

Outcomes and Impacts of The AFHCAN Telehealth Program Treating Ear and Hearing Disease in Alaska

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Alaska Native
Tribal Health Consortium





















Who am I?

- ▶ John Kokesh, MD
- ▶ Education
 - UW Medical School
 - Residency, Head and Neck Oncology Fellowship
- ▶ Full time clinician
- ▶ 20 years at Alaska Native Medical Center
- ▶ Ear surgery
- ▶ Involved in Telemedicine since 1998
- ▶ Clinical Advisor Alaska Federal Healthcare Access Network (AFHCAN)

Why am I here?

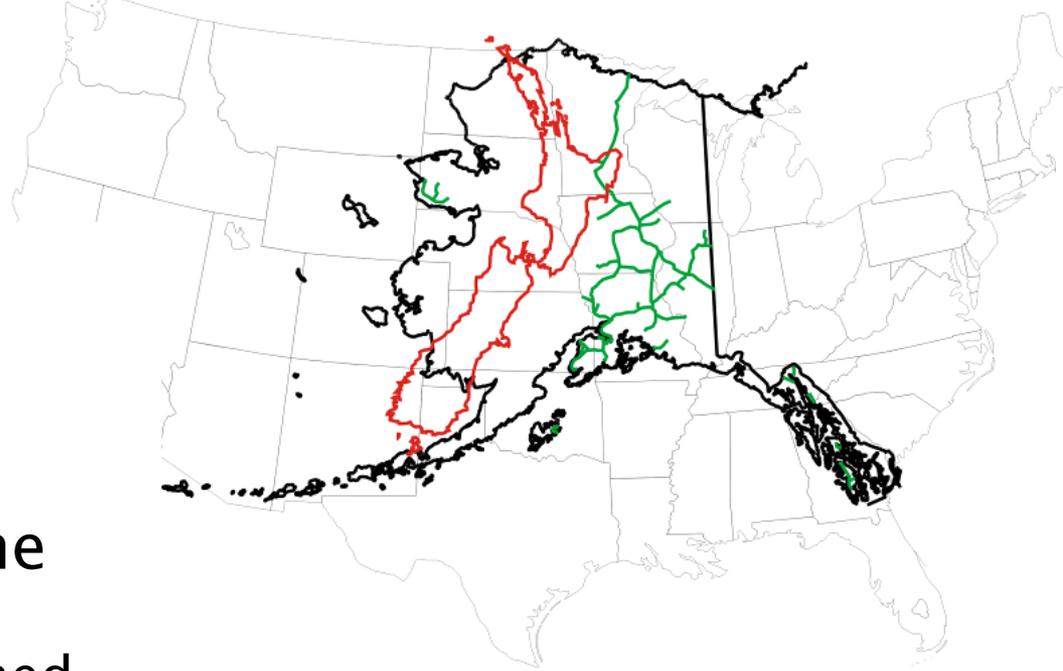
AFHCAN Telemedicine

- ▶ Why Alaska a leader in telemedicine
- ▶ How we got to where we are
- ▶ Outcomes
 - The numbers
 - The people and their stories
- ▶ Tribute to the audiologists in the Alaska Tribal Health System

Why did we become involved in Telemedicine?

Because we needed it.

ALASKA



- ▶ 1st in land mass

- 1,420 miles (N–S)
- 2,400 miles (E–W)

- ▶ 33,900 miles of shoreline

- More than all of the contiguous states combined.

- 47th in road miles

- 75% Alaskan communities unconnected by a road to a hospital.
- 25 of these have no airport.

- Population density is 1.1 persons/mile²

- 70 times smaller than the national average.

Alaska: The Doctors are NOT where the Patients ARE

- ▶ 49% of all physicians in Alaska are primary care physicians (2002 data).
 - The U.S. average is 28%
- 59% of the state's residents are in medically underserved areas.
- ▶ Alaska is 48th in “doctors to residents” ratio
 - 65% are located in Anchorage
 - Shortages in many specialties
 - 579 Community Health Aides in 200 villages provide nearly ½ million encounters each year.



Noatak Health Clinic



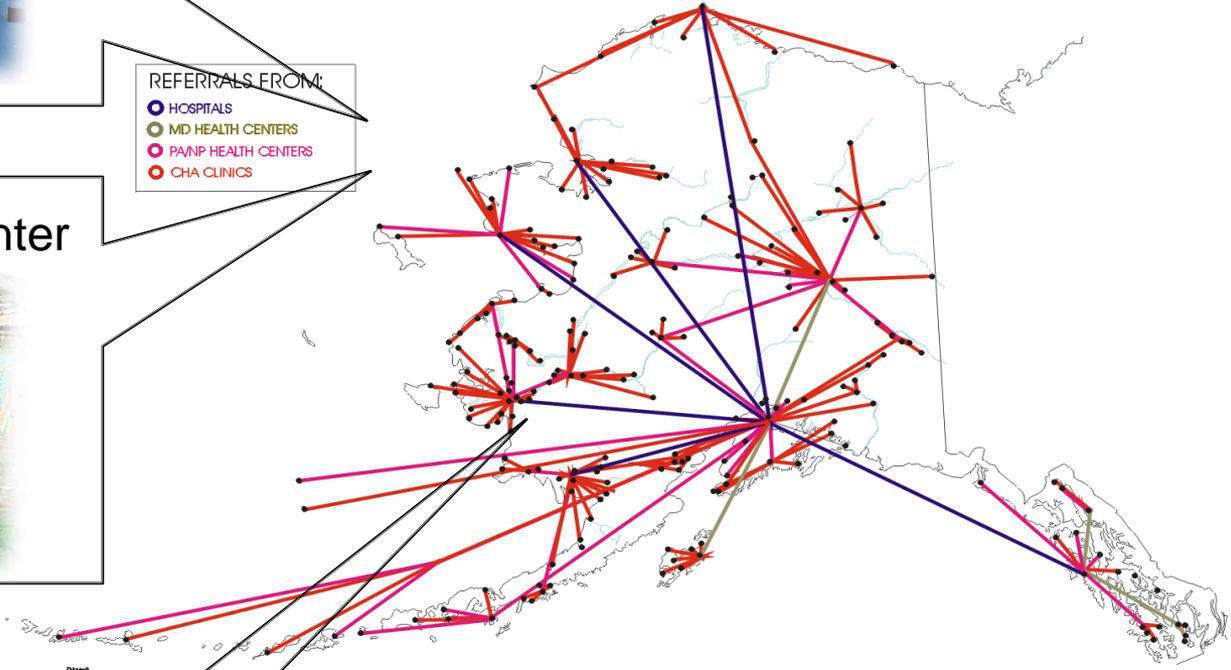
Maniilaq Health Center



Alaska Native Medical Center (ANMC)

REFERRALS FROM:

- HOSPITALS
- MD HEALTH CENTERS
- PAINP HEALTH CENTERS
- CHA CLINICS



Village-Based Medical Services

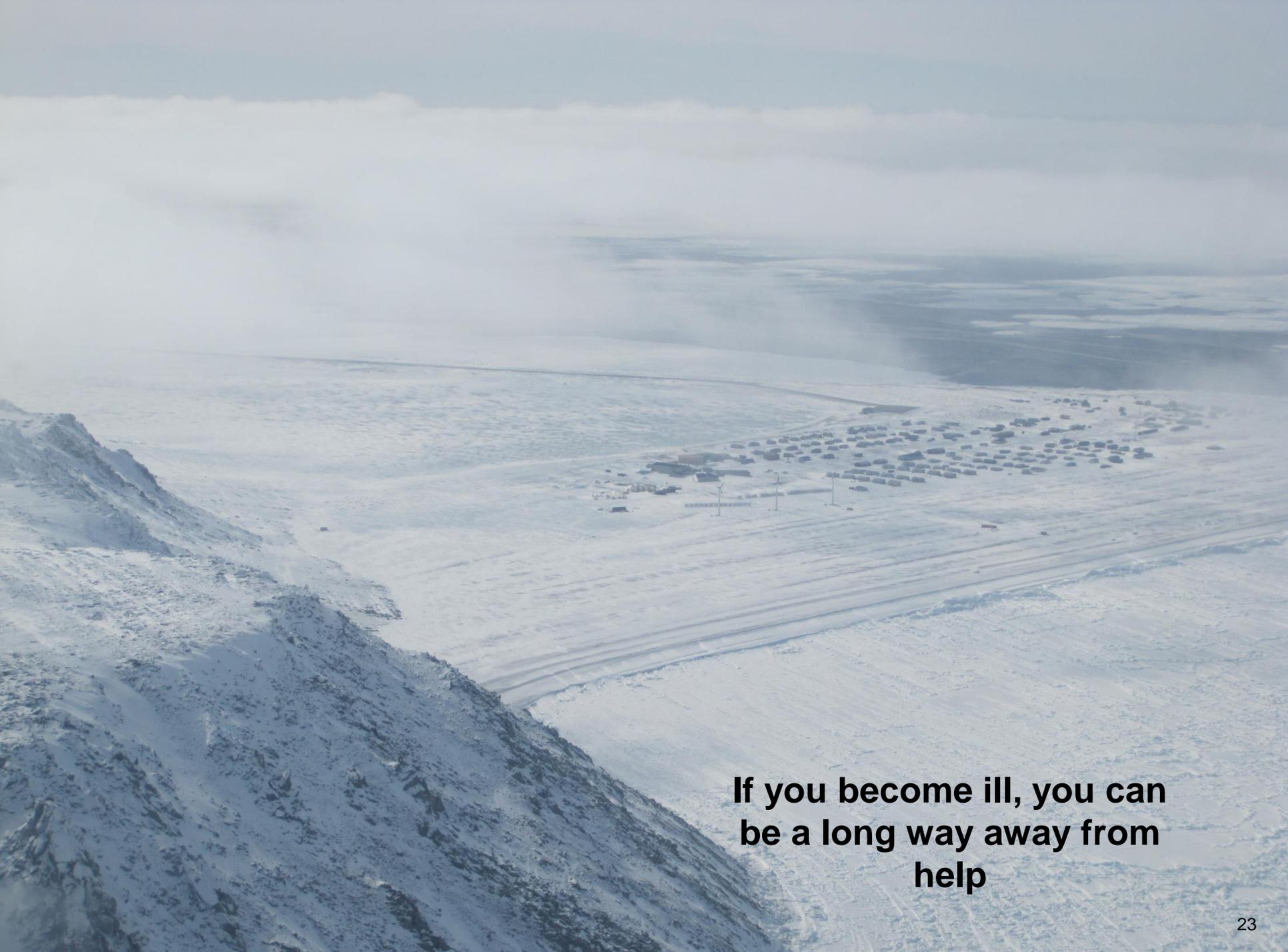


Average Alaska village
→ 350 Residents

- ▶ 180 Small Village Health Centers
 - 550 Community Health Aides / Practitioners
 - 125 Behavioral Health Aides
 - 20 Dental Health Aides / 12 Therapists
 - 100 Home health / personal care attendants

KI'ANA CLINIC





**If you become ill, you can
be a long way away from
help**



Flavorite.

FROM CONCENTRATE

Orange Juice

ORIGINAL

LOW PULP

DAILY VALUE
120% VITAMIN C
PER SERVING

100% ORANGE JUICE
PASTEURIZED
NO PRESERVATIVES



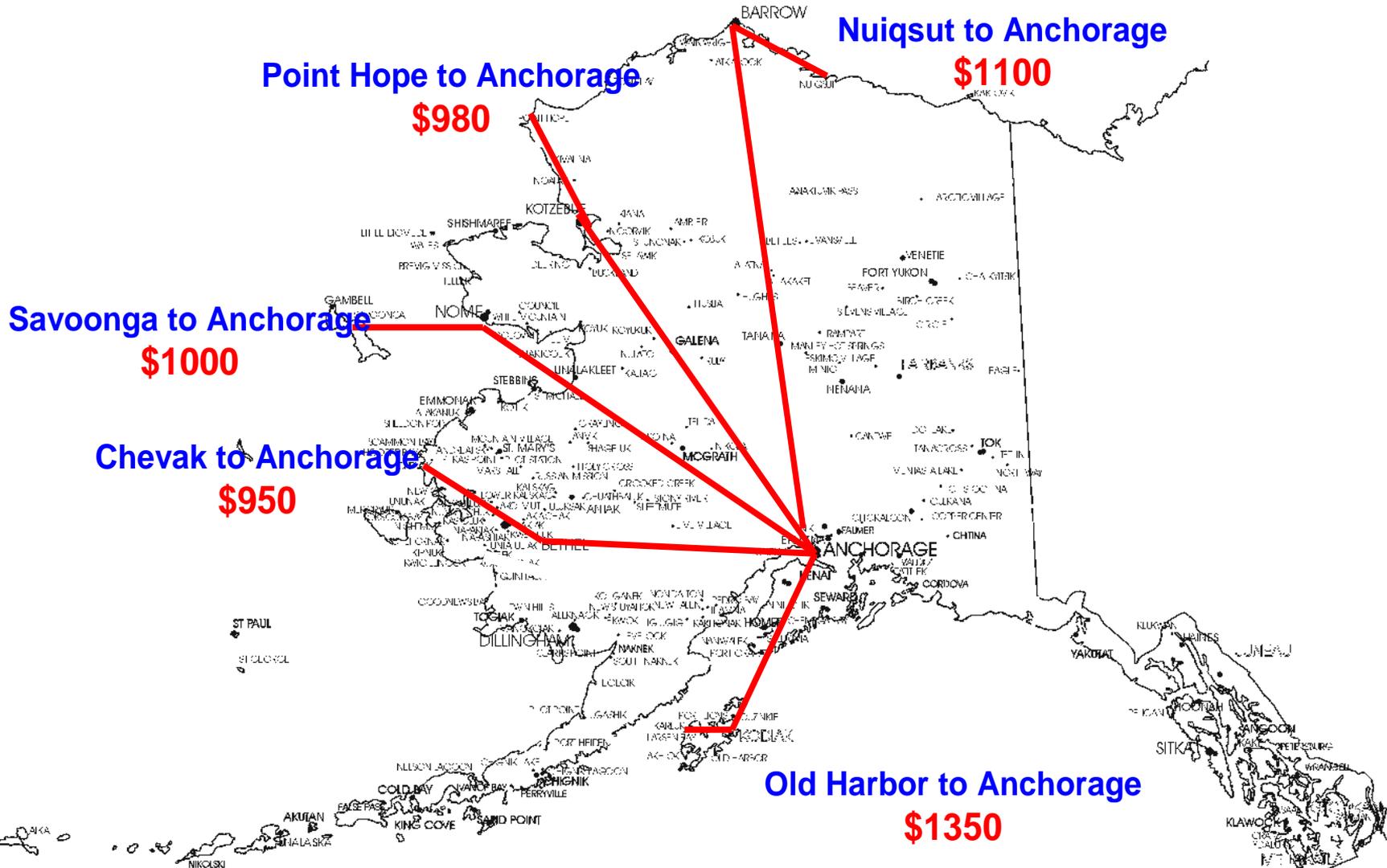
89 FL OZ (2.63L)

BEST BEFORE MAR 15 12
JBC 13-08

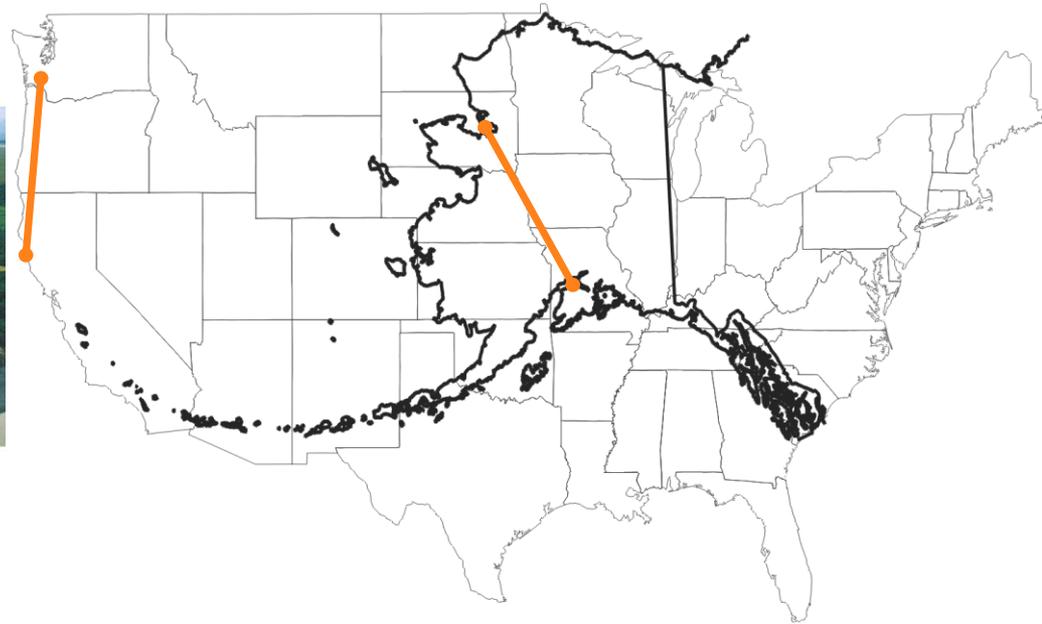
FLAVRT ORANGE JUICE
89< P6
764-2118 69/6910
FOOD
0.3 /
12.29
UNKLT 08/17/11 041130076077

THE ALASKA NATIVE HEALTH CARE SYSTEM

Location Names and Service Level



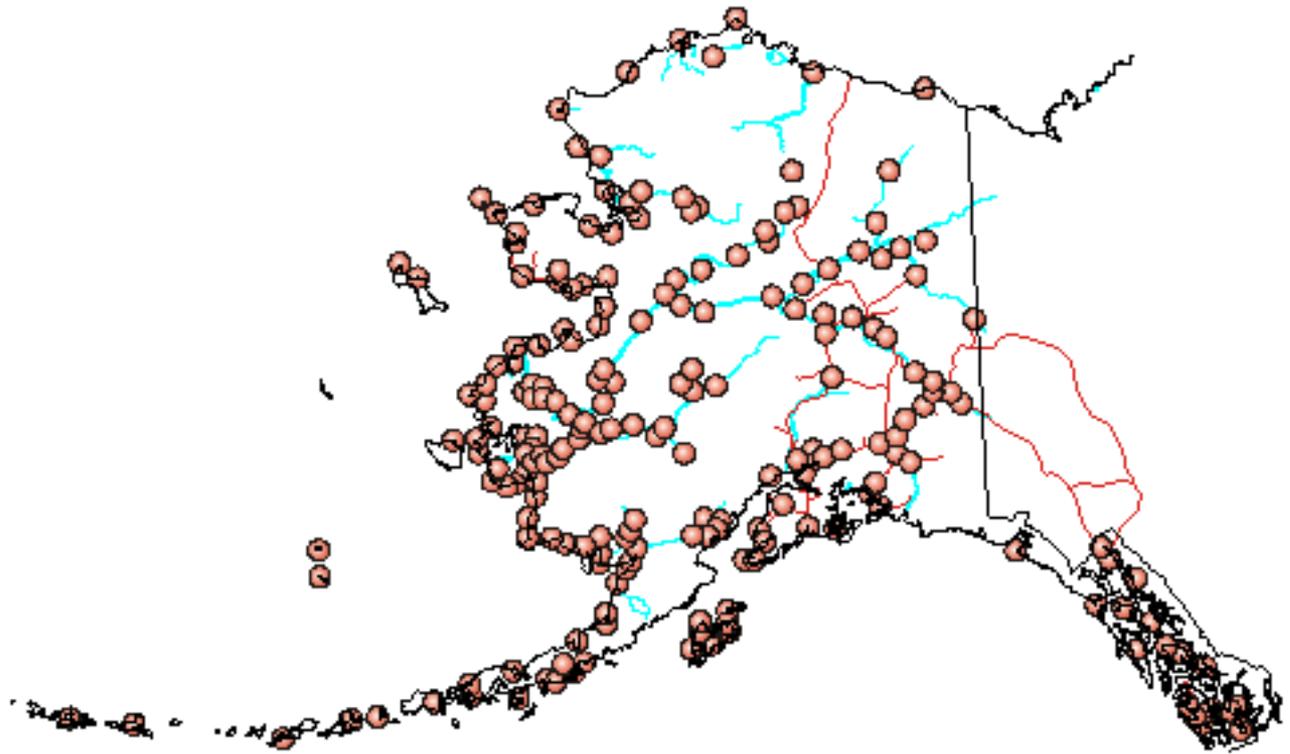
Complexity, High Cost, Risk



AFHCAN MISSION

To improve access to health care for federal beneficiaries in Alaska through sustainable telehealth systems

