

EXPANDING TELEAUDIOLOGY IN RURAL ALASKA: AN EHDI PILOT PROGRAM

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18th Annual EHDI Meeting, Chicago, IL

March 5, 2019



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No conflicts of interest

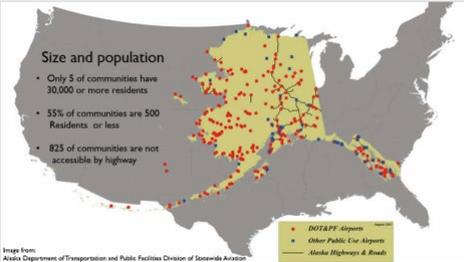


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CONFLICT OF INTEREST

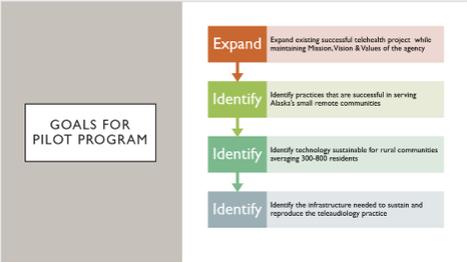
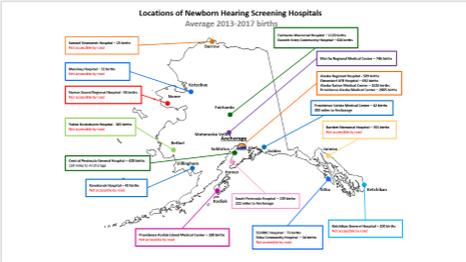
OVERVIEW

- ❑ State of Alaska
- ❑ Development of solutions to address needs in Alaska (telemedicine/CHAP)
- ❑ Alaska EDHI program
- ❑ Alaska EHDI Pilot Project
- ❑ Norton Sound Health Corporation (NSHC)
- ❑ NSHC Audiology Services/models of care
- ❑ Pilot Project Equipment Selection and implementation
- ❑ Case Study



ALASKA'S FEDERAL HEALTH CARE ACCESS NETWORK (AFHCAN)

- ✓ AFHCAN is a program of the Alaska Native Tribal Health Consortium (ANTHC)
- Provides information technology consultation, training and support
- AFHCAN <http://afhcan.org/about.aspx>



AUDIOLOGICAL SERVICES

- Diagnoses
 - Sound booth (Nome, Unalakleet)
 - Electrophysiological testing
 - Immittance testing
 - Vestibular testing
- Rehabilitation
 - Full digital selection
 - CI/Bahs
 - ALDs
 - Verification/Validation

PILOT PROJECT EQUIPMENT DECISIONS

The AFHCAN CARE contains list of technology with a small footprint that is portable in the regional health clinic location

The chosen manufacturer had to be willing to share programming code with AFHCAN IT so the system can be fully integrated in to Care

