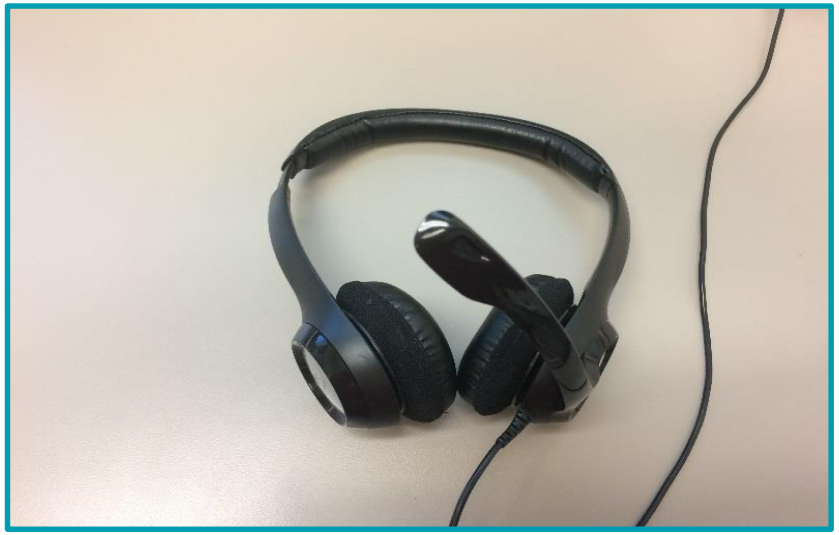
Head Sets



Camera Technologies

Software

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Software Considerations

- **1. What does it do/provide?**
  - Video interfacing
  - Screen sharing
  - “Remote” control
  - Secure/Encrypted (HIPPA compliant)
- **2. Where do you get it?**
  - Check with your IT department to research what tools are available that works best with existing infrastructure
- **3. How much does it cost?**
  - Varies dependent on current infrastructure
  - Estimate of $300.00-500.00 per user
- **4. Why did CCHMC choose CISCO products?**
  - It worked best with our current networking and computer infrastructure

When using telehealth..

- Make sure your environment is appropriate and private
- Look into the camera, not the monitor
- Sit in a forward leaning position
- Don’t wear bright colored or busy clothes
- Limit distracting movement, side conversation, background noise, fidgetting

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Remember to…

- Provide your name, qualifications and credentials
- Provide your location and ask patient for their location
- Obtain consent for treatment via telehealth

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CCHMC Audiology Telehealth Program

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How we are dealing with some Common Challenges

Licensure

- Tri State area

Reimbursement

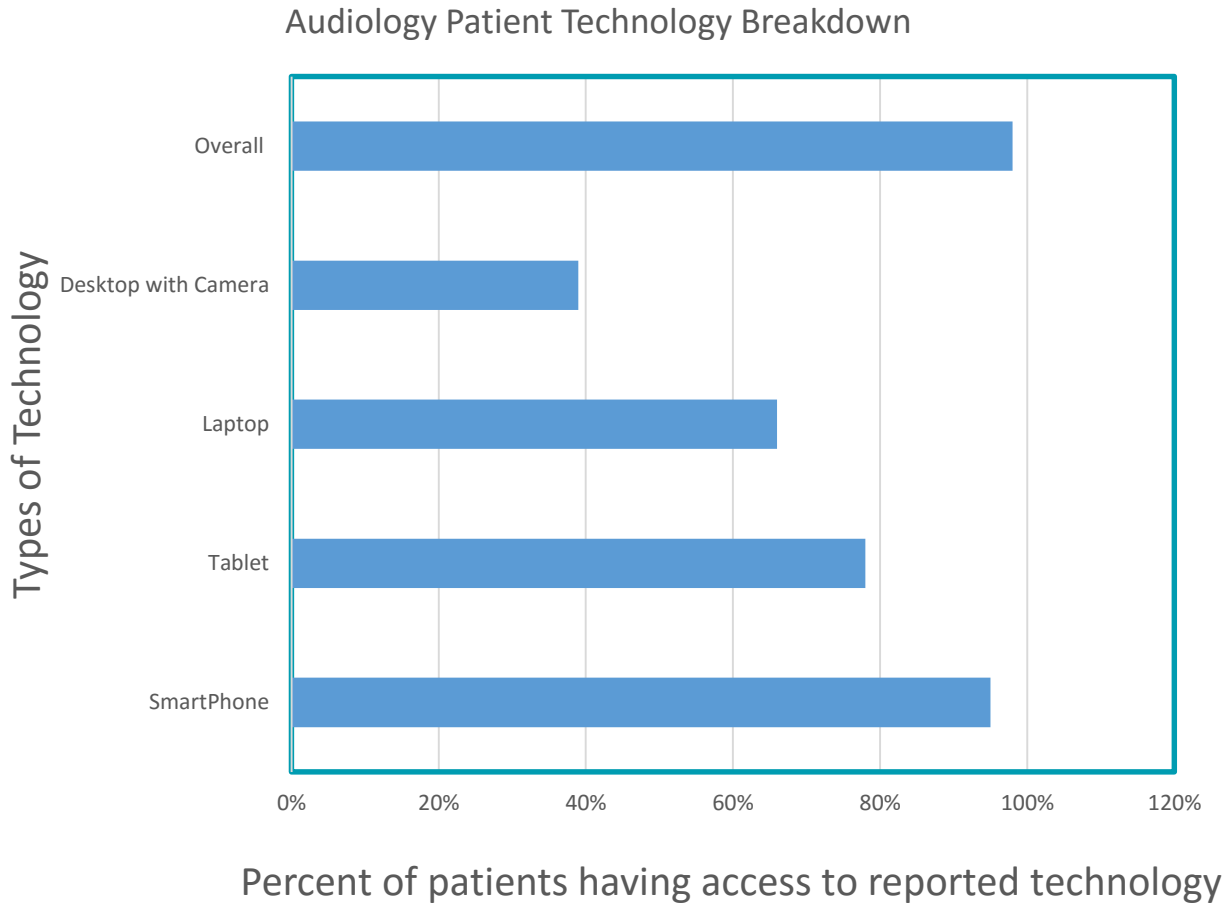
- Focus on Non Reimbursable Services.
- Focus on Direct Access Services to patient outside of medical center
- Outcomes can be used to show benefit, may lead to reimbursement