Alaska
Federal
Health
Care
Access
Network



AFHCAN Telehealth

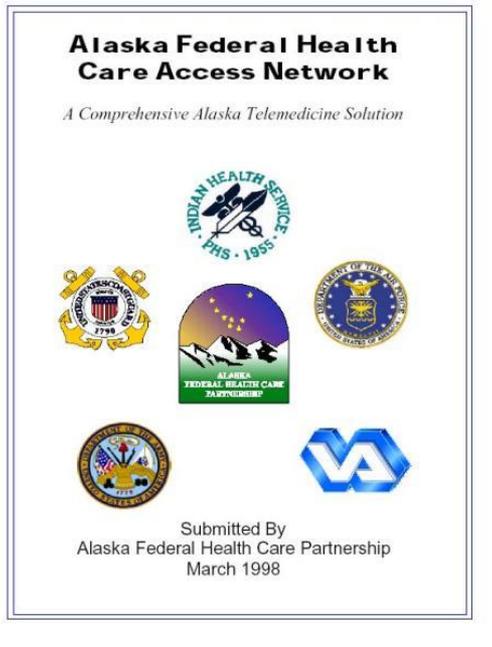
- ▶ 12 year Operational History
 - 30,000 cases / year

- ▶ Whole Telehealth Solution

- Design → Manufacturing → Deployment → Installation → Training → Support → Marketing

- ▶ Installed Customer base includes:

- Alaska: 248 sites, 44 organizations
 - 37 Tribal organizations
 - US Army sites (6) & US Air Force bases (3)
 - State of Alaska Public Health Nursing (26)
- Other states and countries



Telemedicine is one **STRATEGY** to

**improve access, quality
& performance**

and to manage

costs & risk

Store & Forward vs Real-Time Telehealth

Store & Forward

- Asynchronous Interaction
- Documents & Images
- Electronic Medical Records
- Patient Education

Real-Time (VtC)

Remote consultation

- Face-to-Face Interaction
- Immediate Feedback



- Radiology
- Dermatology
- Pathology
- Oncology
- Ophthalmology
- Dental

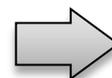
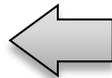
Clinical specialties for telemedicine



- Cardiology
- ENT
- GI
- Pulmonary
- Rheumatology



- Psychology/ Psychiatry
- Neurology
- Speech therapy
- Physical therapy

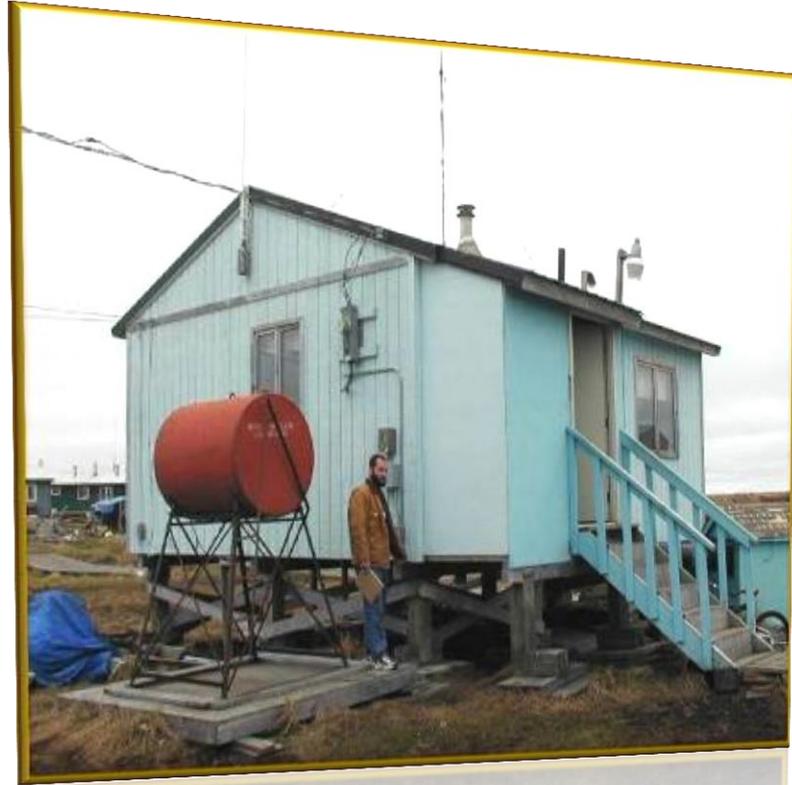


Designing A Primary Care Tool



- ▶ Ear Disease
 - Audiometer, Tympanometer, Video Otoscope
- ▶ Heart Disease
 - ECG & Vital Signs Monitor
- ▶ Respiratory Illness
 - Spirometer & Vital Signs Monitor
- ▶ Trauma, Skin & Wound
 - Digital Camera
- ▶ Dental Problems
 - Dental Camera
- ▶ General
 - Scanner & Forms

Case originated...



...Case received.



When Do You Need A Telemedicine Consultation?

- ▶ Uncertain about the diagnosis.
- ▶ Uncertain about the treatment.
- ▶ Uncertain about the outcome; complications



**Specialist participation earlier rather than later
“Expert Level Triage”**

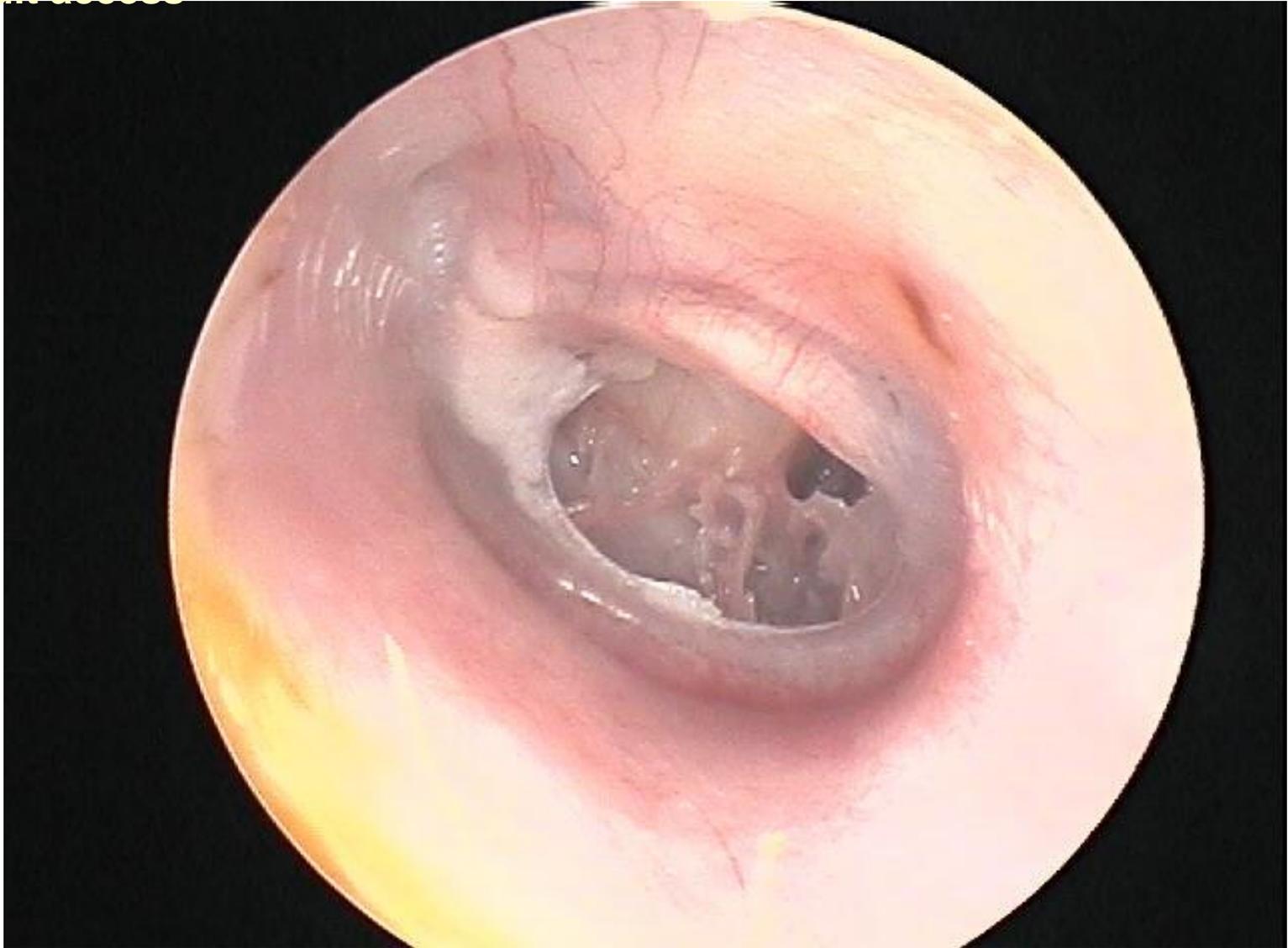
How we got where we are

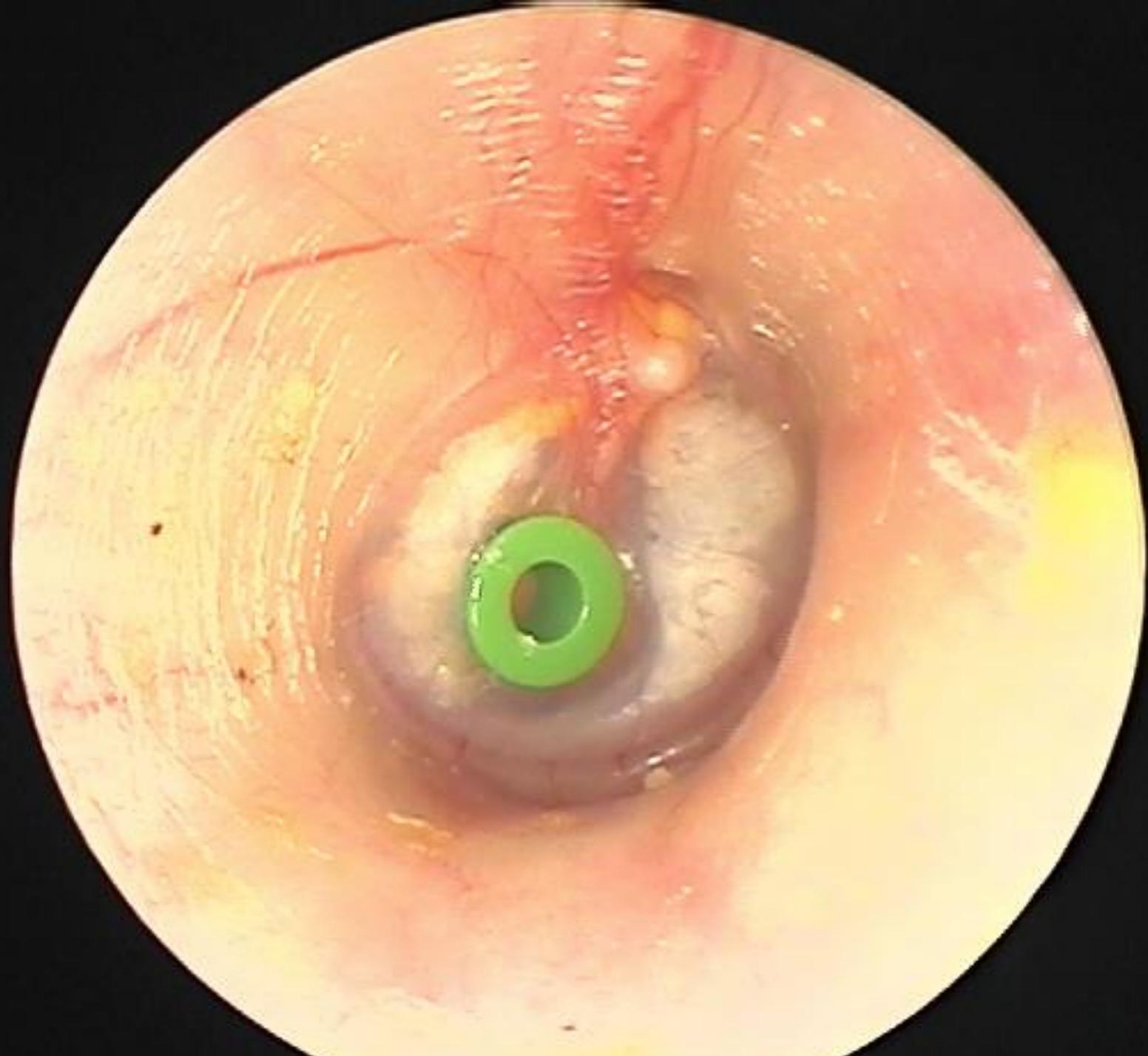
- ▶ Proved that telemedicine works clinically
- ▶ Built clinical experience and expertise through high levels of usage
- ▶ Developed culture of continuous improvement, change and evolution
- ▶ Fostered collaboration between technical experts and clinicians
- ▶ Picked the “low hanging fruit”

- ▶ How did we show that telemedicine would work for the patient problems we see every day?



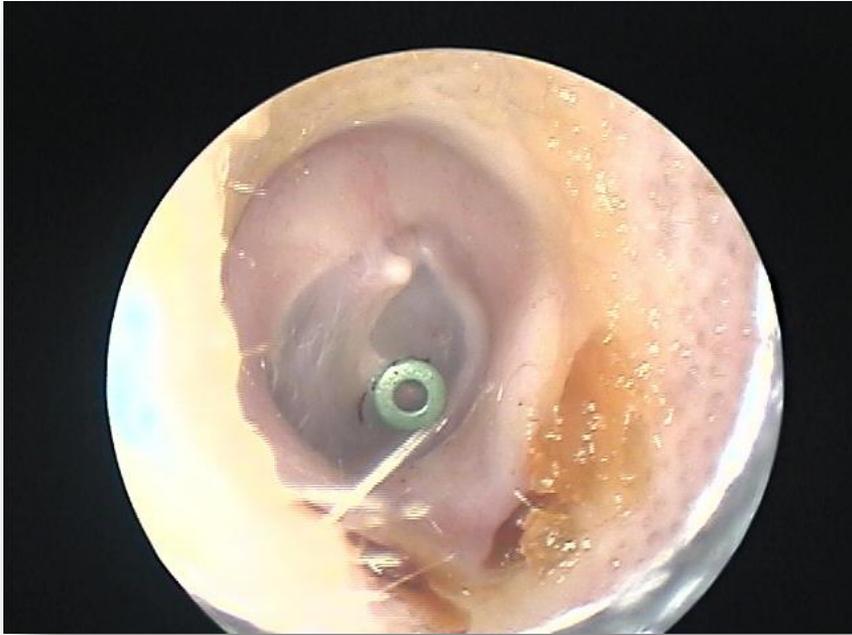
Simple problem
Difficult access





Ear tube follow up study

The Value Proposition



- ▶ 254 sets of tubes placed at ANMC in 2000
- ▶ 1,000 follow up appointments needed in 12 month period
- ▶ Many of these patients from remote areas

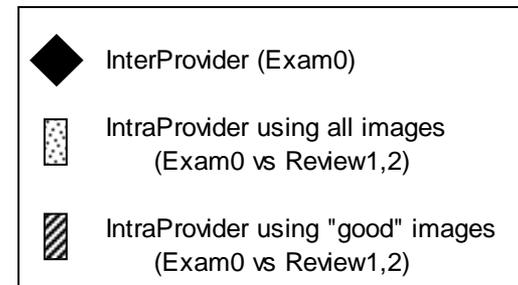
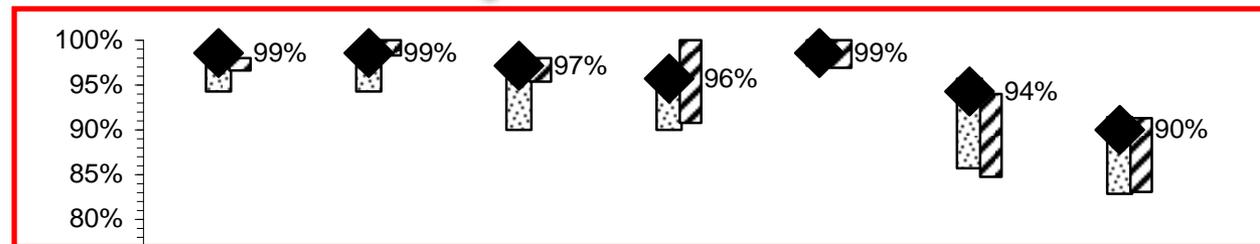


Blinded Study

- ▶ To determine if video otoscope still images (640 x 480 pixel resolution) of the tympanic membrane following surgical placement of tympanostomy tubes are comparable to an in-person microscopic examination.