Fully Diagnostic included robust tympanometry and objective hearing assessment

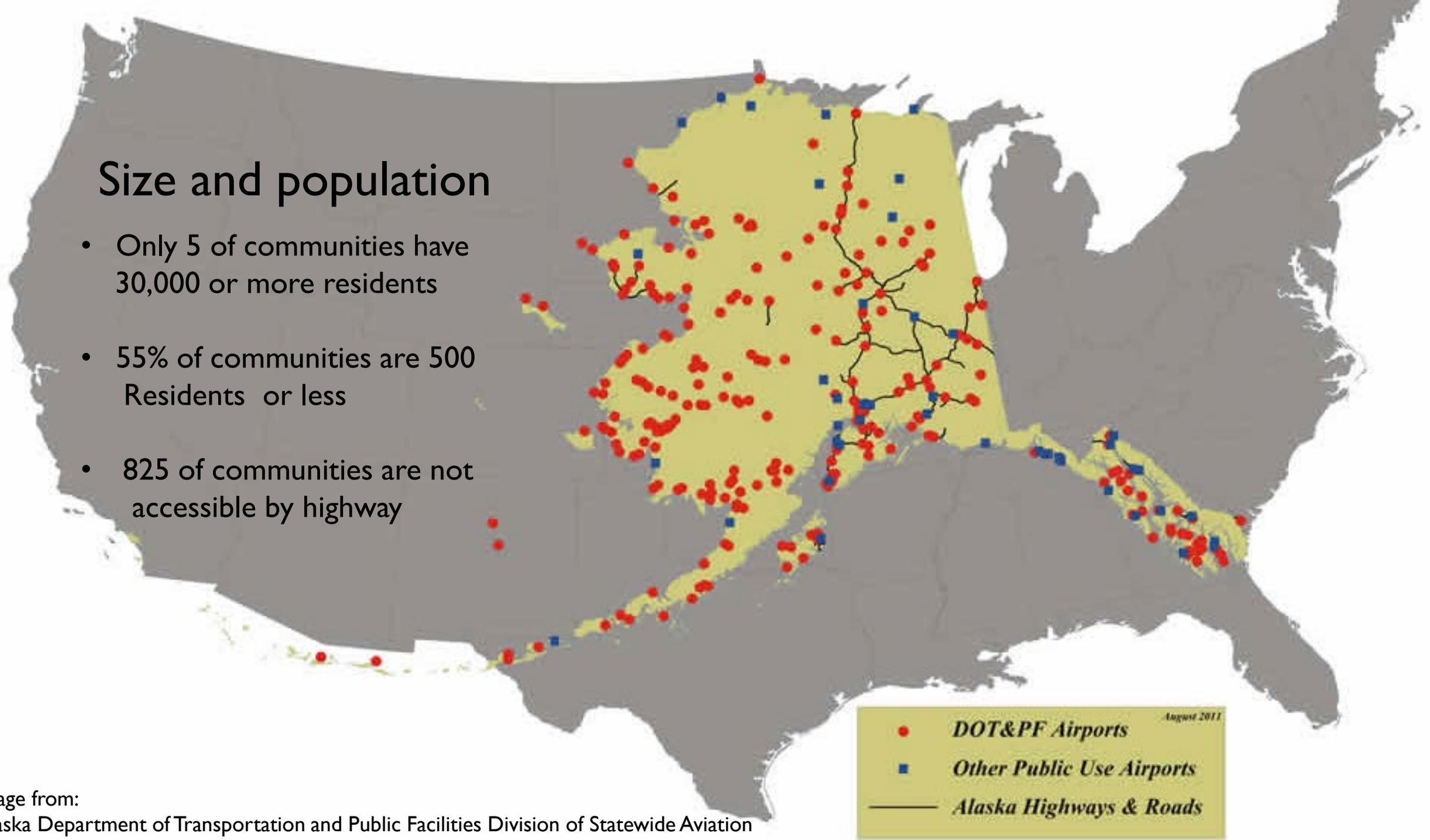
For the program to be sustainable and reproducible in other regions the equipment costs must be supported by clinics that serve between 300-600 residents.