What are we working on?

- Hearing Aid Troubleshooting (5 completed) Focus
- Hearing Aid New Fit Check in Appointments (24 completed) Focus
- Hearing Aid Evaluation Appointment (1 completed)
- AR therapy (7 completed)
- CI mapping (3 completed)
- AR eval Check Appointments (8 scheduled)

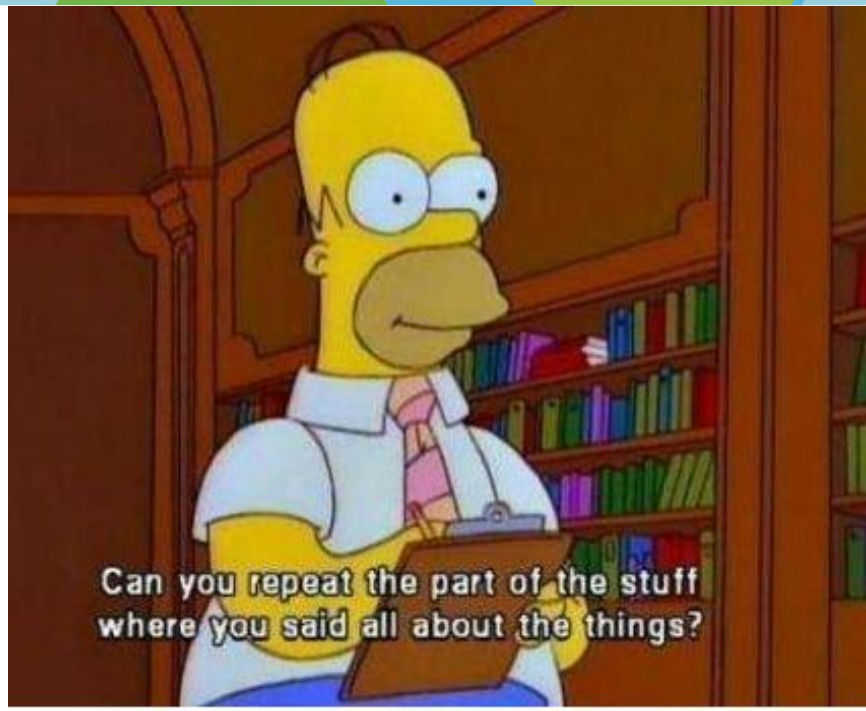
Audiology Patient Technology Survey

- Our next step was to determine if our patients had technology that would permit them to connect.
- We surveyed all hearing aid and cochlear implant patients for 3 weeks at the 6 locations that provide hearing aid and cochlear implant services.
- The survey showed that 98% of patients had technology that could be used for telehealth services.