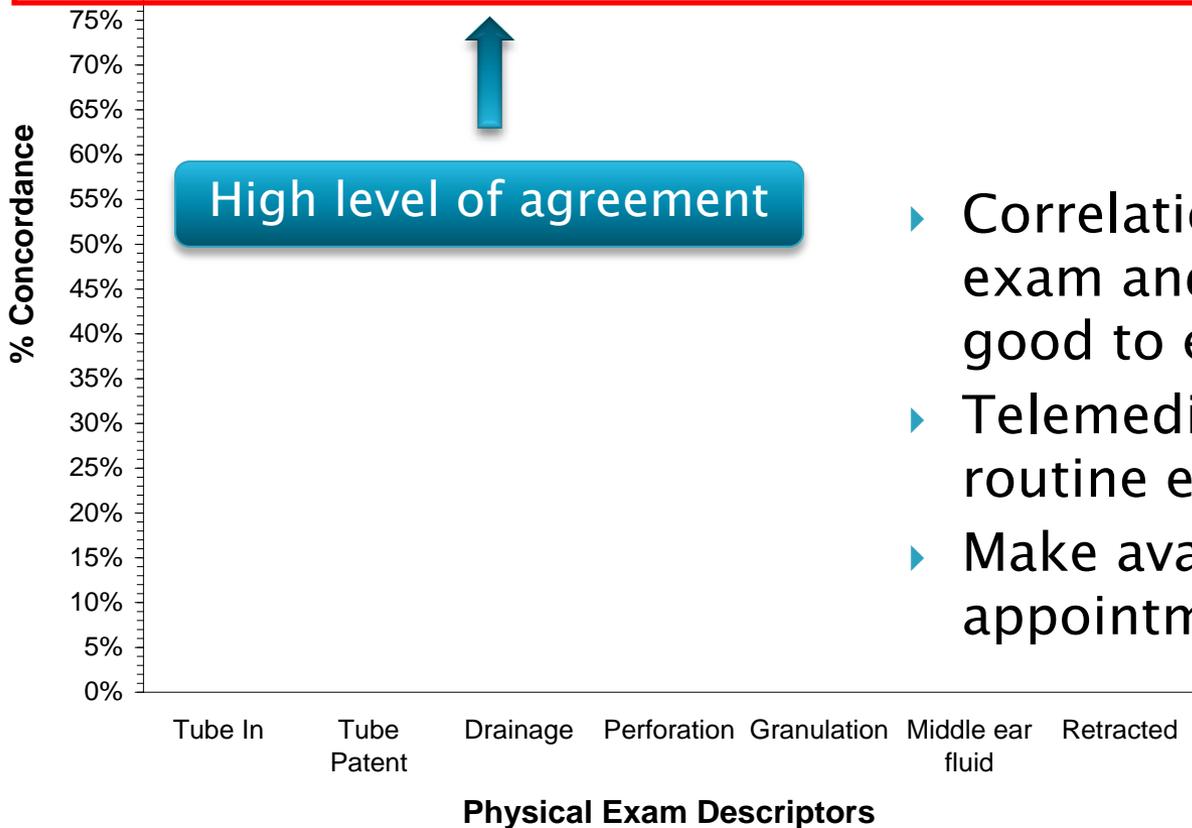


% CONCORDANCE ON PHYSICAL EXAM



High level of agreement

- ▶ Correlation between in person exam and telemedicine exam good to excellent
- ▶ Telemedicine can be used to do routine ear tube follow up
- ▶ Make available several hundred appointments per year



Kokesh J, Ferguson AS, Patricoski C, Koller K, Zwack G, Provost E, Holck P. "Digital images for postsurgical follow-up of tympanostomy tubes in remote Alaska." *Otolaryngology-Head and Neck Surgery*, 139:87-93, 2008.

Patricoski C, Kokesh J, Ferguson AS, Koller K, Zwack G, Provost E, Holck P. "A Comparison of In-Person Examination and Video Otoscope Imaging for Tympanostomy Tube Follow-Up." *Telemedicine Journal and e-Health*, 9(4):331-344, 2003.



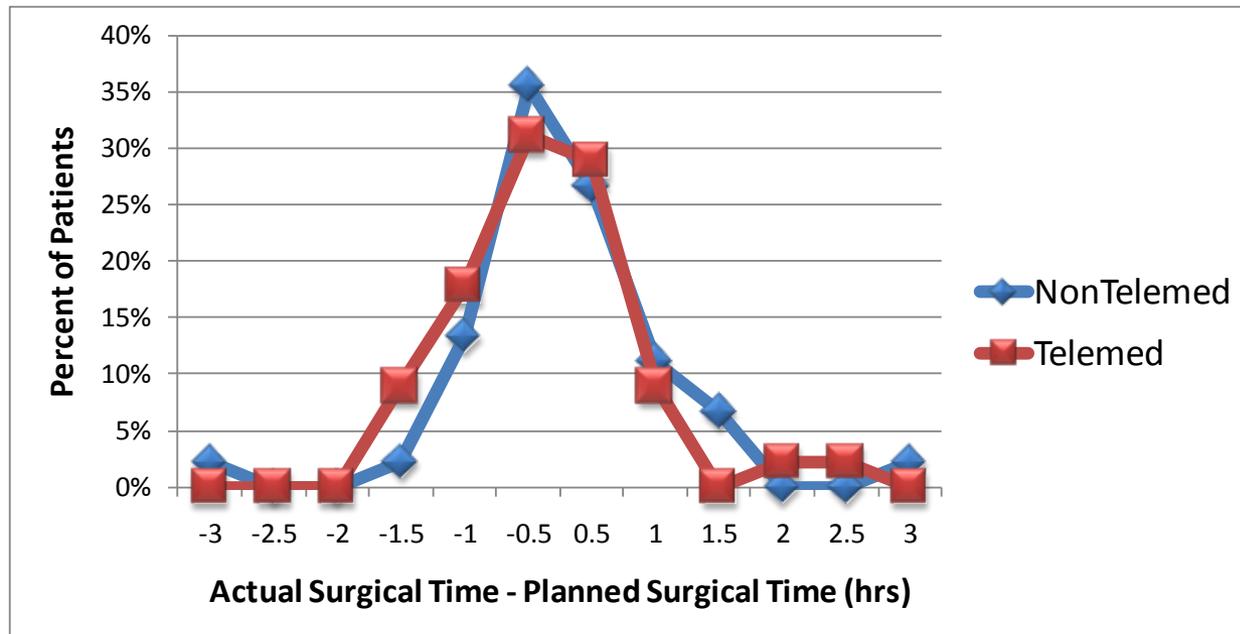
Ear tube follow up

- ▶ Verified with second study
- ▶ Now telemedicine standard of care for follow up
- ▶ Audiologists are primary partners



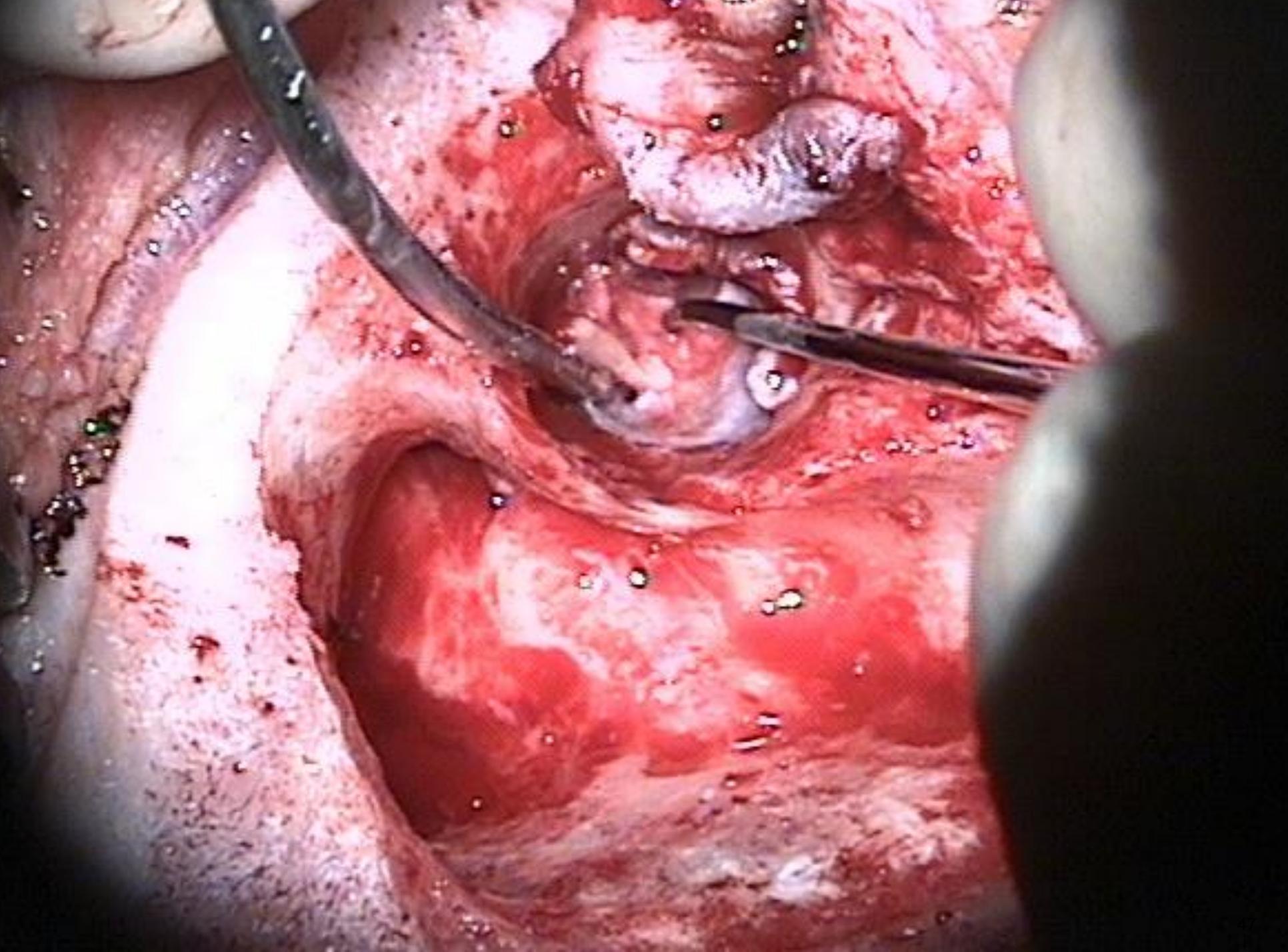
Pre-Operative Planning for Ear Surgery Using Store-and-Forward Telemedicine

John Kokesh M.D., A. Stewart Ferguson Ph.D., Chris Patricoski M.D.



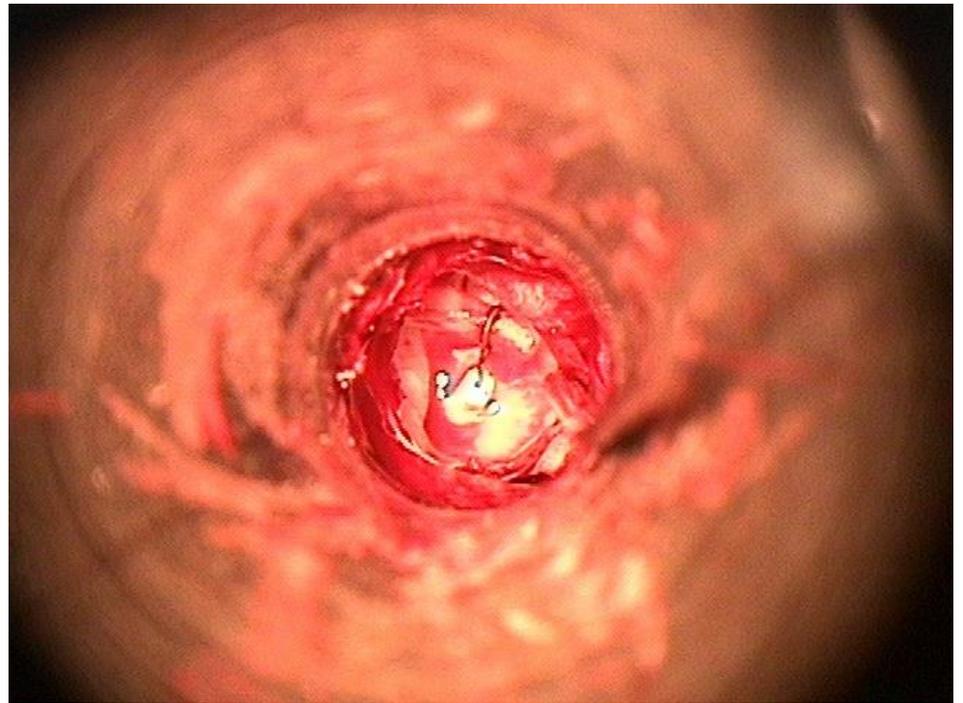
The average difference was not statistically different between the two groups: 32 minutes for the telemedicine evaluation group and 35 minutes for the in-person evaluation group

Comparison of surgical time (actual surgical time – estimated surgical time) for telehealth and non-telehealth cases. Values in the right half of the plot represent cases which took longer than planned (42% of telehealth cases and 47% of non-telehealth cases); values in the left half represent cases that took less time than planned (58% of telehealth cases and 53% of non-telehealth cases)



Major ear surgery

- ▶ Telemedicine is main source of referrals
- ▶ Allows for pre operative preparation
- ▶ Pre operative visit is first “meeting” with patient.

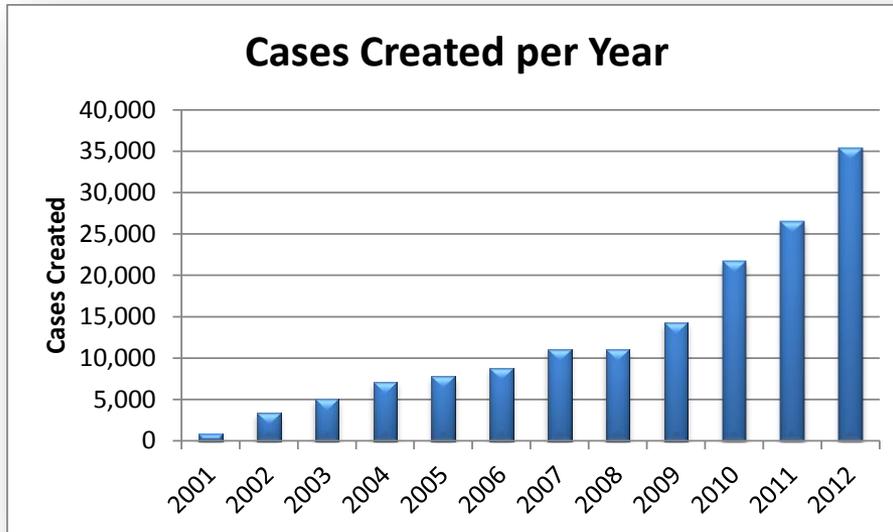


The next steps...

- ▶ Building the experience and the expertise
- ▶ Real patient, real stories
- ▶ Volume



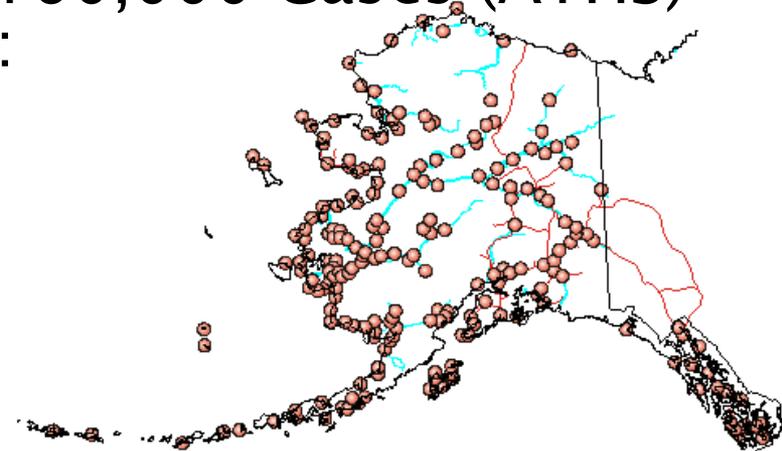
AFHCAN Telehealth Program



- Managed by ANTHC
- Federally funded
- 28 Staff
- 12 year Operational History
 - 35,000 cases/year
 - 160,000 Cases (ATHS)

Installed Customer base includes:

- ▶ Alaska: 248 sites, 44 organizations
 - 66 operational systems in 2011
 - 1,564 providers in 2012
 - 22,353 patients in 2012 (16% of AN pop)
- ▶ Primarily Store and Forward



By the numbers ...

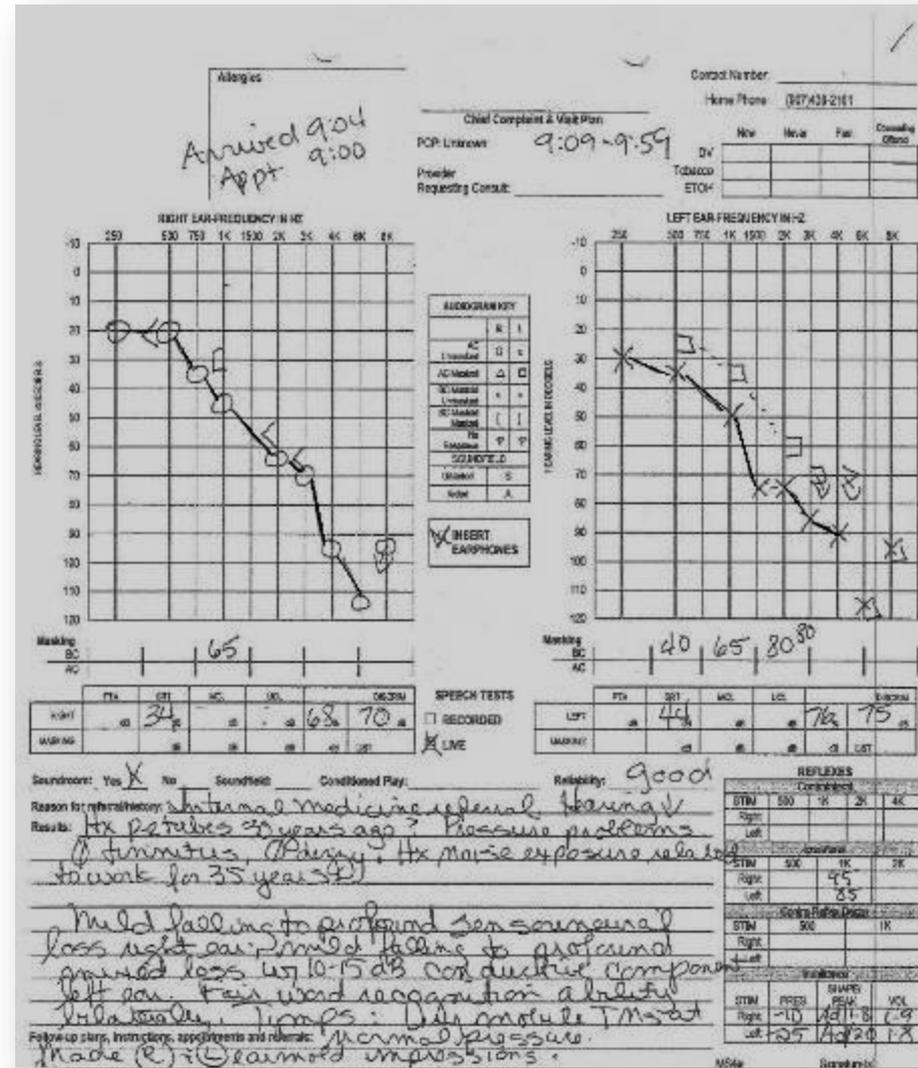
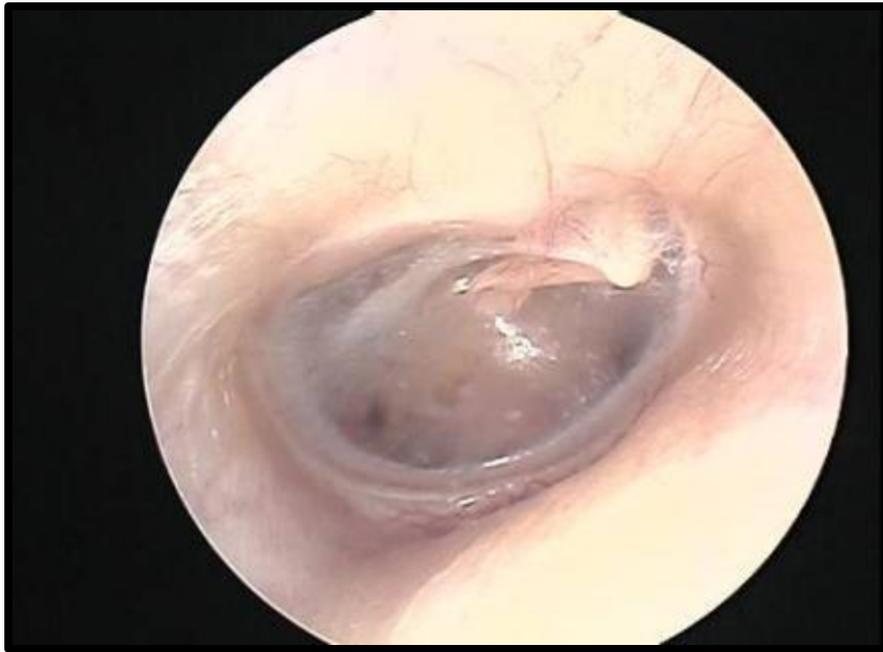
1 57,579 Cases created