REFERENCES

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Size and population

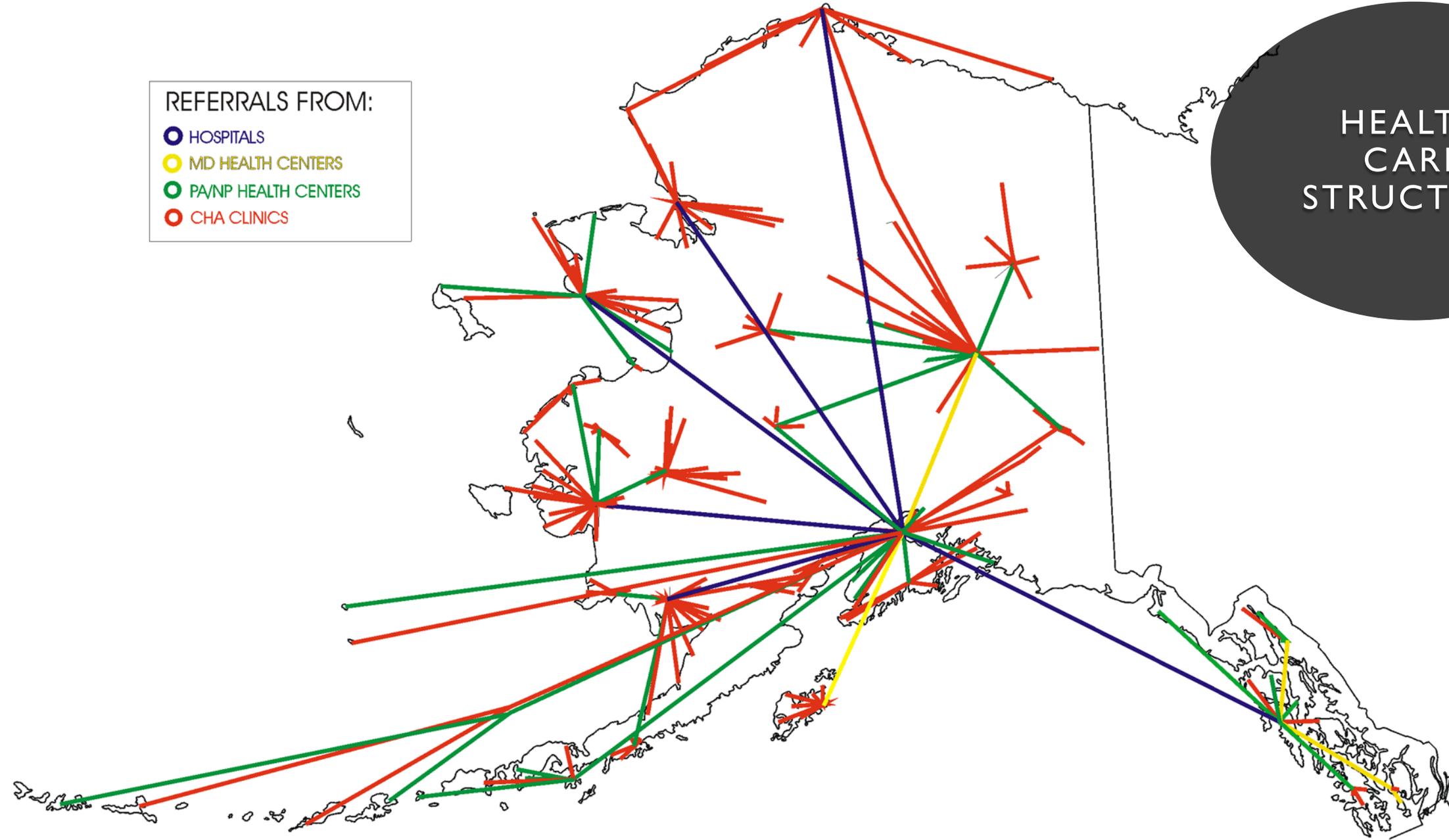
- Only 5 of communities have 30,000 or more residents
- 55% of communities are 500 Residents or less
- 825 of communities are not accessible by highway



REFERRALS FROM:

- HOSPITALS
- MD HEALTH CENTERS
- PA/NP HEALTH CENTERS
- CHA CLINICS

HEALTH CARE STRUCTURE



ALASKA'S FEDERAL
HEALTH CARE
ACCESS NETWORK
(AFHCAN)



AFHCAN, is a program of the
Alaska Native Tribal Health
Consortium (ANTHC)