Staff training

- Training at each location in small groups
- Licensure for telehealth
- Telehealth Parent packet
    * Telehealth Visit Consent
    * Link to download software
    * Instructions on how to download software, troubleshooting guide and phone number
    * Date and Time of Appointment
    * Link for Appointment
    * Link to after visit satisfaction survey
- How to schedule and document a telehealth appointment



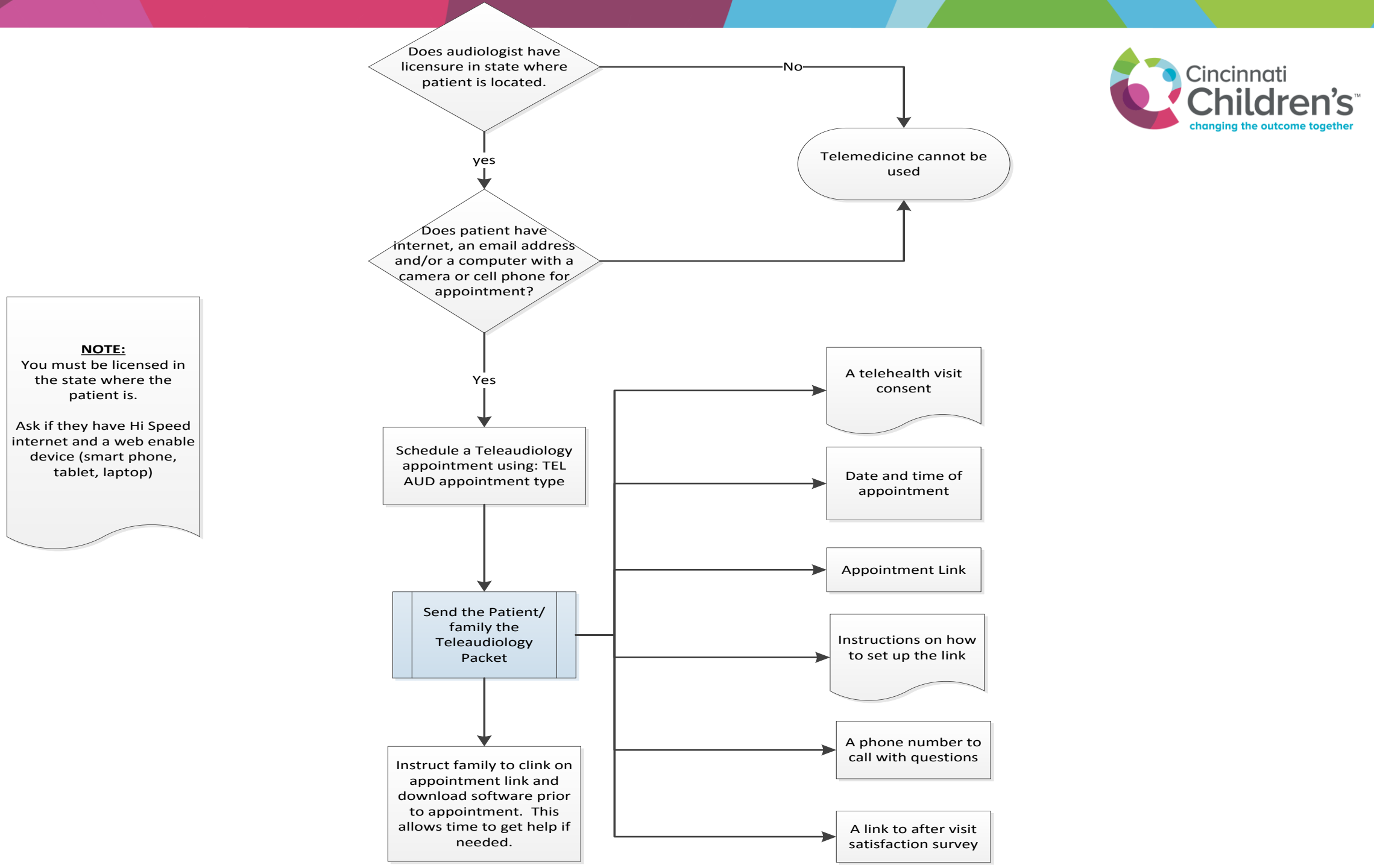
www.UShumor.com

Training with People!

- Simulated encounters
- Encounters with real patients pretending to need help
- Most were successful.