70,325 Patients served

3,199 Providers involved

2,043 Providers creating

Hearing Aid Clearance



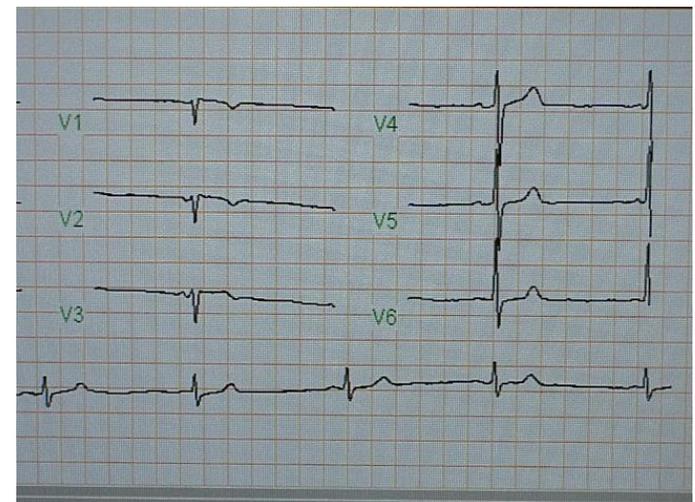
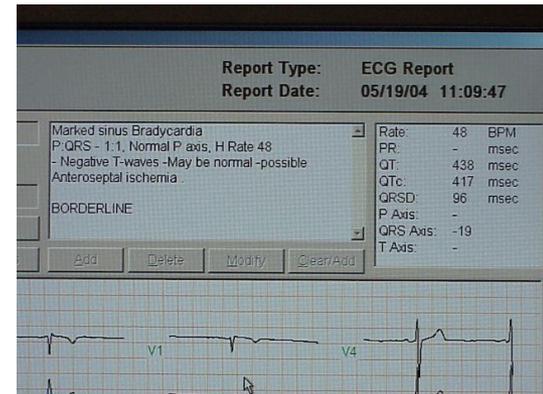
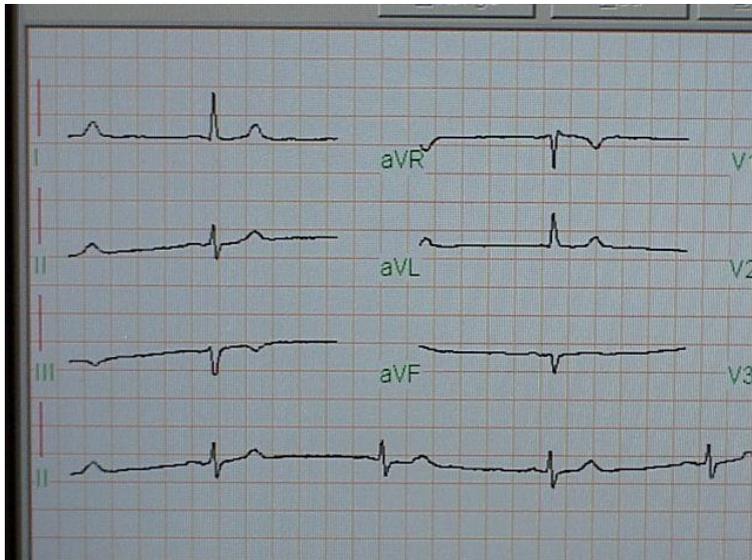


Making The Diagnosis

Localized
Reaction
to Td
Vaccine



ELECTROCARDIOGRAMS



Evaluating Injuries of the Extremities



The next steps...

- ▶ Culture of continuous improvement, change and evolution
- ▶ Clinical and technical collaboration

The screenshot displays the AFHCAN Telehealth web application in a Windows Internet Explorer browser. The page title is "AFHCAN Telehealth - Windows Internet Explorer". The user is logged in as "Edward Taylor MD" and has access to "My Settings", "Advanced Search", "Help", and "Log Off".

The interface is divided into several sections:

- MedNorth Navigation:** Includes links for "Inbox (4/4)", "Sent to Me (4/4)", "Cardiology", "Sent Cases", "Created Cases", "Case History", "Search Cases", "Patients", "Providers", "Groups", "Favorites", "Common Case Examples", "Edit Favorites", and "Administration".
- Inbox (4 Cases):** A list of cases sorted by date, including:
 - Thompson, Patricia Q (F) 12/19/2009 (MedNorth-AL-23)
 - Anderson, Sandra O (F) 12/18/2009 (MedNorth-AL-23)
 - Anderson, Sandra O (F) 12/18/2009 (MedNorth-AL-22)
 - Johnson, Frank L (M) 09/15/2009 (MedNorth-A-14)
- Case Detail View:** Shows the selected case for "Thompson, Patricia Q (F)".
 - Birth Date:** 11/09/1995 (14 Years Old)
 - Case #:** Demo Cart 2-E-13
 - Creator:** John Jackson PA (12/20/2009)
 - Current Owner:** Edward Taylor MD
- Attachments:** A grid of clinical data including:
 - Tympanogram LEFT 15:52:21
 - Tympanogram RIGHT 15:51:45
 - Audiogram 15:50:41
 - Left Ear Image
 - Right Ear Image
 - Audiology Report
 - Clinic Notes
 - History
 - Vital Signs 16:03:21
- Comments:** "14 year old female with decreased hearing and intermittent drainage right ear for past 3 years. Recently completed course of ear drops for drainage. History of ear tubes at age 2. No chronic medications or underlying medical conditions. Family interested in repair if recommended. (12/20/2009 12:54:15 AM)"

Design Evolution

▶ Base Cart include:

- Metal Frame
- Isolated Power System
- CPU and LCD Touchscreen
- Expansion Ports for USB, RS232, Video In/Out, External Display

▶ Currently Supported Peripherals include:

- Video Otoscope
- Digital Camera
- Scanner
- Video Conferencing
- ECG
- Spirometer
- Tympanometer
- Audiometer
- Dental Camera
- Vital Signs Monitor
- Stethoscope



A User Interface Designed by Users

User Administrator Test Logged On 06/31/01 11:23:17AM

Start

What do you want to do today?

Create a New Case Click here if you want to create a new case

Cases To Review Click here to view cases on your plate on hold, your cases, your group cases

Cases Y

Search A

Video Picture

Thumbnails

Left TM

Left TM2

Image Name

Log Out

Take Picture

Live

Freeze

Save

Cancel

AFHCAN Case Viewer - Microsoft Internet Explorer

Address: https://192.168.1.6/afhcan/default.aspx

AFHCAN

cases patient

sort Date desc

Inbox (7 cases)

Demantis, Gail (1)

Test 09/14/2006

Training6-D-11

Test 09/14/2006

Training6-D-14

Farmer, Joel (1)

Training6-B-3 08/30/2006

Training6-B-1 08/30/2006

Training6-D-2 08/30/2006

Farmer, Joel (M)

SSN 574-92-9292

Birth Date 01/15/1970

View Patient Record

Case # Training6-D-2

Creator Mandregan, Eva on 08/30/2006

Mandregan, Eva Training6 8/30/2006 4:19:13 PM

Attachments:

Vital Signs 16:18:41

Spirometry 16:18:11

Spirometry Calibration 16:17:20

arm

hand

Tympanogram RIGHT 16:10:30

Otoscope1

Otoscope

SCAN1

ECG Report

ECG 16:08:00

Alaska Native Tribal Health Consortium. ALL RIGHTS RESERVED.

Technology – Clinical Applications

- ▶ The solution need not be sophisticated or complex to be clinically effective ...
- ▶ ... as long as providers are able to gain value.

What has telemedicine done for us

Outcomes

OUTCOMES

ATHS (Alaska Tribal Health System)



How can Telehealth reduce the cost of health care?

Physician's surveyed at the point of care ...
on a per-case basis.



Create Case

- Inbox (1/2)
 - On Hold (1)
 - Sent to Me
 - ENT-Physicians (1/1)
 - Sent Cases
 - Created Cases
 - Case History
 - Search Cases

- Patients
- Providers
- Groups

- Favorites
 - Acute Otitis Media (1)
 - Audiogram follow up review (1)
 - Bad case examples (1)
 - Bullous myringitis (1)
 - Canal inclusion cyst (1)
 - Cartilage grafts (2)
 - Cholesteatoma (1)
 - Cochlear implant (1)
 - Ear attic retraction (3)
 - FORMS under development (1)

Inbox (2 Cases)

Send

Choose a provider and click 'Send Case' below.

To [choose](#)

From

Survey Question (Optional)

Your voluntary participation in this survey helps to assess the hardware, software, and clinical utility of telemedicine. Precautions are taken to assure that your answers remain anonymous. There is, however, the unlikely possibility that someone could hack into the database at your institution and retrieve medical records as well as answers to this survey.

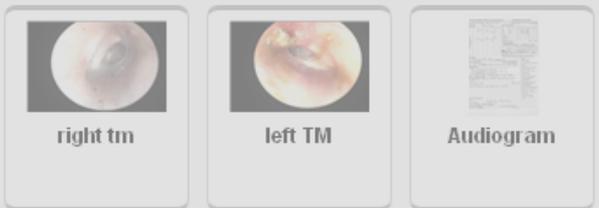
Did viewing this telemedicine case image affect PATIENT TRAVEL for diagnosis or treatment of this case (compared to a phone consult)?

It PREVENTED patient travel.
 It CAUSED patient travel.
 It had NO EFFECT on patient travel (same travel decision as phone consult).

[Additional Feedback](#)

Reviewed test results with Mom today. She is interested in pursuing a surgical treatment When Mason is ol inflamed left ear at this point and if so what would you recommend? Thanks. (05/01/2013 10:49 AM)

Attachments:



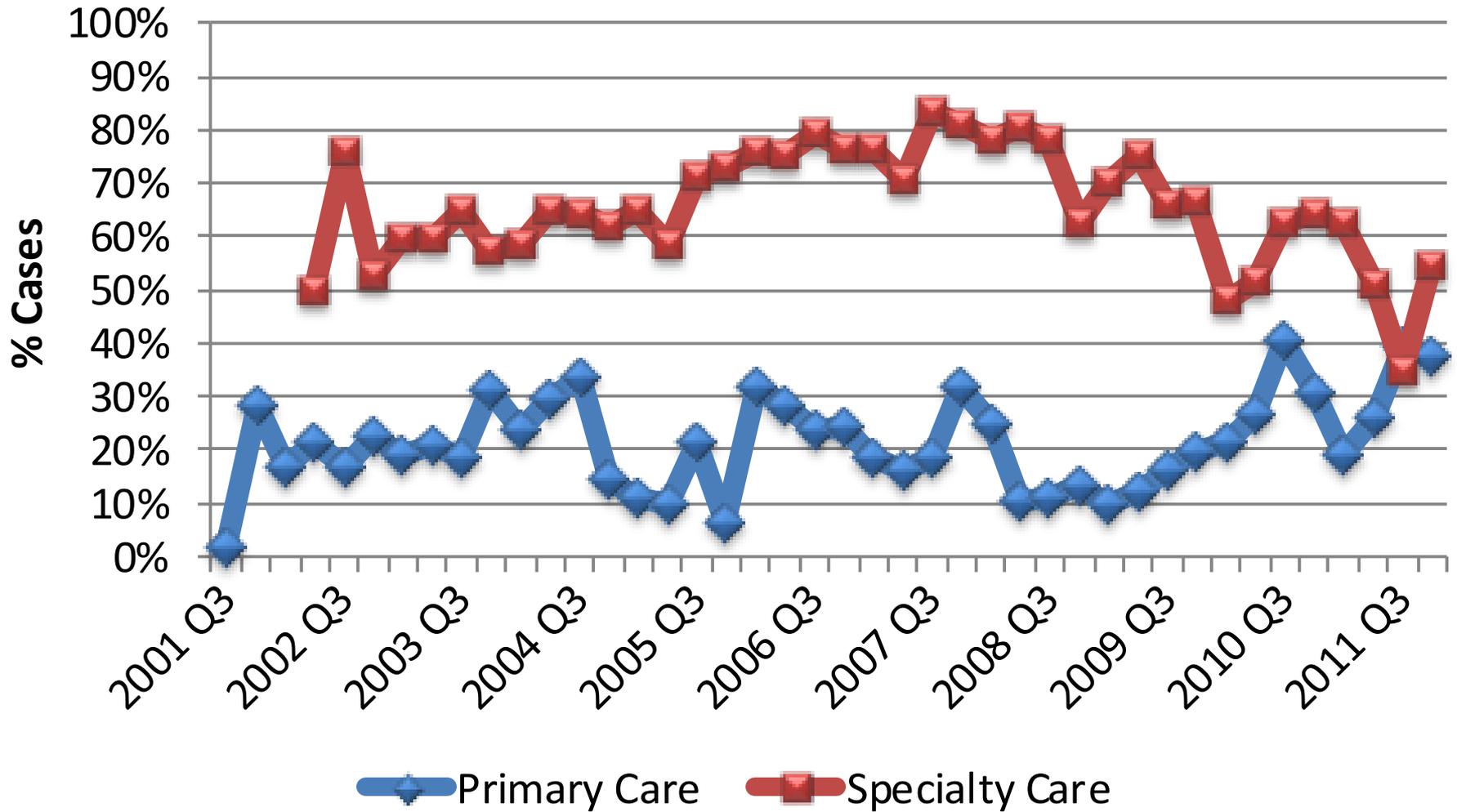
anal looks a little erythematous, but the middle ear space is dr
ogram, he'll probably need a tympanoplasty mastoidectomy as

oration monitored until he's old enough to have the perf repair

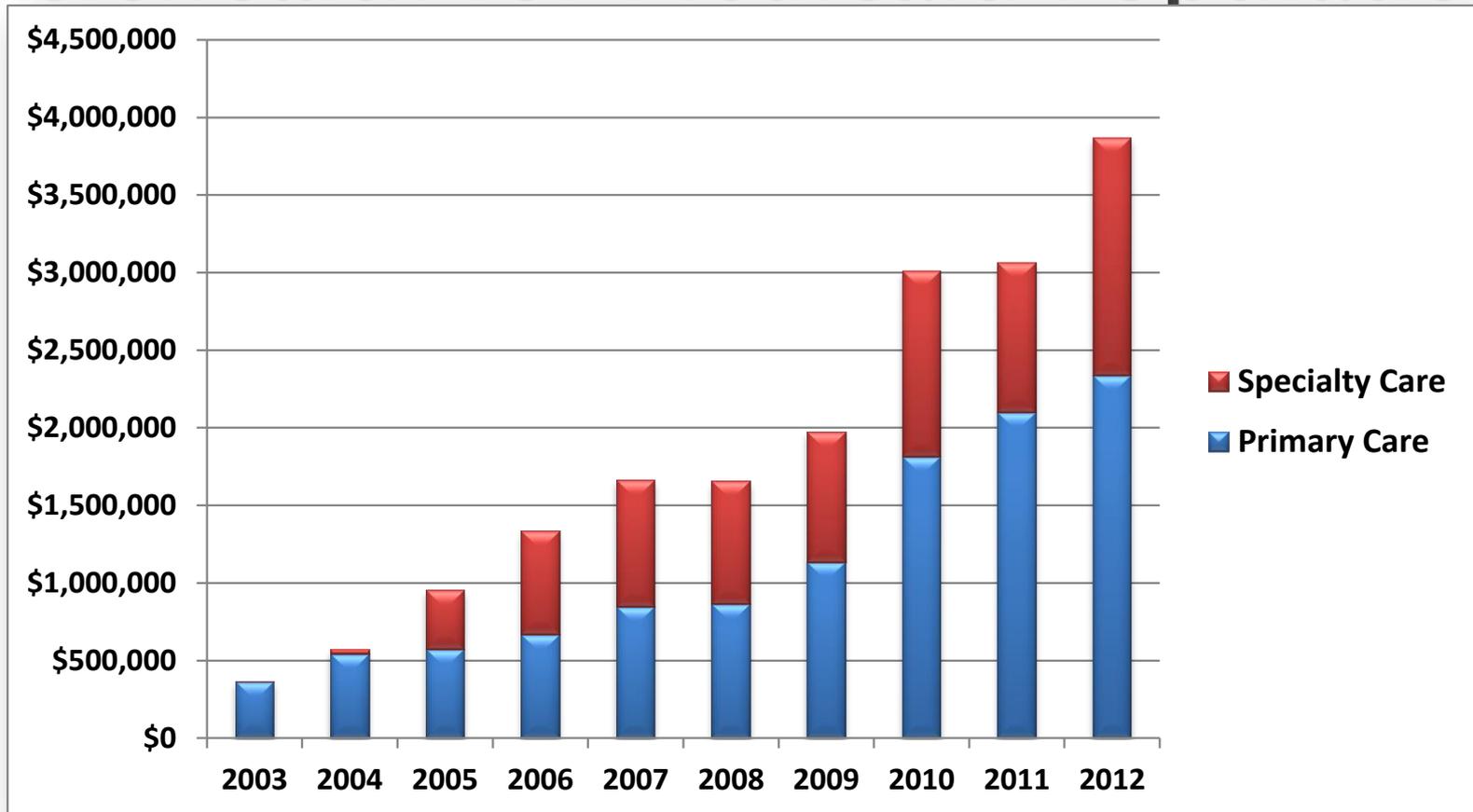
4, area of monomer- presumably a healed perforation noted ce

CHL

Travel PREVENTED (by Case Role)