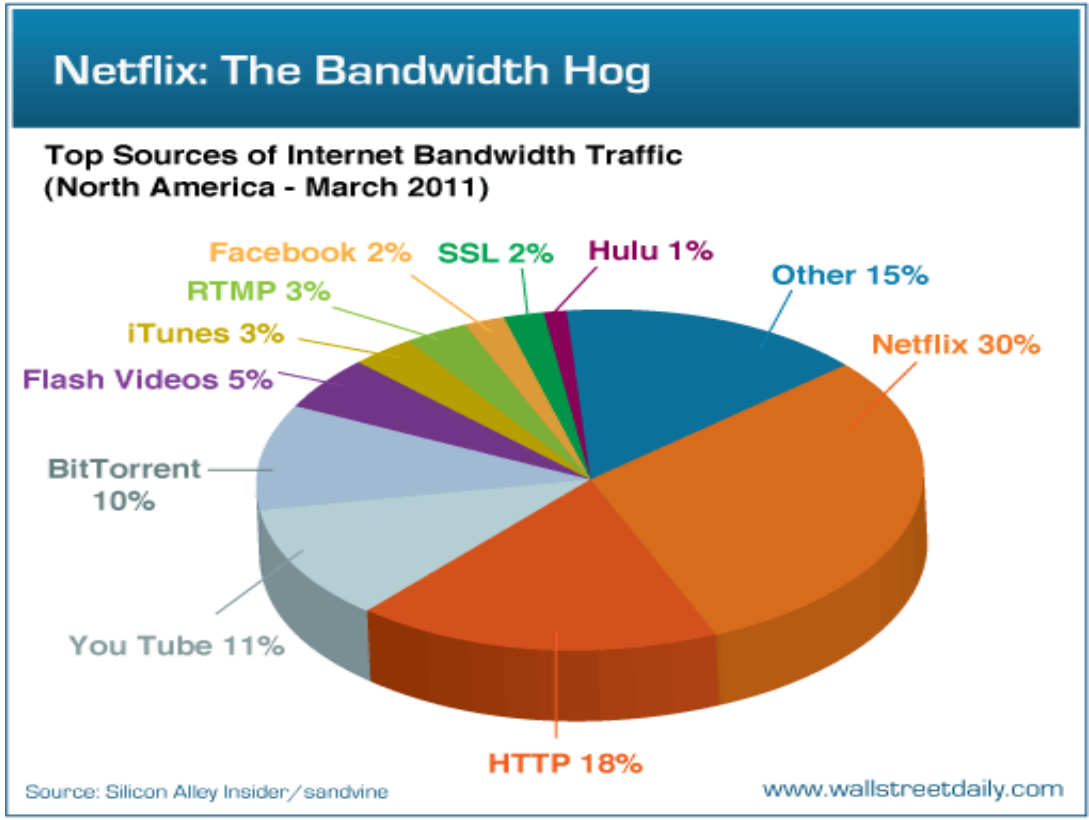
Process for troubleshooting:

- Parent or teacher calls office with problem
- If staff member thinks telehealth can help solve the problem, telehealth parent packet is emailed.
- Consent is confirmed or obtained
- Appointment is made
- Service is provided


Does audiologist have licensure in state where patient is located.
No
yes
Telemedicine cannot be used
Does patient have internet, an email address and/or a computer with a camera or cell phone for appointment?
Yes
Schedule a Teleaudiology appointment using: TEL AUD appointment type
Send the Patient/ family the Teleaudiology Packet
Instruct family to clink on appointment link and download software prior to appointment. This allows time to get help if needed.
A telehealth visit consent
Date and time of appointment
Appointment Link
Instructions on how to set up the link
A phone number to call with questions
A link to after visit satisfaction survey
NOTE:
You must be licensed in the state where the patient is.
Ask if they have Hi Speed internet and a web enable device (smart phone, tablet, laptop)

Bandwidth

- Our biggest barrier is reduced bandwidth
- Turn off other items that use bandwidth
- Close program and launch again
- Try a different time on another day
- Try a different location
- Try another device
- Try a different browser



Common Technology Challenges

- Patient's operating system was not Jabber compatible.
- Patient needed help downloading Jabber software.
- We called patient on the phone. For future telehealth appointments, patient will try to use her husband's computer, which has an operating system that is compatible.
- IS called patient and helped download. We started sending instructions on how to download software with link

- Poor picture quality for the patient
- Patient could not connect to the audiologist
- Patient could not connect to the audiologist
- Patient called early for her appointment. With Jabber, the patient initiates the call to the audiologist.
- We disconnected and asked parent to call us again. Picture quality was better the second time
- Audiologist did not have Jabber open. Connection was made as soon as program was open
- Audiologist was not on the computer that corresponded with the link sent to the patient
- We answered her call. We need to be ready in advance for all teleaudiology appointments.

How do we measure success?

5 Domains:

- Access to Care
- Cost
- Cost Effectiveness
- Patient Experience
- Audiologist Experience

Access to Care

- We provide many audiology services outside our office
- Permits parents to stay at work and children to stay at school
- Parents/teachers and audiology staff need a device with a camera to connect with, email, and Wi-Fi

Cost Effectiveness

- Telehealth appointments typically take less time than a regularly scheduled appointment, allowing the audiologist more open slots on schedule
- Our focus is on services that are typically bundled

  or not charged.
- Parents save money by not missing work and not having travel expenses

Patient Experience

- 100% of participants who took the post visit survey were satisfied with their audiology telehealth visit.
- No negative results reported
- Small sample size
- Parent Comment: “This is a valuable resource that educators of patients at CCHMC can use in the future to communicate and troubleshoot problems and progress. I also could see how helpful this would be as a family member of a patient of CCHMC.”