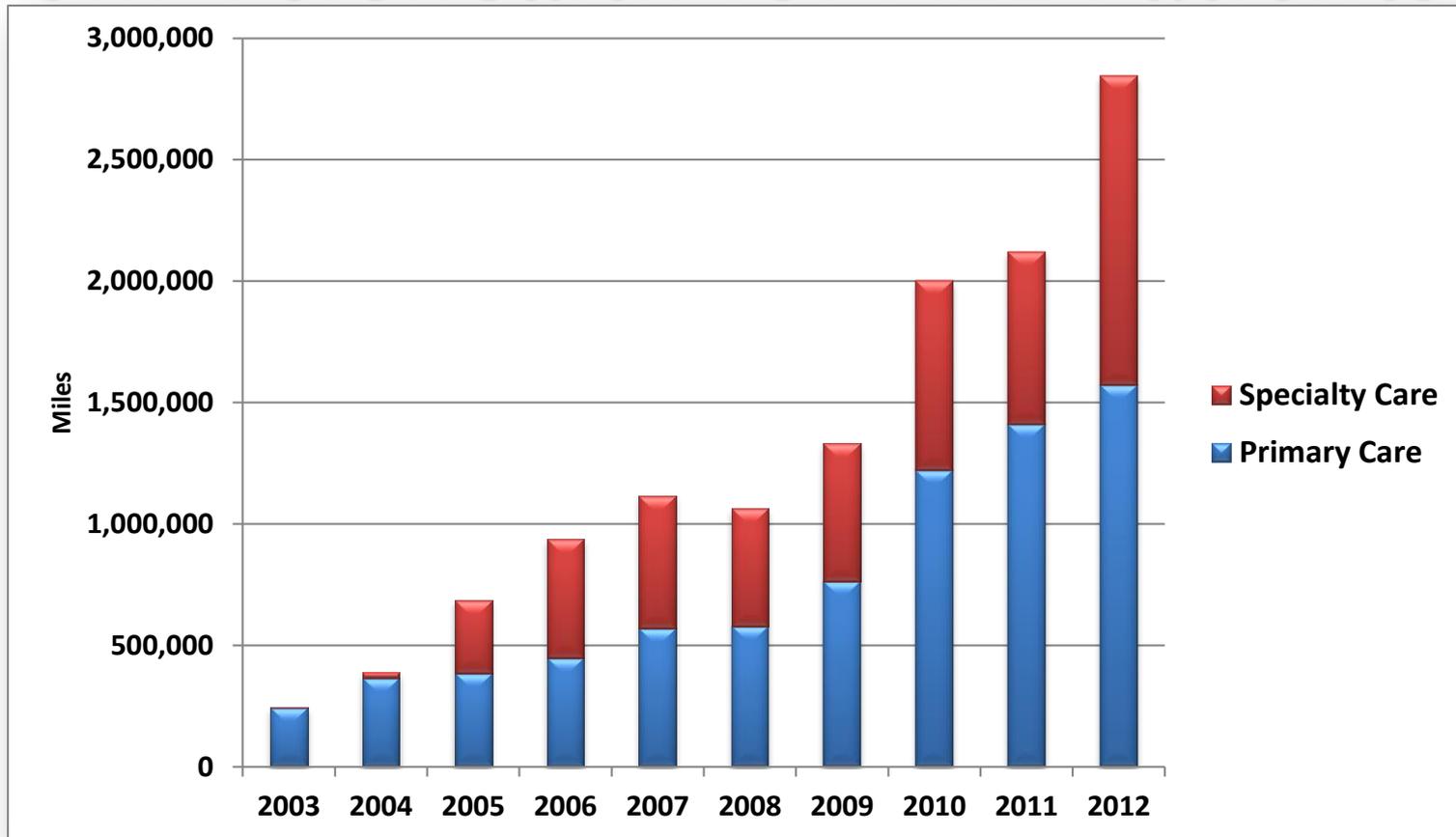


Estimated Travel Savings from Telehealth for Medicaid Population



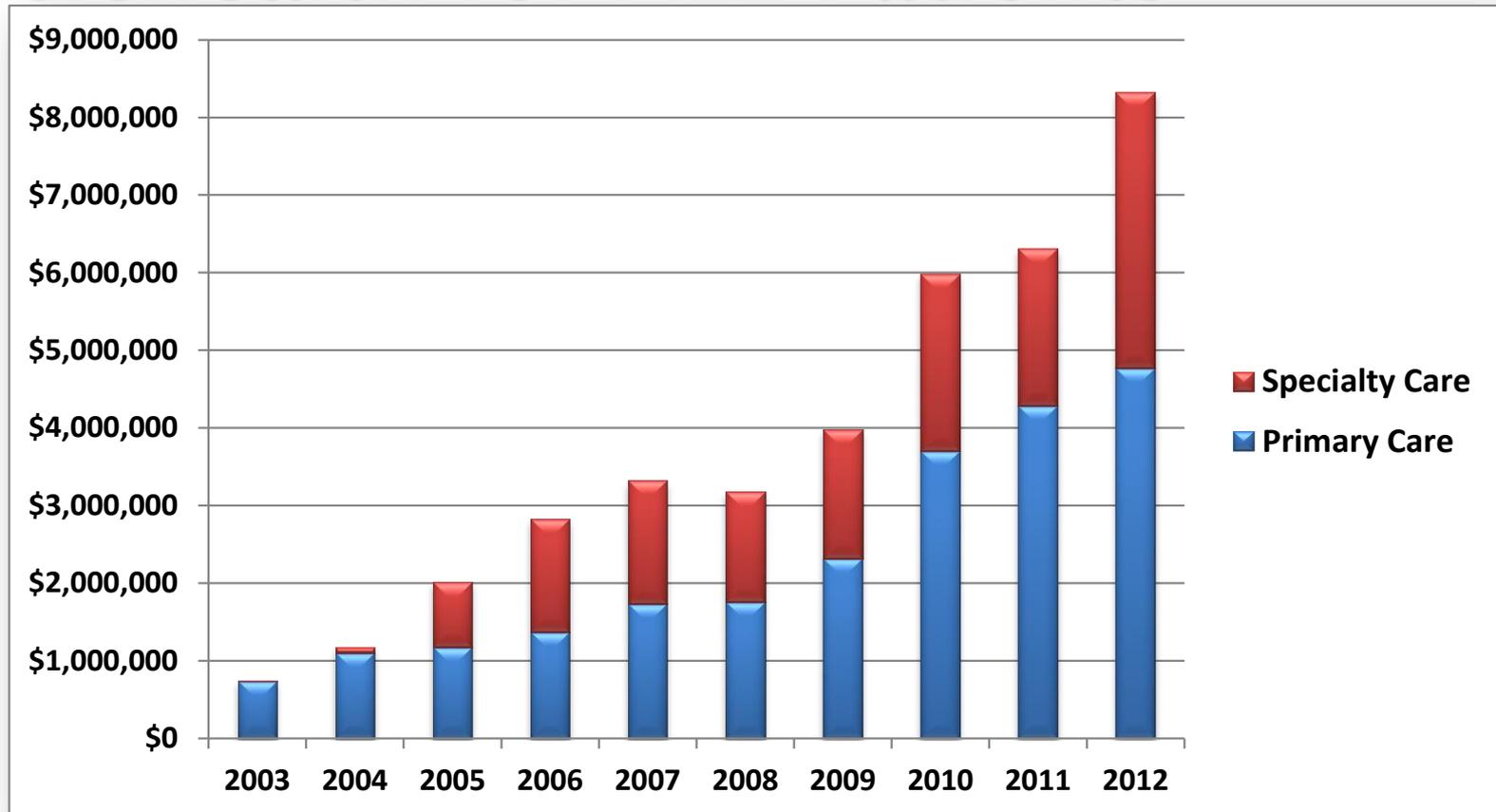
Estimated annual savings from telehealth for Medicaid amounts to about \$3.9m with a total savings of **\$18.5m since 2003.**

Estimated Travel Savings (Miles) from Telehealth for ALL Patients



Estimated annual savings from telehealth for all patients amounts to about 2,850,000 miles, with a total savings of 12,700,000 miles since 2003.

Estimated Travel Savings from Telehealth for ALL Patients



Estimated annual savings from telehealth for all patients amounts to about \$8.3m with a total savings of **\$37.8m since 2003.**

Return on Investment

Medicaid now saves an estimated \$10 to \$15 for every \$1 spent on specialty telehealth consultations

Payments of \$148k in 2012 for savings of \$1.5m

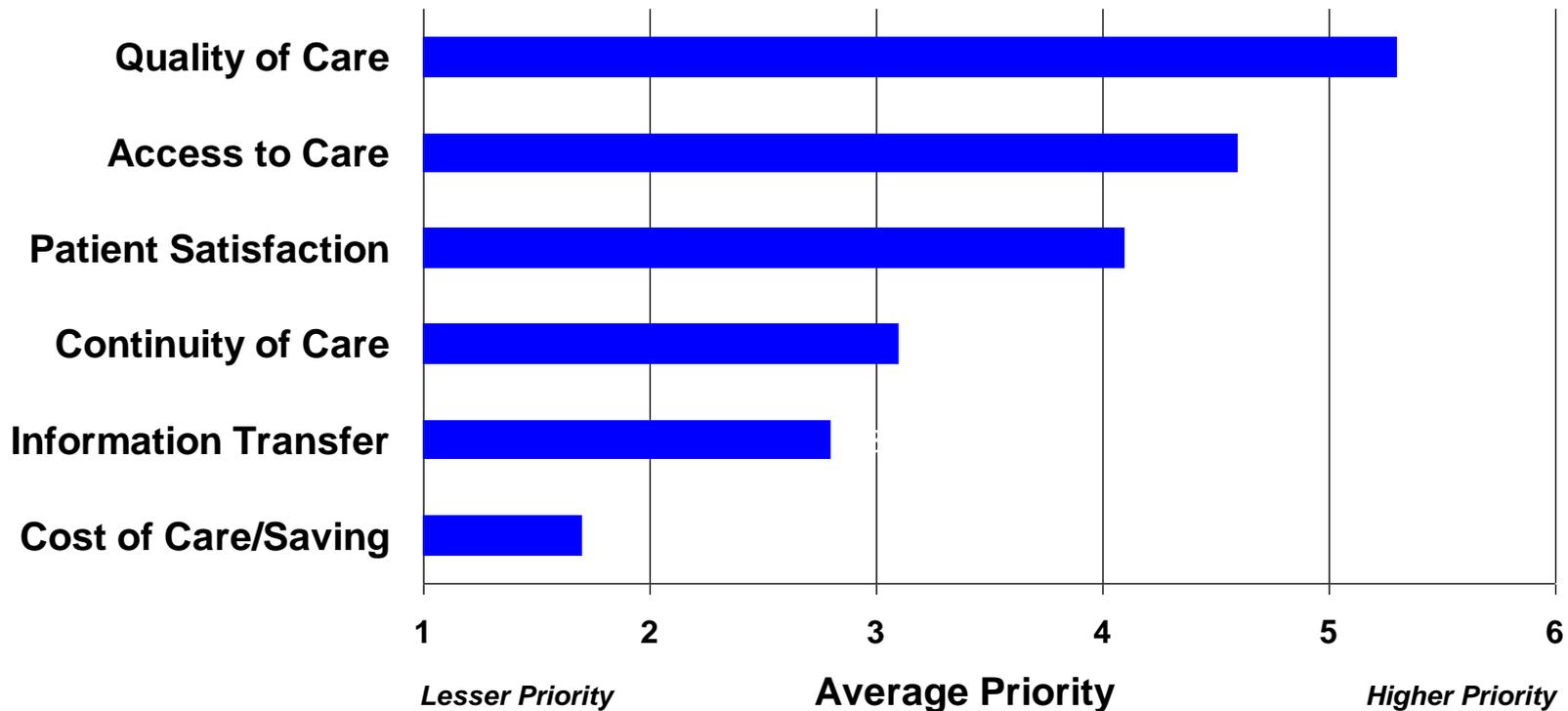
Ongoing discussions with State of Alaska and Alaska legislators on developing strategies to promote telemedicine

Providing Care in the Patient's Community

Results of a “pre-AFHCAN” survey of stakeholders to the question:

“What are your key organizational goals for telehealth applications?”

GOALS FOR TELEMEDICINE





CTR. COMPARTMENT - FWD
MAX. WEIGHT 310 LBS.
MAX. FLOOR LOADING
25 LBS. PER SQ. FT.
NO SHARP EDGES

UNITED STATES
POSTAL SERVICE

OPEN

FRIED CH...



Extending Care to the Village



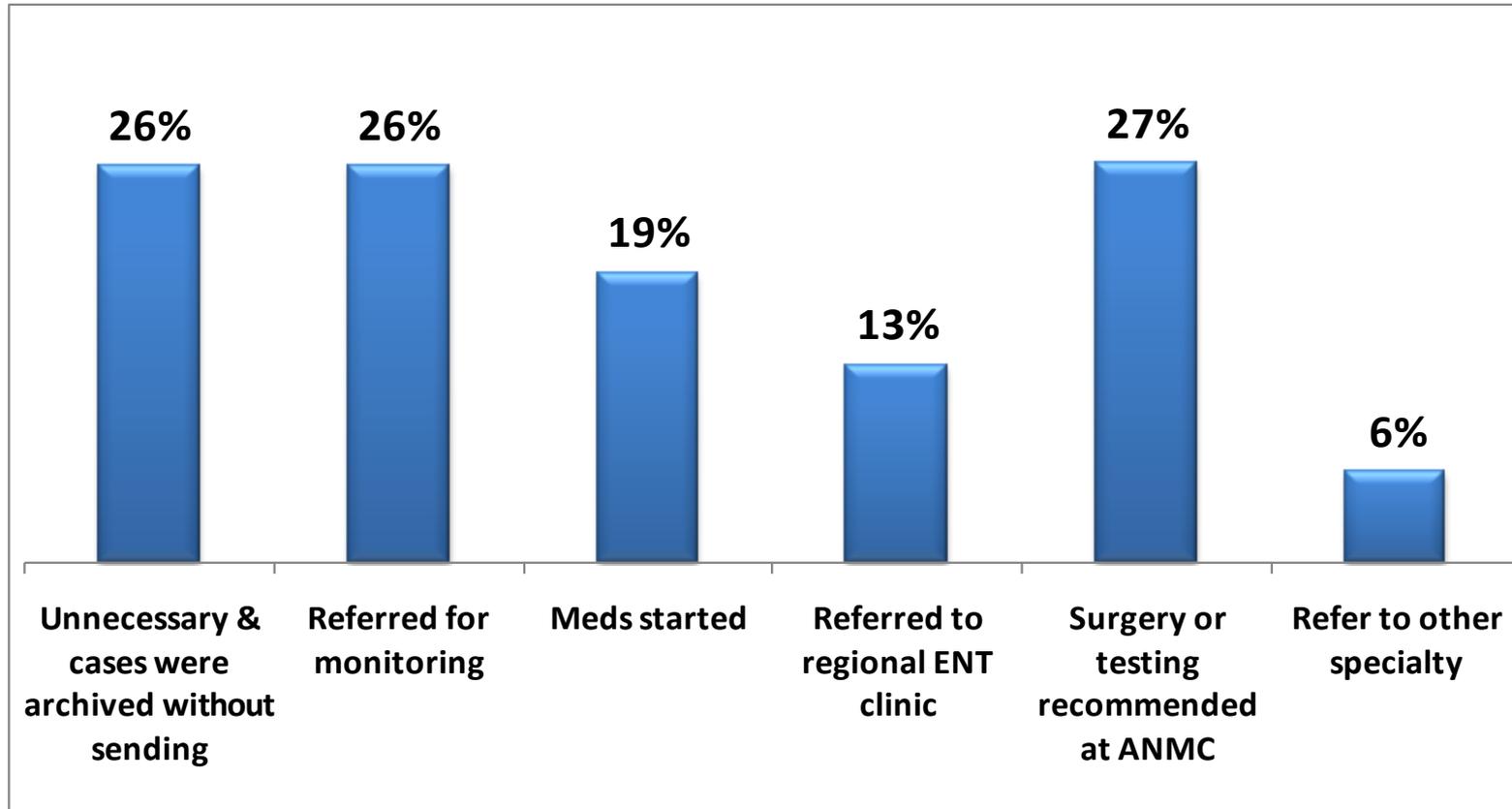
	Patient Visits	Cost
Traveling Audiologist Program	1,987	(\$175,000)
Patient Travel Prevented	1,726	\$697,090
<p>Based on Outcomes of:</p> <ul style="list-style-type: none">• <i>Did patient still need to travel to field clinic?</i> <p>Assumptions:</p> <ul style="list-style-type: none">• Only travel to hub is being saved.• Escort required if patient less than 18 years old• No lodging / per diem calculated	Note: 1,153 less than 18 yrs old	
Net Savings in Travel Costs Realized by Program		\$522,090 (300% ROI)



Note1: 1,987 patients

Note2: Percentages may not add to 100% due to multiple outcomes per case.

Outcomes



About 72% of the patients seen needed something done (meds, surgery, ongoing monitoring) and 26% needed to be screened out.

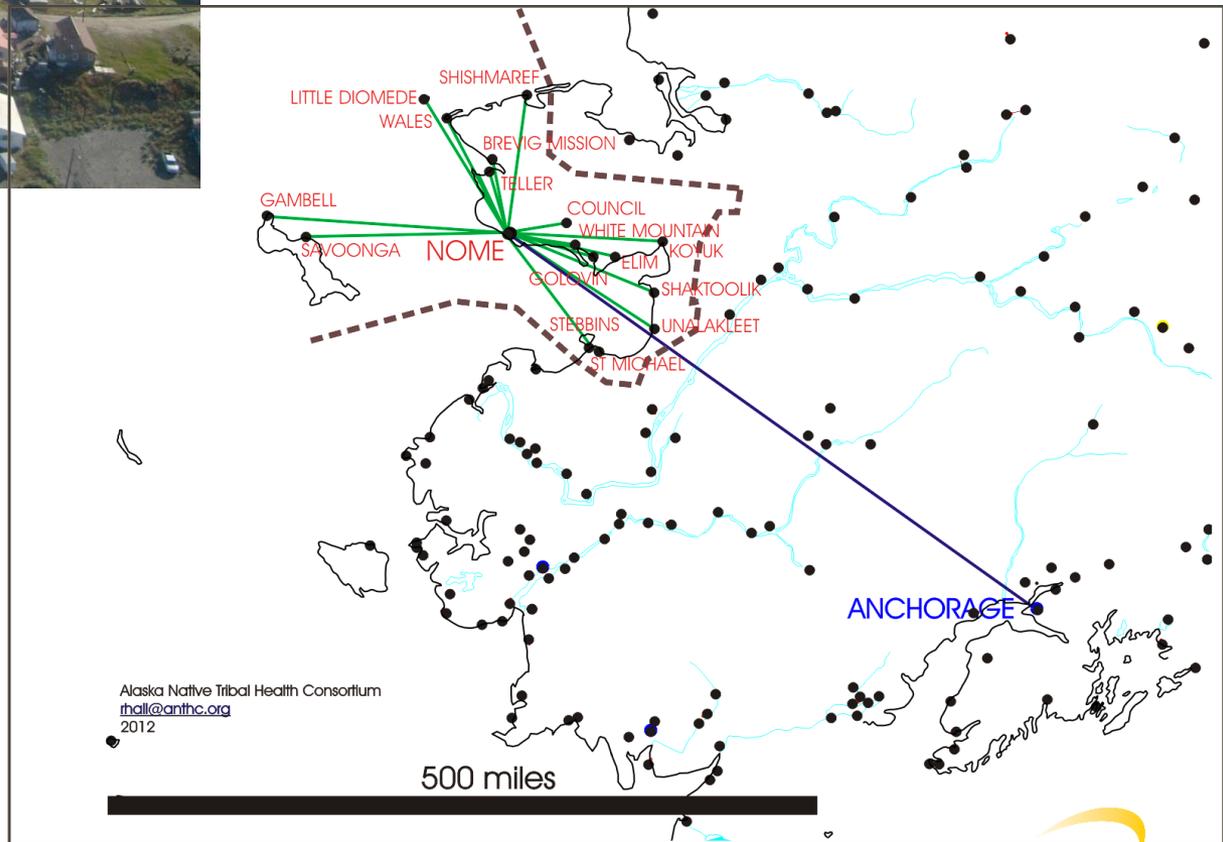
Traveling audiologists

- ▶ Funded as ongoing program
- ▶ Plans for expansion
- ▶ Limited only by availability of audiologists



Improving Access

Greater Efficiency of Existing Resources
The Norton Sound Audiology Story



NSHC Audiology

- ▶ Three audiologists provide services to over 3,000 patients a year.
- ▶ Audiologist travels via small aircraft up to 23 times a year to provide 3–4 day clinics in the surrounding villages.
- ▶ 15 villages in a territory the size of Louisiana.
- ▶ Ear disease (otitis media) is the most prevalent diagnosis in the region.





The Impact of Telehealth on Wait Time for ENT Specialty Care

Philip J. Hofstetter, Au.D.
John Kokesh, M.D.
Stewart Ferguson, Ph.D.

Linda J. Hood, Ph.D

Journal of Telemed and E-Health
June 2010, vol 16.

The Impact of Telehealth on Wait Time for ENT Specialty Care

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A. Stewart Ferguson, Ph.D.,³ and Linda J. Hood, Ph.D.⁴

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Norton, Alaska.

²Department of Otorhinology, Alaska Native Medical Center,
Anchorage, Alaska.

³Alaska Telehealth Program, Alaska Native Tribal Health
Consortium, Anchorage, Alaska.

⁴Department of Hearing and Speech Sciences, Vanderbilt
University, Nashville, Tennessee.

Abstract

Audiology in rural Alaska has changed dramatically in the past 6 years by integrating state and federal telemedicine into routine practice. The Audiology Department at the Norton Sound Health Corporation in Norton, Alaska has used state and federal telemedicine since 2002. Between 2002 and 2007 over 3,000 direct audiology consultations with the Ear, Nose, and Throat (ENT) department at the Alaska Native Medical Center in Anchorage were completed. This study is a 16-year retrospective analysis of ENT specialty care and time on all new patient referrals made by the Norton Sound Health Corporation providers before (1992-2001) and after the initiation of telemedicine (2002-2007). 2600 requests of telemedicine by otitis, and ENT, 47% of new patient referrals would wait 6 weeks or longer to obtain an in-person ENT appointment, this dropped to 38% of all patients in the first 3 years with telemedicine and then less than 3% of all patients in next 3 years using telemedicine. The average wait time during the first 3 years using telemedicine was 2.8 months, a 21% drop compared with the average wait time of 4.2 months for the preceding years without telemedicine. The wait time was dropped to an average of 1.7 months during the next 3 years of telemedicine, a further drop of 28% compared with the first 3 years of telemedicine usage.

Key words: telehealth, telemedicine, teleaudiology, otitis media, ENT, otitis, extreme environments

Introduction

Telehealth is fast becoming recognized as a method to improve healthcare in developing nations, regions of low population density, and areas with limited access to both primary care providers and specialists.¹⁻⁴ The lack of providers or access to specialists in rural regions is well documented.^{5,6} The World Health Organization (WHO)⁷ reports that there are currently 26 physicians per 10,000 Americans in general, with a drop to less than 10 physicians per 10,000 Americans specifically in rural Alaska.⁸

This ratio becomes worse for specialty providers. For example, there are less than five audiologists or otolaryngologists per 10,000 people in Alaska. Rural regions traditionally have poorer provider-patient ratios that add to the already difficult access to healthcare for persons in these areas. Recruitment of providers, regardless of rural or nonrural location, has been shown to break down when provider networks and specialty referrals processes are lacking.⁹ Studies have long linked socioeconomic status with poor and deteriorating local health.¹⁰⁻¹²

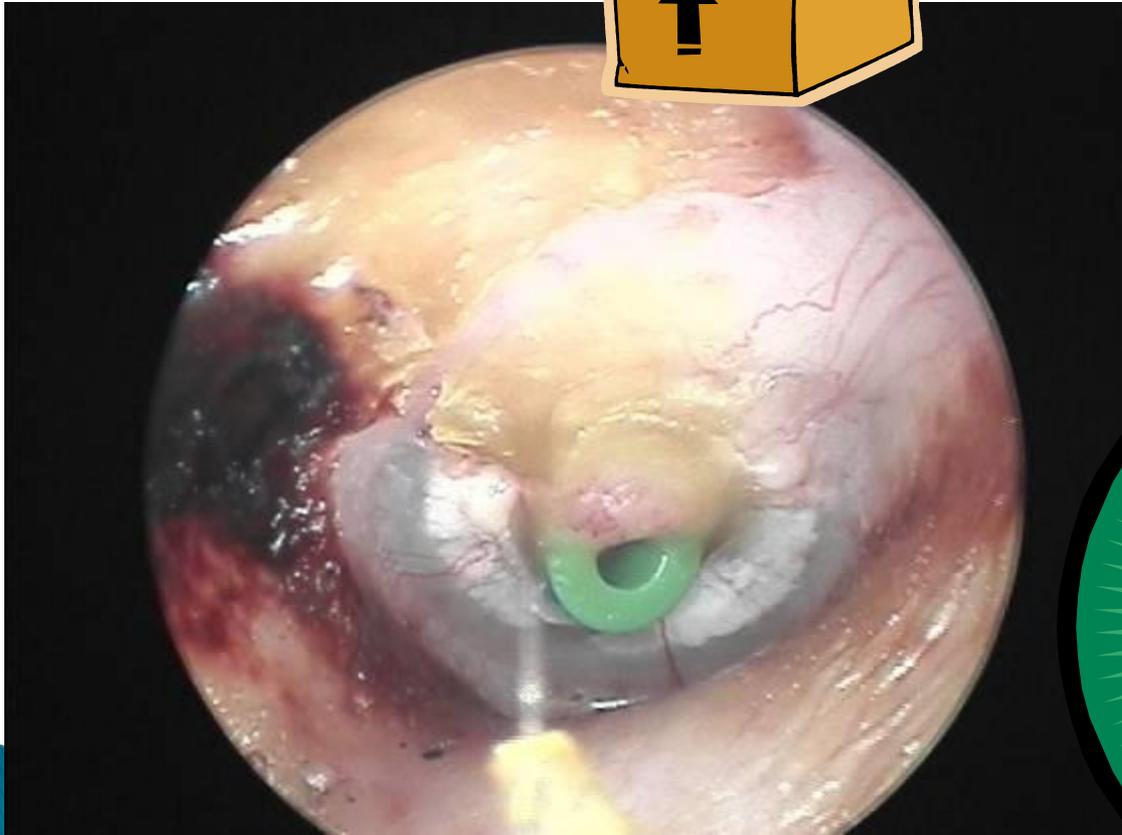
Impoverished rural patients and regions of Alaska, like other American regions, likely are considered the least satisfied with their health care.¹³ Increased demand for healthcare and low provider-patient ratios, particularly in the rural regions with low socioeconomic status, have led to long wait times for care. Limited access to healthcare and lack of availability of appointments distress patients.¹⁴ Physicians are overwhelmed with demands for clinic appointments, which may result in no-show weeks, or sometimes months in advance. Although open access models have helped to improve visit times in some health care organizations, access and wait time problems continue to be prevalent.

Deliverable quality healthcare in Alaska, with a population of 636,939 (U.S. Census 2000)¹⁵ or 556,112 million, is also unique; the population is very dispersed with a density of 1.1 persons per square

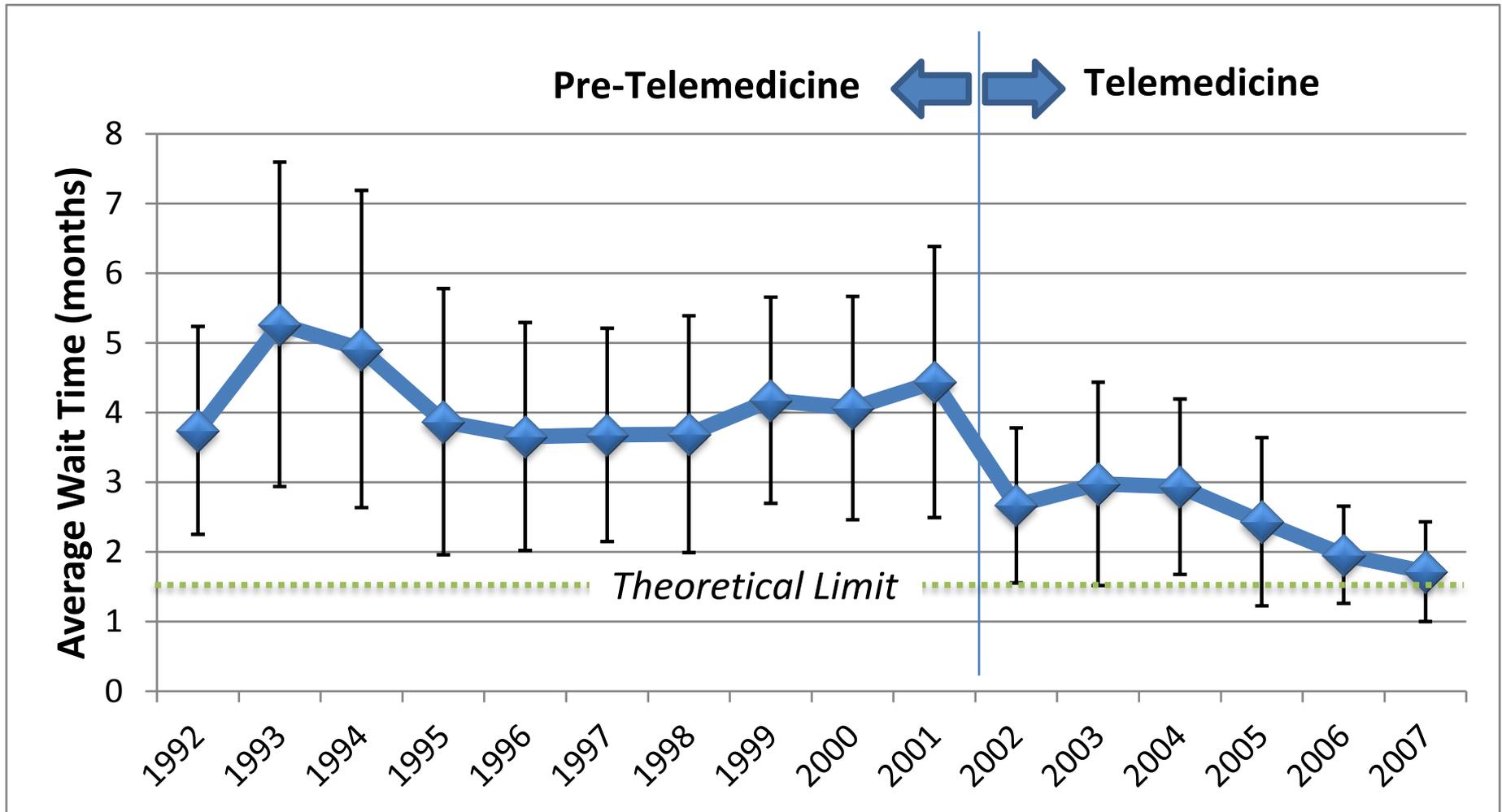
Think outside the box



“Expert Triage Model”

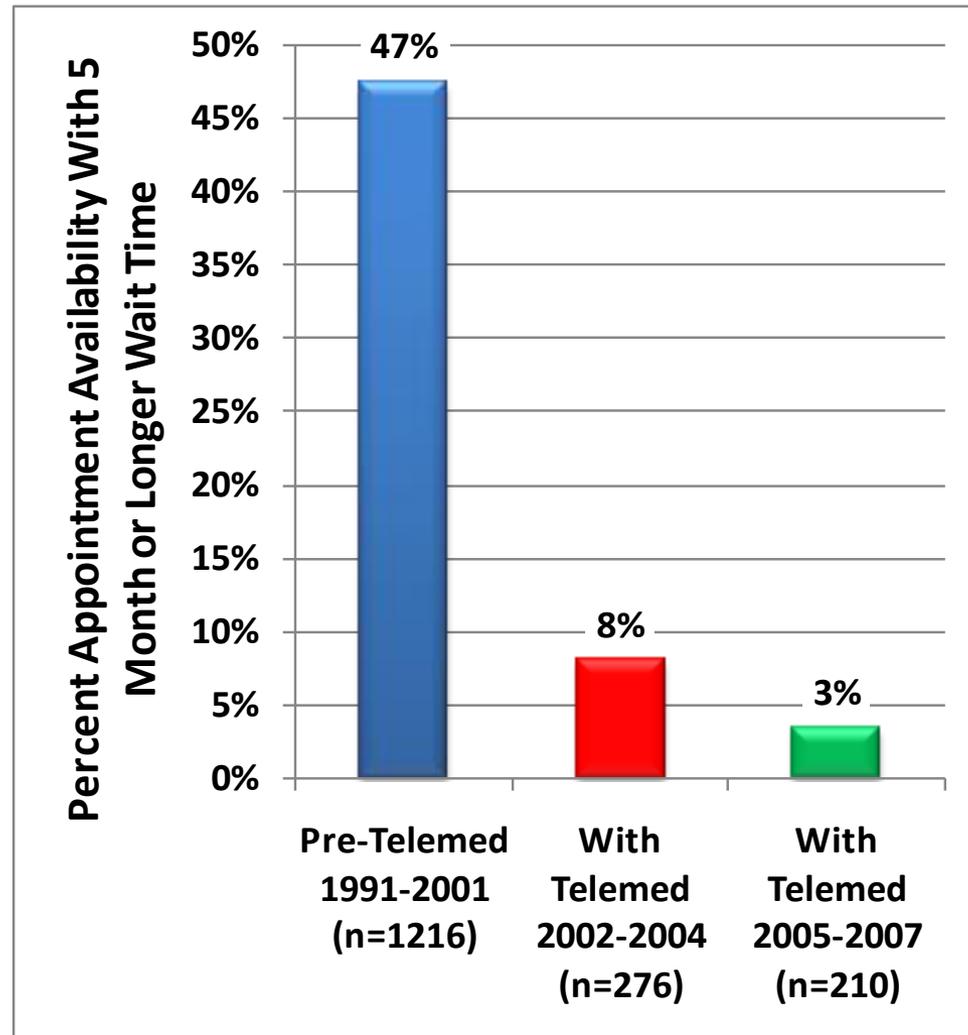


Expert Triage Model

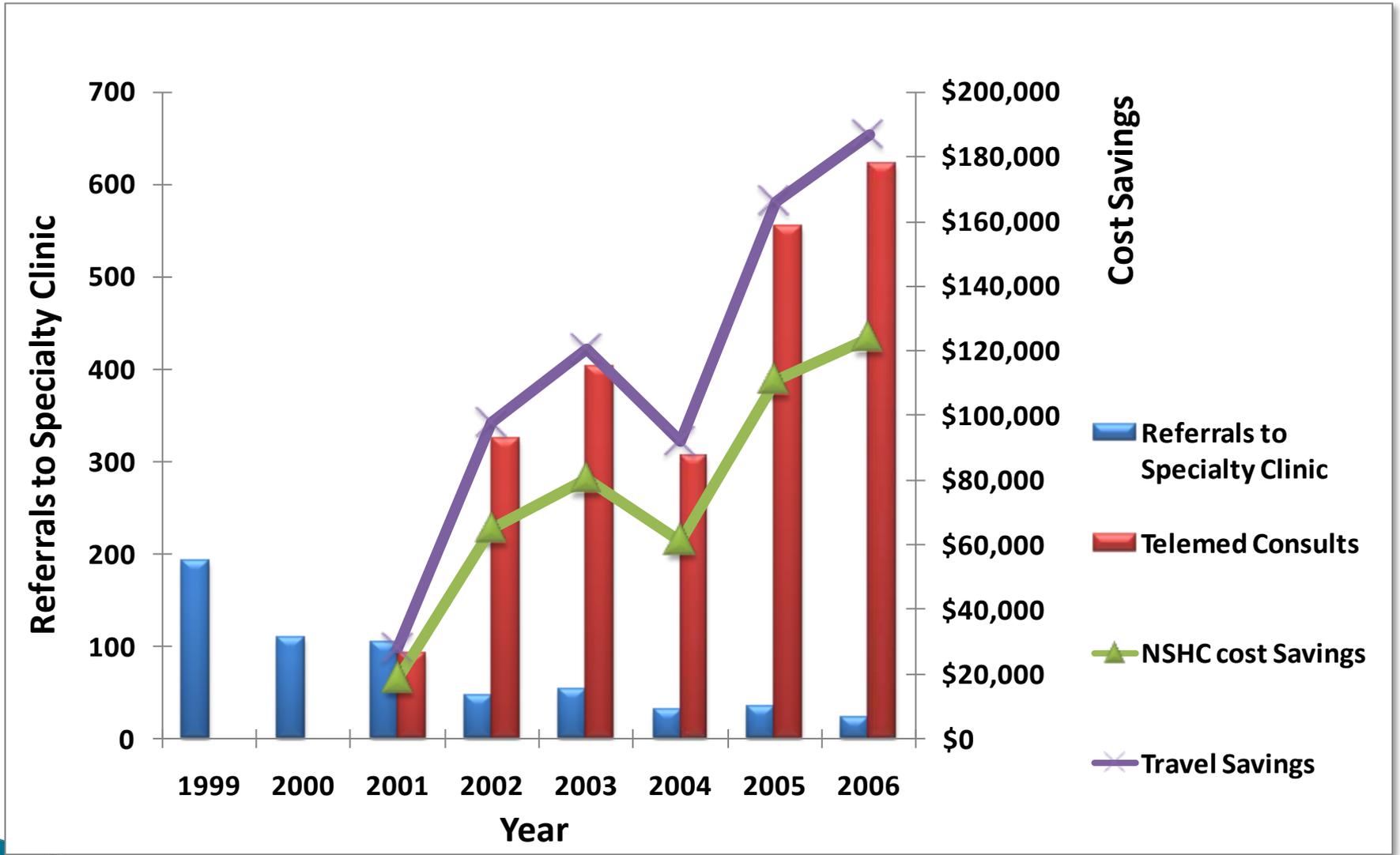


Data courtesy of Phil Hofstetter

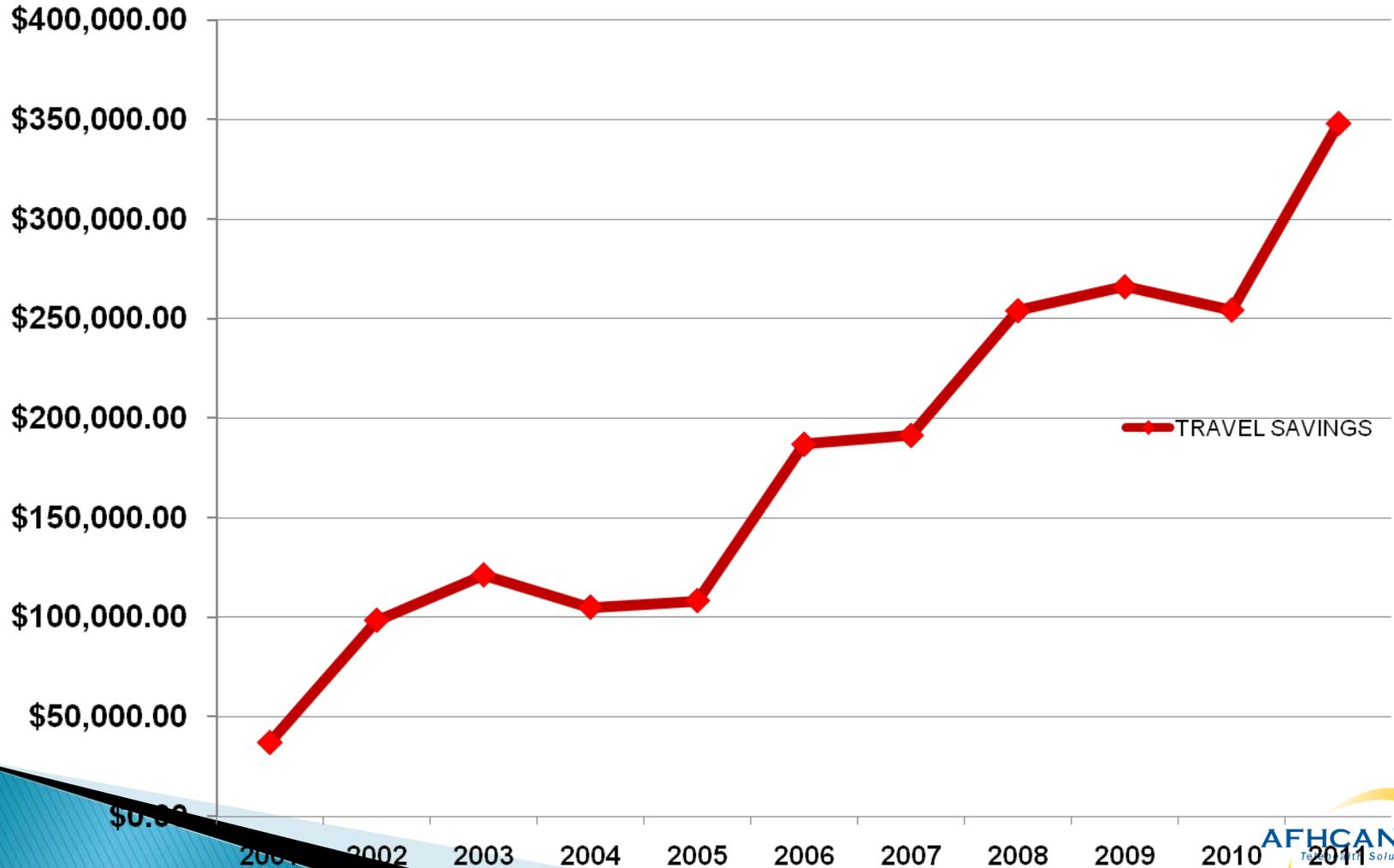
Telehealth Impact on Extended Waiting Times (> 4 months)