Audiologist Experiece: Staff Buy In

- Initially, most staff members were interested.
- Weekly meetings via Skype for Business
- Everyone received training, practiced with other staff members and actual patients pretending to have a need.

Staff have Cold Feet

- Bandwidth issues
- Worry that quality of interaction between audiologist and patient would suffer
- Questioned quality of appointment
- Concern that patient would have to come to hospital anyway
- Anxious about setting up technology and sending correct links
- Fearful of a decrease in productivity

Status quo bias

- An emotional preference for the current state of affairs
- Current baseline (status quo) is the reference point
- Any change from baseline is perceived as a loss.
- Losing $100 twice as strong as winning $100

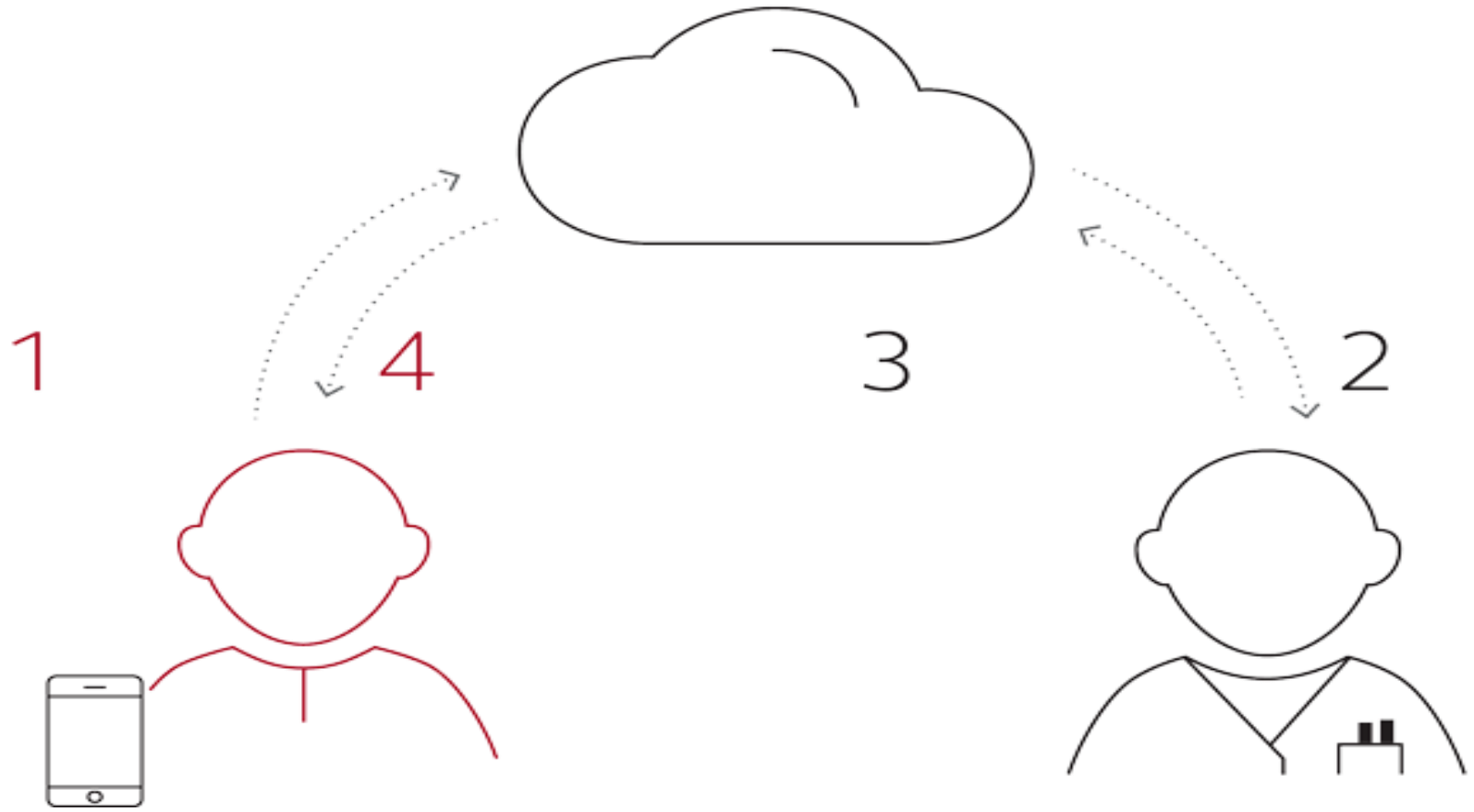
Changed focus

- Formed a telehealth team of 6 people, instead of original 50
- Original idea was for troubleshooting services. Expanded it to include hearing aid check in for new hearing aid fitting
- Piloted with audiology assistants at 2 neighborhood locations
- Assistants answered any questions, looked at earmold and hearing aid, and started self management
- Audiologists were supervising

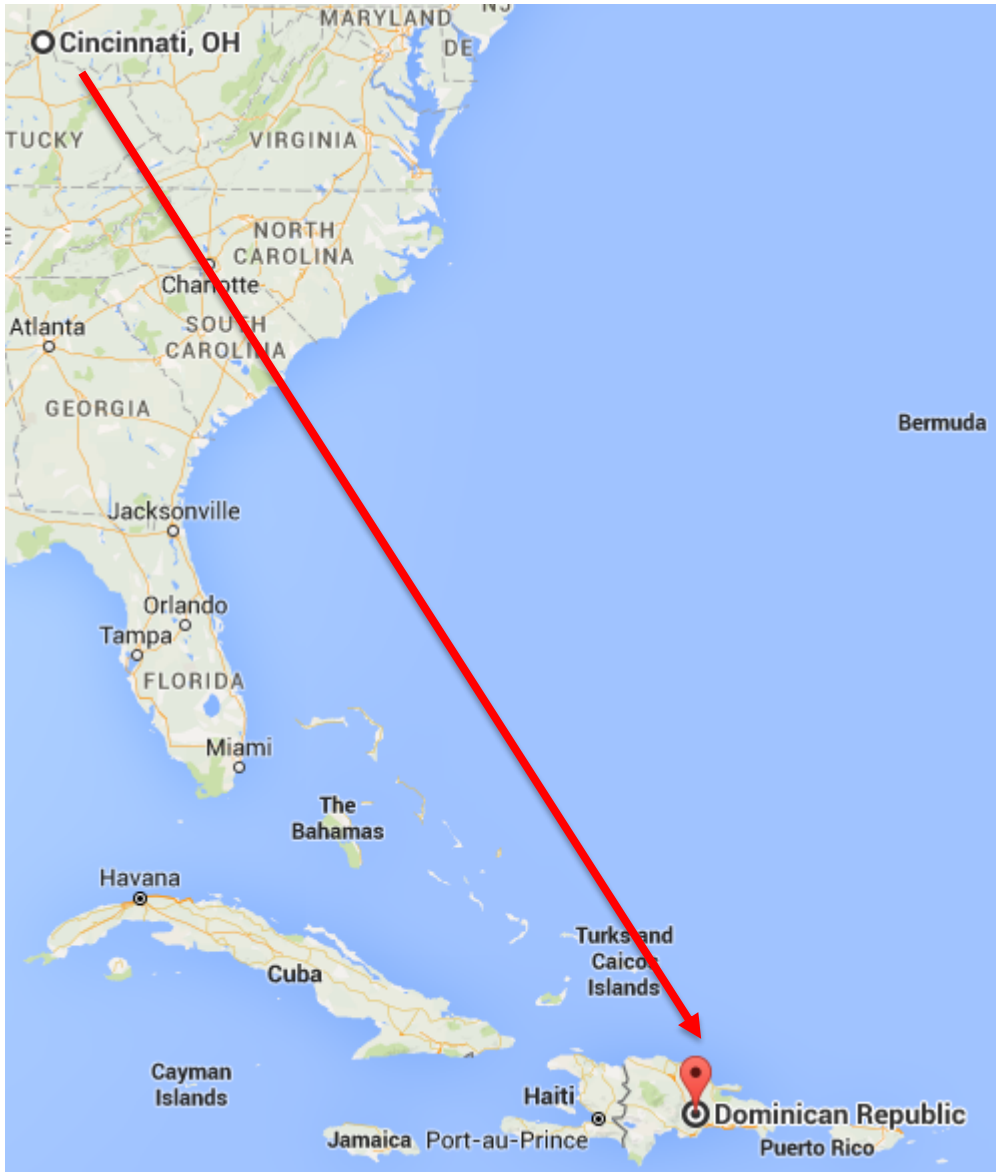
Results

- Audiology assistants became teleaudiology super users!
- Spread to audiologists in their location and to assistants in other locations
- Sparked audiologist idea to do a teletherapy pilot
- Patients and parents were very satisfied
- Platform for troubleshooting appointments

Next steps: Resound Tele assist



Case Study 1: cochlear implant



- 23 year old male
- Long-standing severe to profound SNHL
- Uses hearing aids intermittently due to days where sound quality is very poor
- MRI and CT scans: “findings compatible with bilateral cochlear nerve deficiency”
- Interested in CI, with appropriate expectations
- Home: Dominican Republic