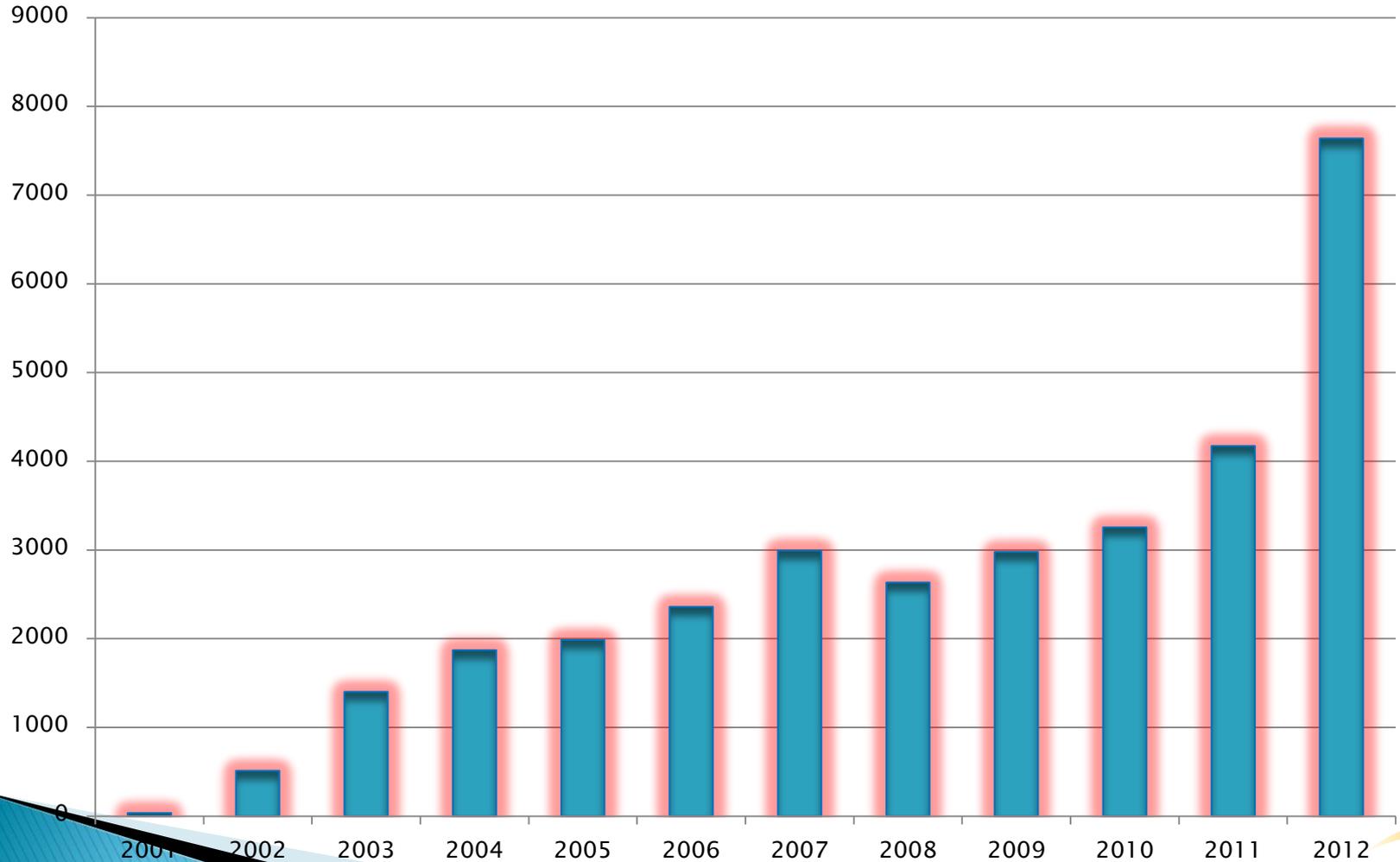
Access



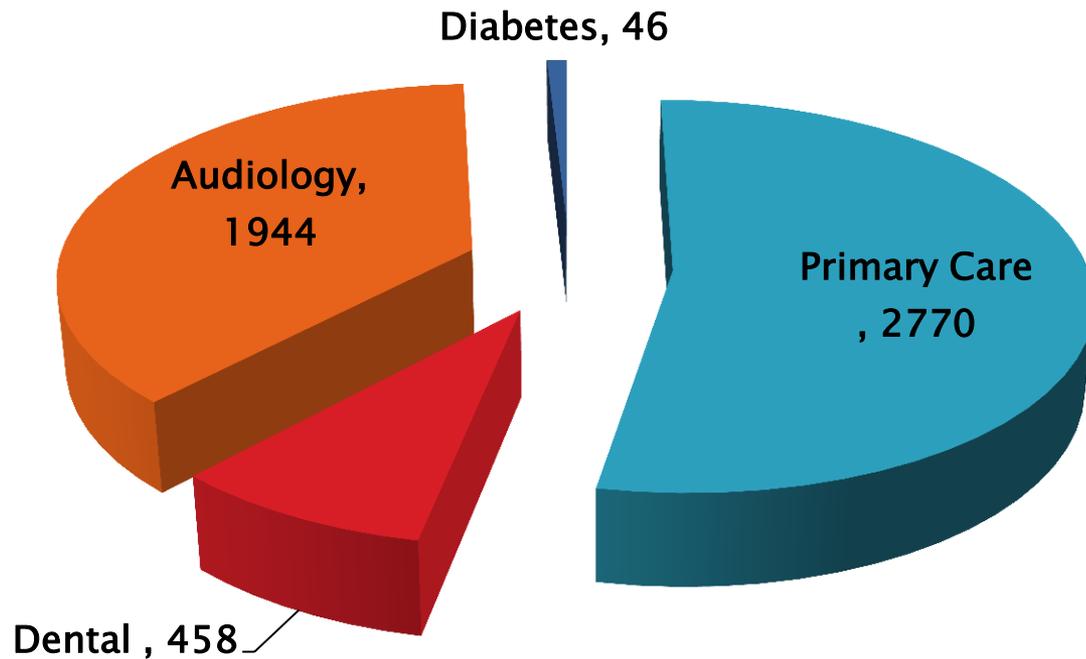
Cost Savings NSHC Audiology



Norton Sound Health Corporation Overall Cases Created



NSHC Asynchronous Telemedicine Utilization 2012



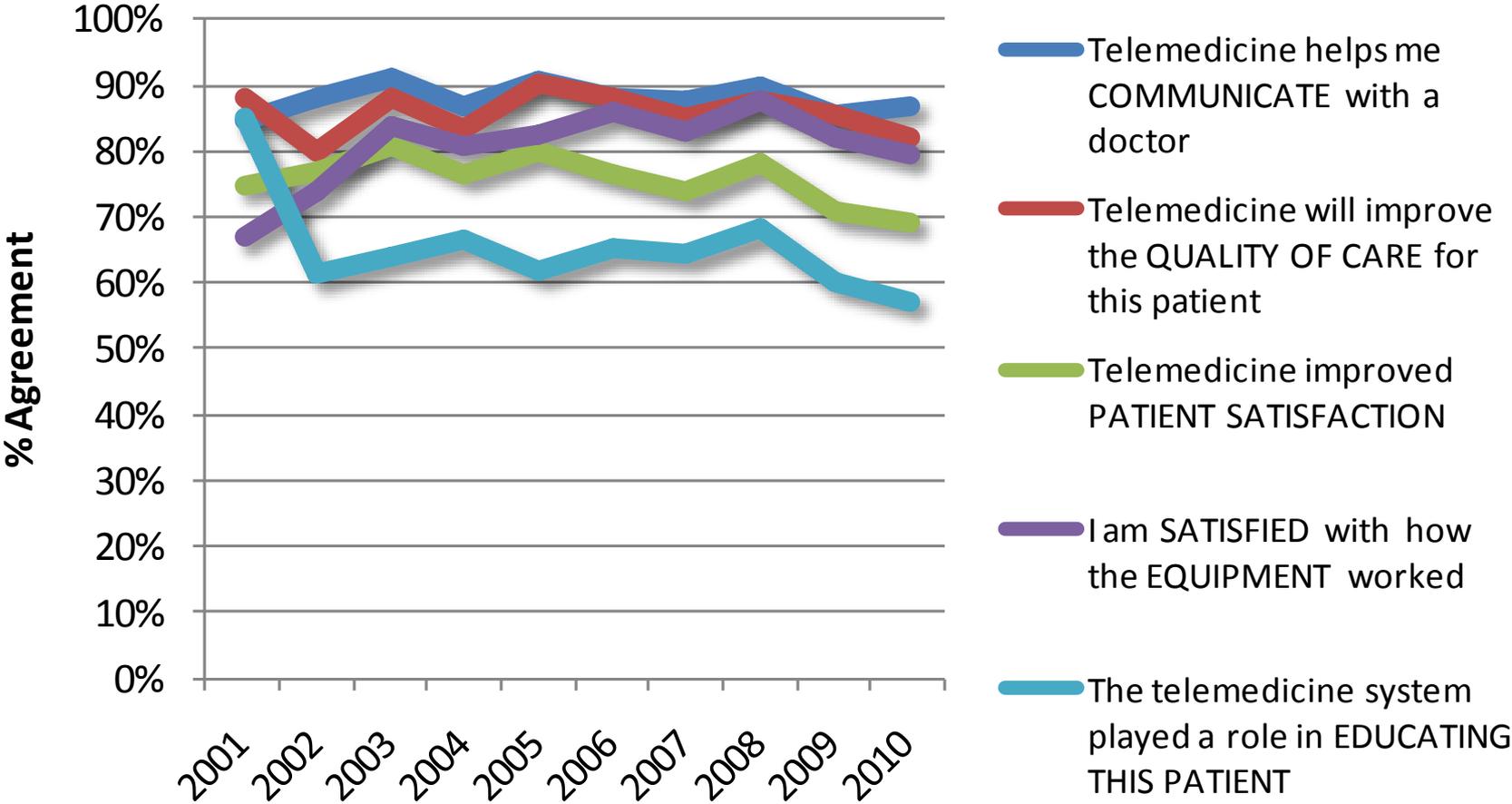
Telemedicine Within a Healthcare Organization

- ▶ Telehealth model can be applied to other healthcare disciplines.
- ▶ NSHC recently included a **strategic plan** and policy to implement telemedicine.
- ▶ Dental, med staff, audiology, health aides
- ▶ Telemedicine is a tool that helps us do what we do better



Improving Relationships

Provider Feedback over Time

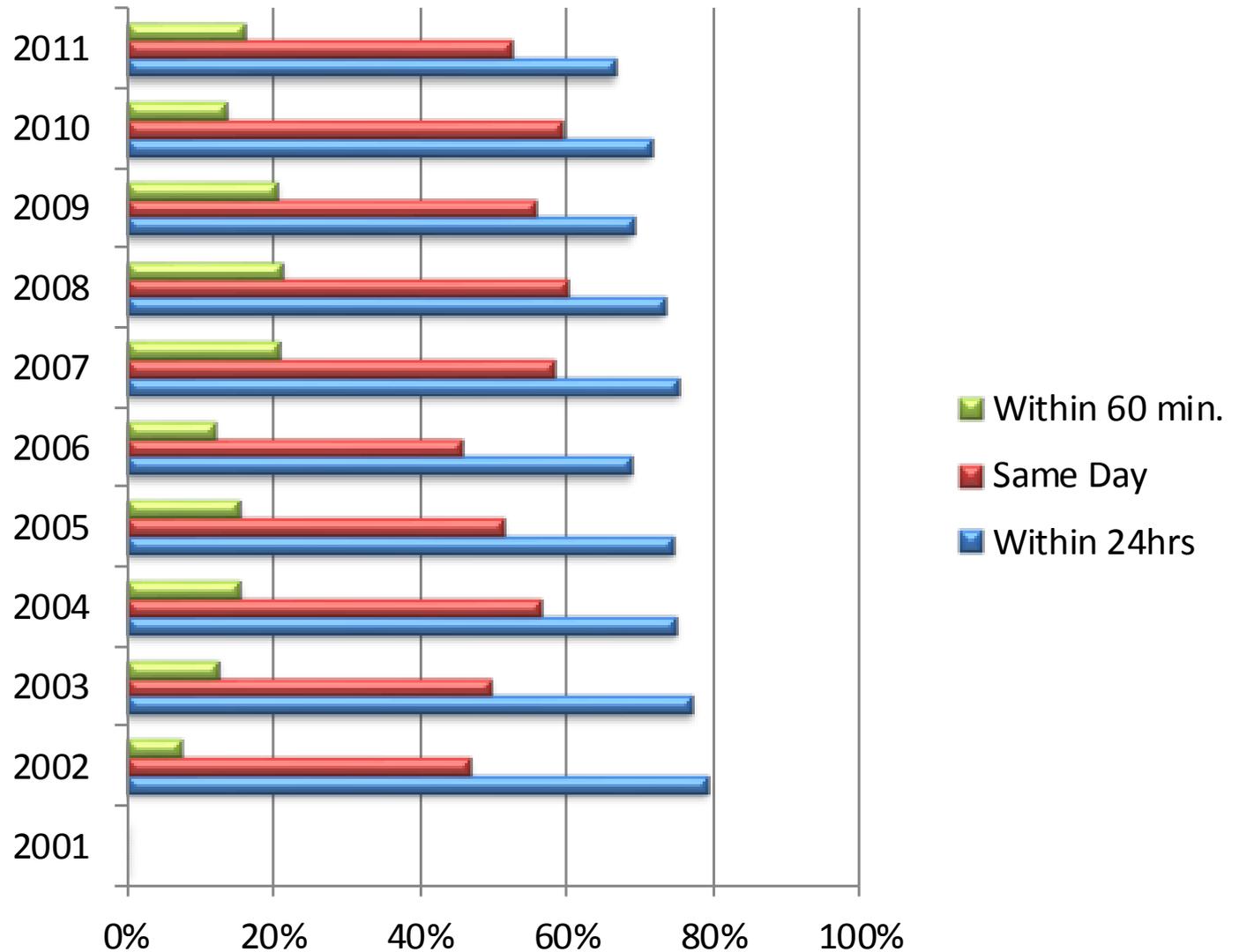


20% of all specialty consultations are turned around in 60 minutes.

50%–60% are turned around in the same day.

70%–80% are turned around within 24 hours.

ANMC Turnaround Time



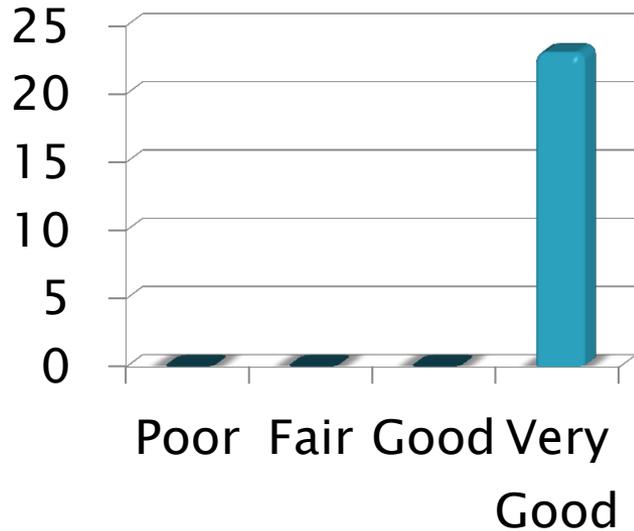
- Within 60 min.
- Same Day
- Within 24hrs



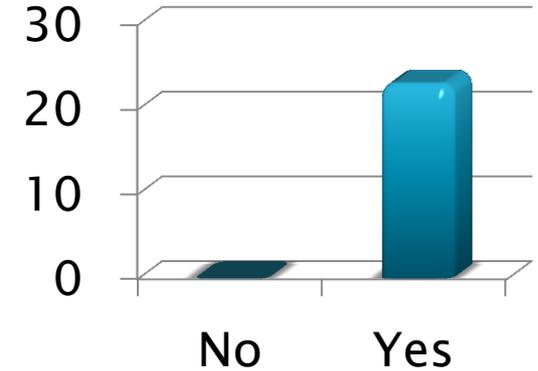
Provider retention



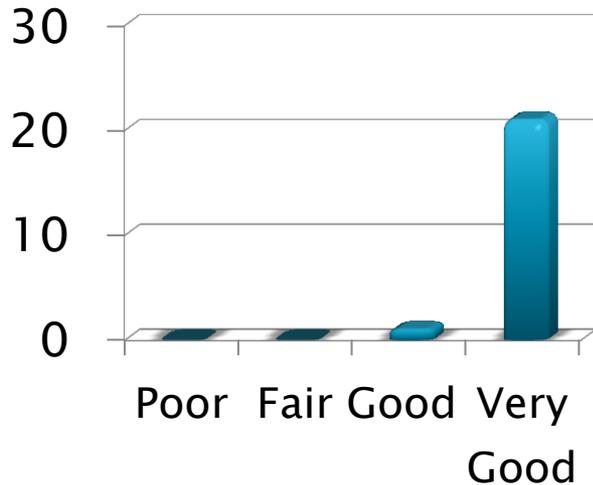
How satisfied were you with the use of the telemedicine technology?