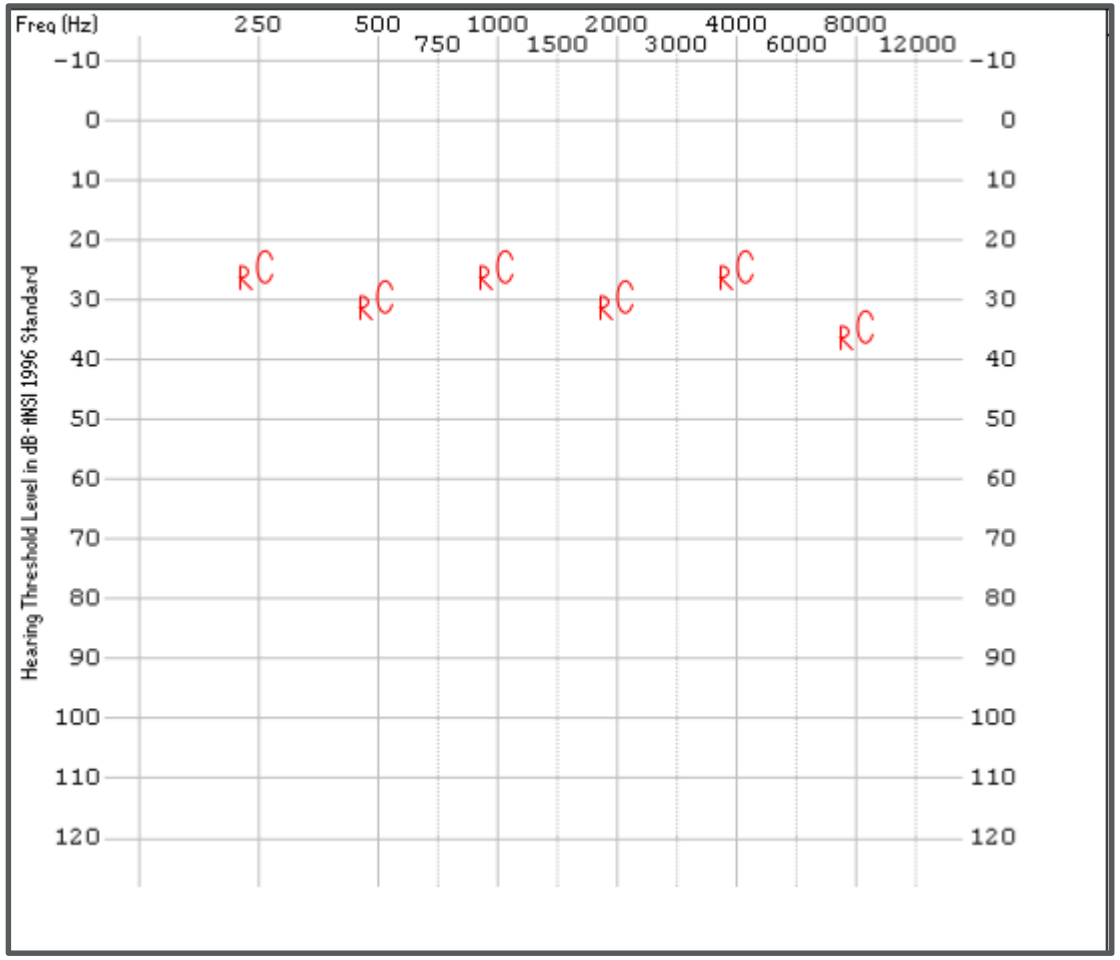
Case Study 1: cochlear implant

Initial considerations and concerns:

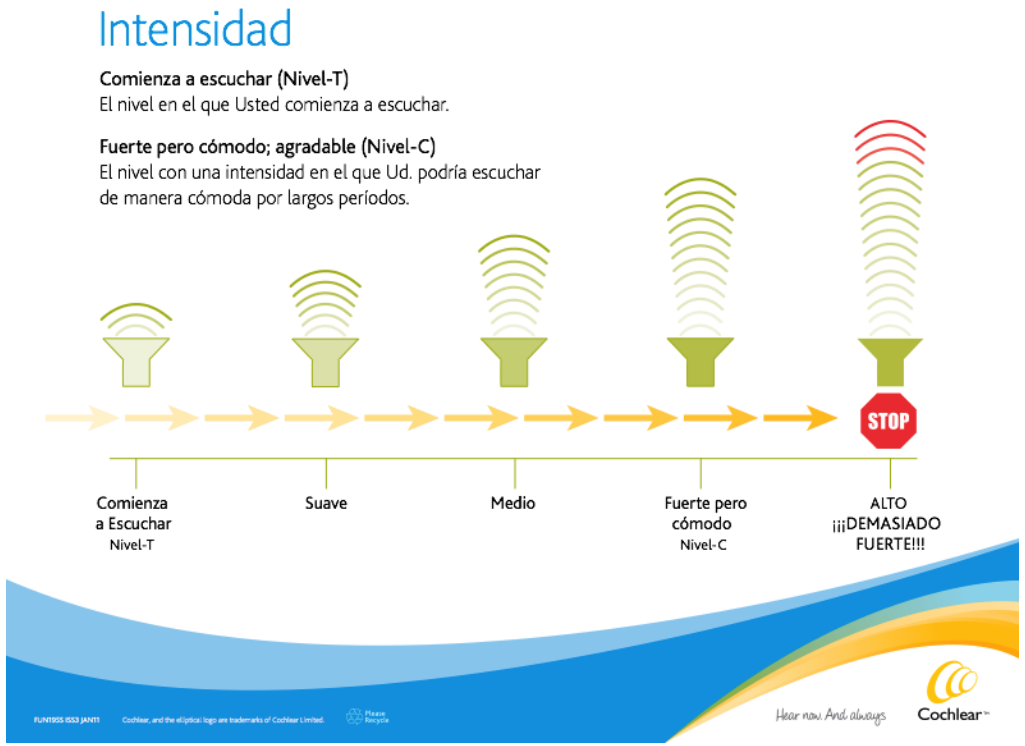
- Why seek cochlear implantation outside of the home country?
- How do we establish realistic goals and expectations?
- Is maintenance of the device going to be possible at home?
- How long do we ask a patient to remain in Cincinnati before "discharging" home?
- If telehealth is going to be utilized, how secure and reliable will our connection be? What equipment do we need?
- Language barrier- who will provide interpretation?

Case Study 1: cochlear implant

- Right cochlear implant
- Had initial activation and first three follow up appointments in Cincinnati
- Trained on what to expect regarding follow-up at home
- Provided home therapy exercises



Case Study 1: cochlear implant



Case Study 1: cochlear implant

Further follow-up and next steps…

- First telehealth visit became more than just a “check-up”
- Outcome testing conducted at home in native language
- Regular follow-up programming via telehealth
- Anticipate return to Cincinnati every other year
- International issue: replacement parts and warranty
- Other countries…

Case Study 2: equipment troubleshooting & repair

- Multiple cases where assistive listening devices were not working at school
- Cisco Jabber guest technology was used
- School professionals were able to “show” me the devices that were not working
- In many cases we were able to provide expertise and able to resolve the student’s equipment

Case Study 2: equipment troubleshooting & repair

- Benefits
  - It was quick/efficient
  - Provides training/exposure to school personnel for future problems
  - Decreased amount of time student went without working equipment
    - Worst case scenario the student would have to schedule a repair appointment on outpatient basis
- Barriers or Concerns
  - Quality of video was poor for one case, but it improved after hanging up and reconnecting

Cast Study #3 Hearing Aid Evaluation

- 11 month old male
- Down syndrome
- Moderate high frequency sensorineural hearing loss
- Home residence is 3 hours away from closest pediatric audiologist

Hearing Aid Evaluation

- Includes the following:
  - Consultation on impacts of hearing loss
  - Functional assessments to determine impact of hearing loss on child (parent questionnaires)
  - Demonstration and description of various hearing devices
  - Sizing for hearing devices
  - Selection of devices (colors, styles)

Why are we not doing more…..

- **Legislation**
  - Allied healthcare professionals are not listed as telehealth providers for Medicaid
- **Technology**
  - Need advances in direct remote programming abilities
  - It's coming…. Resound, Signia
- **Licensure**
  - Concerns with patients physical location in reference to your state licensure
- **Logistics**
  - Consents
  - Need for simplistic processes for provider and patients
- **Costs & Reimbursement**
  - It simply isn't cheap and there is not likely an immediate return on investment from a financial perspective
  - Can't bill typically, unless it is a commercial insurance and/or a contractual agreement with a facility (i.e. school system)
- **Personality**
  - Some providers are not on board with technology
  - Sensitive to various generations

Future Uses

- **Remote programming of hearing devices in schools**
  - Synchronous telehealth with trained assistant
  - Utilization of both Cisco Jabber and Skype for Business
  - NOAH Computer with programming devices available onsite at schools
  - Audiologist would remote in with help from trained assistant to make programming changes when needed
- **Direct programming of hearing devices**

Conclusions

- There is an established need and possible benefit for providing audiology services via telehealth
- A successful program would benefit substantially from a partnership with a home-based facility or provider
- There's *nothing* you can't do…
- The tools & technology are available to build the foundation….don't be left behind
- What's holding you back??


There is no innovation and creativity without failure. Period.
Brene Brown
BrainyQuote

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