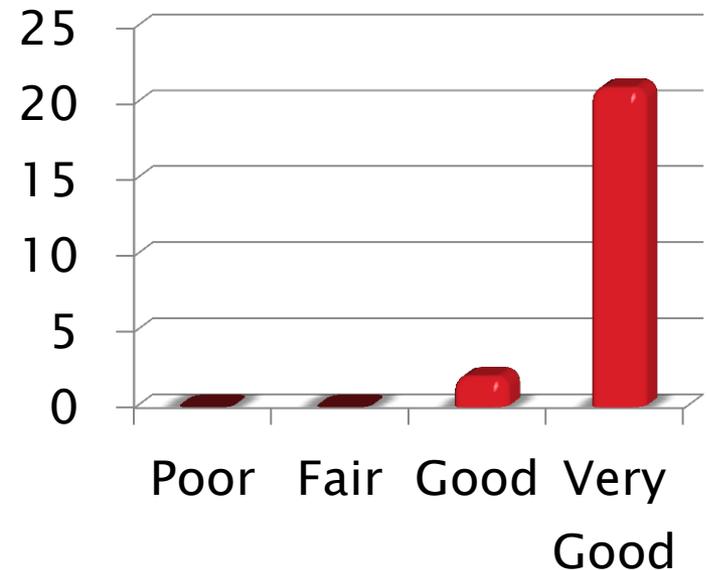
Willing to have a telemedicine exam for follow-up?

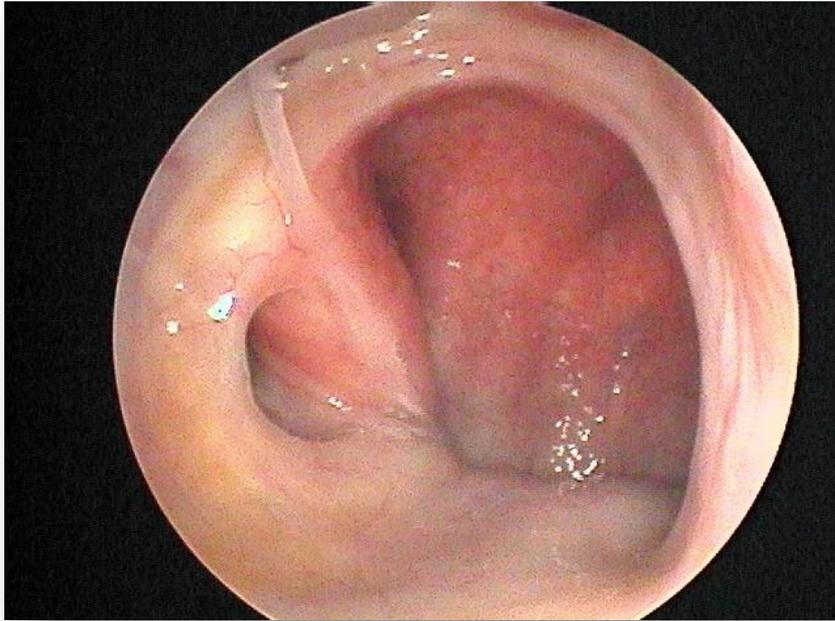


How well did the telemedicine technology help you understand your problem?



Overall Satisfaction With This Visit





“I was able to see the problem – then the repaired normal condition ... and discussed my problem – very informative!”

“I liked to see with my own eyes the inside of my ear!”



Outcomes – the People



46 male - remote village



YUKON-KUSKOKWIM HEALTH CORPORATION **Audiological Evaluation**

Type of Test: Seg Play VRA BEH Other _____ Reliability: Good Fair Poor Inserts TD# 57

AUDIOGRAM

Speech Audiometry: SRT SAT MCL UCL Speech Discrimination SL HTL

Ear	SRT	SAT	MCL	UCL	Speech Discrimination	SL	HTL
Right					%	dB	%
Left					%	dB	%
Binaural					%	dB	%
Unaided (SF)					%	dB	%
Aided (SF)					%	dB	%

List used: LV Tape

IMPEDANCE TESTING

TYPE	PRES	C	VOL	UNITS	ACOUSTIC REFLEX	DNT
RT	C	-19	21	.5	<input type="checkbox"/> CNT <input type="checkbox"/> WNL <input type="checkbox"/> Elevated <input type="checkbox"/> Absent	
LT	B	-27	-	-	<input type="checkbox"/> CNT <input type="checkbox"/> WNL <input type="checkbox"/> Elevated <input type="checkbox"/> Absent	

KEY

	Air		Bone Conduction		
	Unmasked	Masked	Unmasked	Masked	Unspecified
Right	○	△	<	{	A
Left	×	□	>	}	∞

S = Soundfield A = Aided DNT = Did Not Test CNT = Could Not Test WNL = Within Normal Limits
CHL = Conductive Hearing Loss SNHL = Sensorial Hearing Loss BHL = Mixed Hearing Loss

Audiogram

Right: WNL CHL SNHL Mixed HL
Left: WNL CHL SNHL Mixed HL

WRS / DISCRIMINATION:

Right: DNT CNT Excellent Good Fair Poor
Left: DNT CNT Excellent Good Fair Poor

TYMPANOGRAM:

R: WNL Retracted Shallow Hyper-compliant Broad Flat
Ear Canal Volume: Normal Large Small
L: WNL Retracted Shallow Hyper-compliant Broad Flat
Ear Canal Volume: Normal Large Small

Compared to previous Audiogram on ___/___/___, thresholds are: Stable Poorer Improved

Current Hearing Aids: Right Left Binaural Make / Model BTE ITE / ITC

Previous surgery on ___/___/___ Right Left
Previous surgery on ___/___/___ Right Left

Comments: REPORTS @ TRAUMA 2 OTOLITHIA/POLIP NO
KNOWN IS WITH @ PEF FOR LONG TIME. REPEATED
BY PA TODAY. THINKS HEARING WOULD BE BETTER IF
@ PEF REPAIRS.

R? TM MOST 2 MIDDLE RETRACTION 2 NL MOBILITY
@ LATE DEV RETRACTION @ CHOLESTEATOMA (?)

TELEPHED IMAGES TO
ENT
- RSP/PWLS

Tester: L Monte

Rev Date: 10-15-12

9 female - post tympanoplasty



NORTON SOUND HEALTH CORPORATION
AUDIOLOGY DEPARTMENT

Brevig Clinic - 2011 Fall

IMPRESSIONS:
 1. Right: Hearing w/NL
 Left: Mild conductive hearing loss.
 2.

RECOMMENDATIONS:
 1. Telemed Flv
 2.

RIGHT

SRT: _____ W-DS: _____ Frequency (kHz)

Insert earphones Headphones
 Conditioned play used with _____ reliability

LEFT

SRT: _____ W-DS: _____ Frequency (kHz)

Insert earphones Headphones
 Conditioned play used with _____ reliability

TYPM	Volume	Type	Pressure	Compliance
Right	1.0	A ₆	+1B	0.1
Left	0.9	B	NP	
A Reflexes		vc 1	vc 2	Decay-C
Right				
Left				

OTO: TM intact, retracted TM intact

DPOAE: Refer, Au

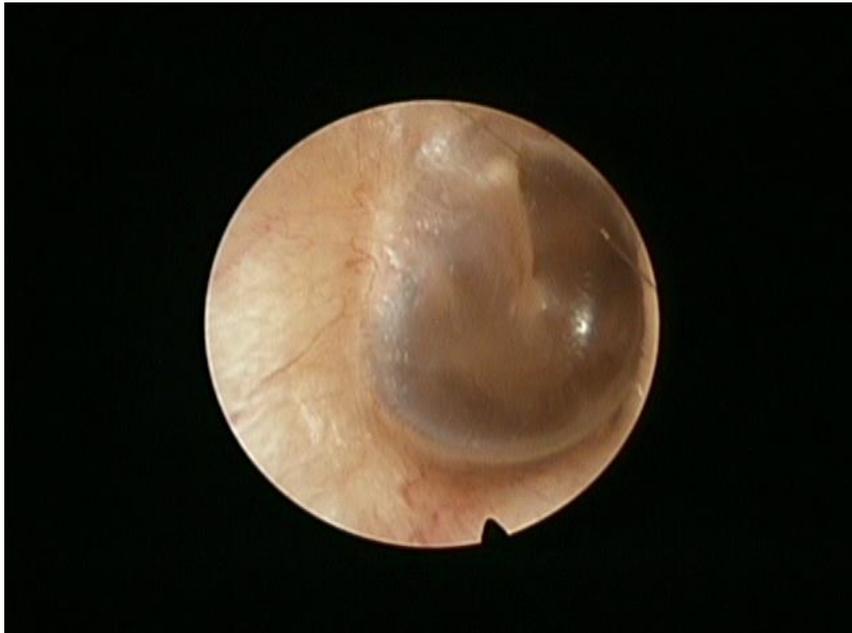
HAC: _____ 642-3541 - Sandra

HISTORY: Dotolija, Monika
 Sp (L) + plasty 3/2011
 (R) + plasty 8/2010

Allergies: _____

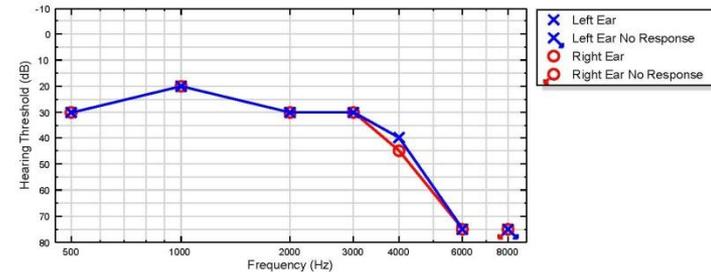
Jamie Burford, Au.D., CCC-A
 NSHC Audiologist

90 female, wants to communicate with family



		Frequency (Hz)						Key:	
		500	1000	2000	3000	4000	6000	8000	
Hearing Threshold (dB)	Right	30	20	30	30	45	75	NR	NR - No Response
	Left	30	20	30	30	40	75	NR	U - Untested

The graph below is not intended for diagnostic purposes. It is provided for reference only. Please refer to the above numerical table for actual values reported from the device.



Instrument Serial Number: 22972 EPROM Revision: EX71A Calibration Date: 4/8/2012

PATIENT

Patient: purdy, agnes
 DOB: 07/03/1923 Age: 90 Gender: F
 Address:
 Phone (H): Phone (W):
 Primary HR#:
 Secondary HR#:
 Guardian

PROVIDER:

Provider Name: Sandy Koyukuk CMA
 NPI / Billing ID:
 Phone (W): 451-6682
 Attachment Saved: 09/17/2013 09:54 AM
 ENCOUNTER:
 Case Number: CAIHC-GL-1149
 Organization: TCC
 Case Created: 07/09/2013



Post cochlear implant rehab



8 male – snoring & apnea



ENT Direct Referral Appointment Form for Tonsillectomy Fax Number # (907) 729-1412

Site: _____
 Provider Requesting Appt: _____ Phone #: _____
 Provider Case Manager: _____ Phone #: _____
 Primary Care Provider: _____ Phone #: _____
 PCP Case Manager: _____ Phone #: _____

The following guidelines are indications for tonsillectomy in an otherwise healthy patient. Patients meeting these criteria can be directly referred to us. We will contact them and arrange a surgery date.

Diagnostic

- Recurrent streptococcal pharyngitis defined as three or more distinct episodes with positive cultures or RST in a twelve-month period.
- Recurrent acute tonsillitis defined as six or more episodes of exudative tonsillitis (not pharyngitis) in a twelve month time period, five or more episodes for two consecutive years or three or more episodes for three consecutive years.
- Recurrent tonsillitis when complicated by peritonsillar abscess, febrile seizures, abscesses lymph nodes, or acute airway obstruction. Repeat episodes of severe tonsillitis requiring hospitalization should also be considered for direct surgical referral.
- Obstructive sleep disturbance secondary to tonsillar and/or adenoid hyperplasia. This may be manifested by chronic mouth breathing, nasal obstruction, severe snoring, apnea, daytime fatigue, dysphagia, dental arch maldevelopment, adenoid facies and dysphonia. Failure to thrive, renal and cardiac complications are seen only in the most severe cases and warrant a full medical work-up and subsequent evaluation in the ENT Clinic.

Pertinent History

1. Is patient health without preexisting medical problems that might complicate anesthesia delivery and/or the surgical procedure? YES NO
2. Does patient desire procedure in the next four weeks? YES NO
3. Does patient desire direct referral for surgery foregoing evaluation in regional clinic? YES NO

If any of the above are no, patient should be referred to ENT clinic for evaluation.

Note: Decisions for direct referral and ultimately, surgical intervention must be individualized for each patient. Patients with tonsil or other throat problems not meeting these criteria should be referred to ENT clinic. Direct referral should only be used for those patients without underlying medical problems or other complicating factors.

 Social Security #: _____
 Guardian's Name: _____
 Patient Contact #: _____
 Address: _____
 Home Phone #: _____
 Appt Scheduled by: _____
 Date & Time _____ MD: _____

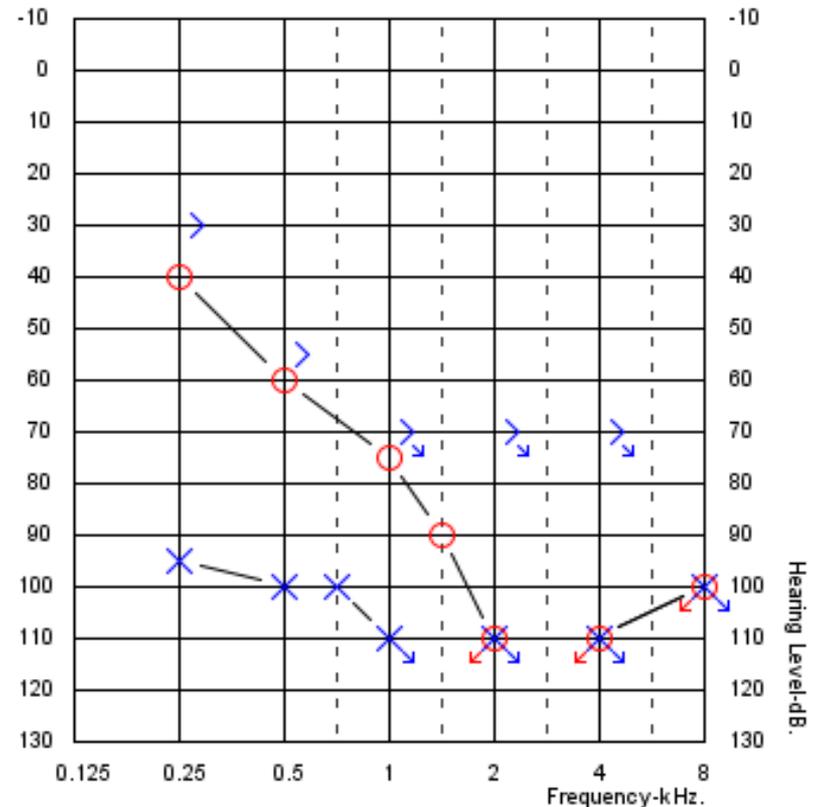
How do we value (\$)...



- ▶ Right service
- ▶ Right place
- ▶ Right time
- ▶ Right provider

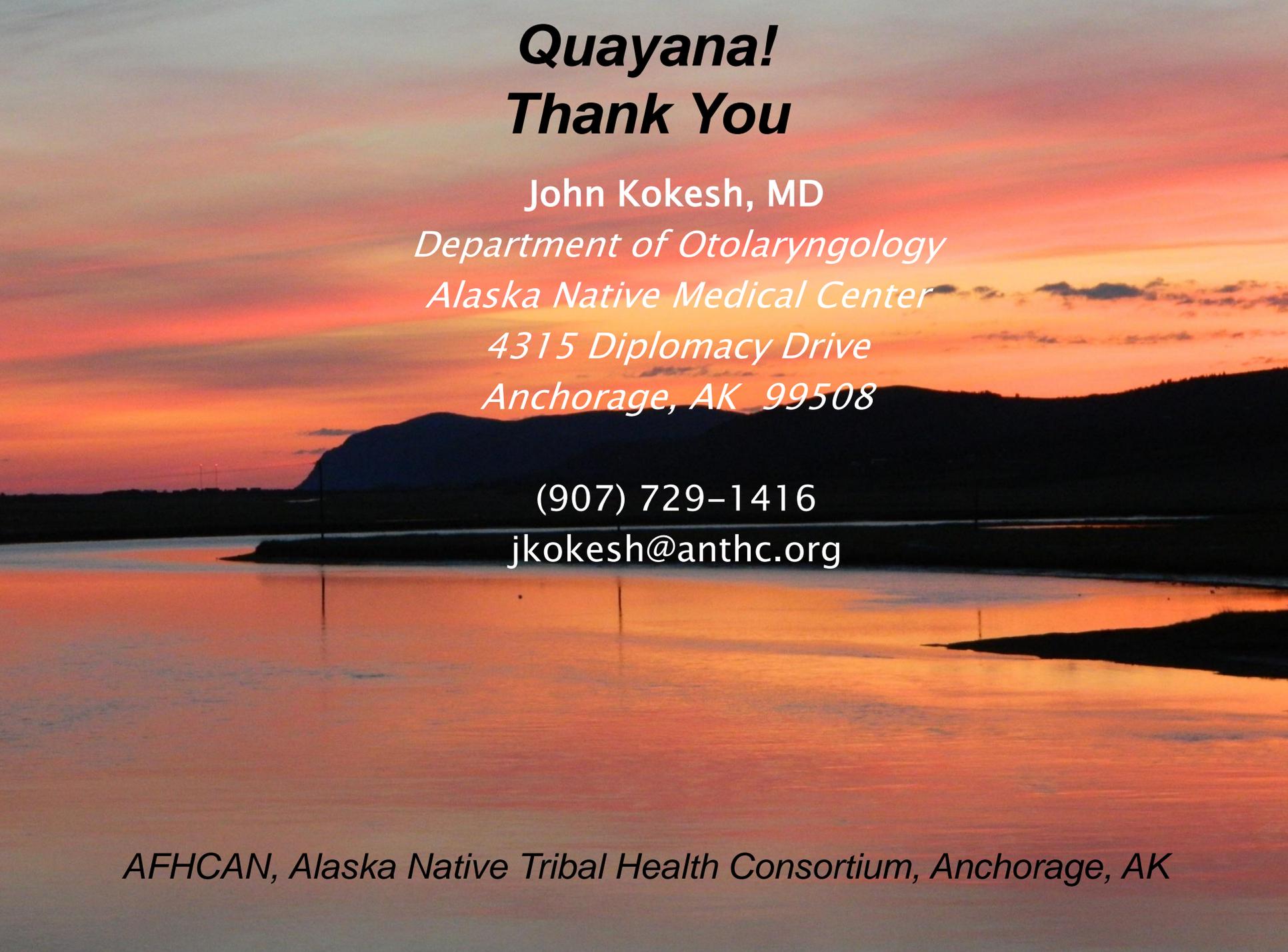
Telemedicine is a powerful tool that helps us achieve this

▶ I'm sure you'll remember this 79 y/o male who was sent to Anchorage for MRI due to asymmetrical hearing loss. He ended up with a CPA tumor that the family opted not to treat. I would like to share that he died peacefully this past month on Good Friday. He lived comfortably in his home through Thanksgiving, Christmas, and his 80th birthday. We were able to increase his QOL (and his wife's) with walking assistance, hearing solutions, and other home modifications. The wife particularly expressed appreciation for telemedicine and access to audiology in the village. Despite not choosing to receive therapy, the family was very happy to receive the care they did and to know what to expect. In this instance, I feel it was very valuable for me as an audiologist to have direct access to ENT, particularly for this pt I felt might need imaging studies done; telemed allowed me this access. I'm not sure conditions like what this pt had would be discovered if it weren't for the level of specialty care made available to these remote villages.







A scenic sunset over a body of water with mountains in the background. The sky is a mix of orange, red, and purple, with the sun low on the horizon. The water reflects the colors of the sky. In the background, there are dark silhouettes of mountains and hills.

Quayana! Thank You

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AFHCAN, Alaska Native Tribal Health Consortium, Anchorage, AK