Provides information
technology consultation,
training and support



AFHCAN
<http://afhcan.org/about.aspx>

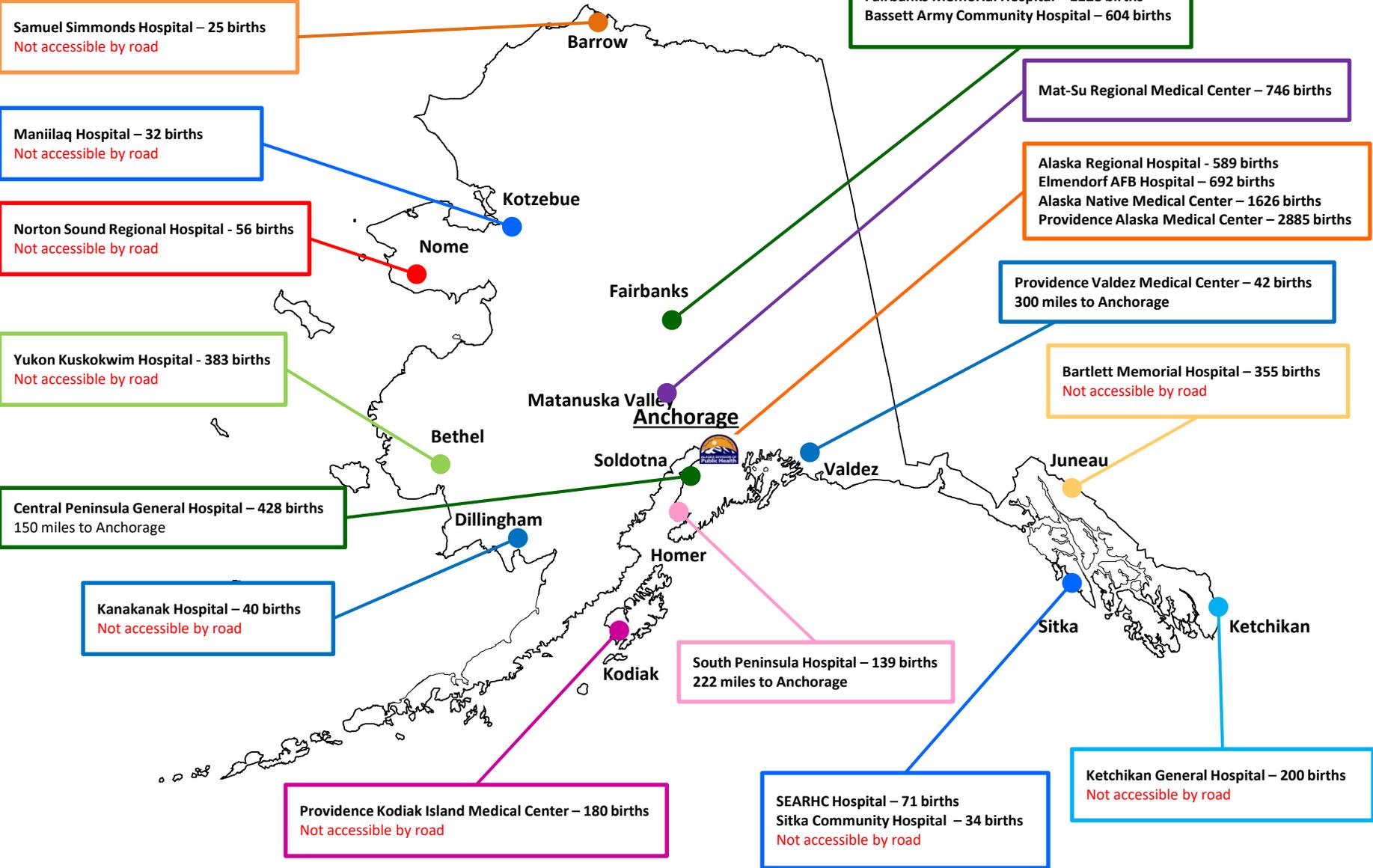
COMMUNITY HEALTH AIDE PROGRAM

- The Community Health Aide Program (CHAP) consists of a network of approximately 550 Community Health Aides/Practitioners (CHA/Ps) in over 170 rural Alaska villages. CHA/Ps work within the guidelines of the *Alaska Community Health Aide/Practitioner Manual* in assessing and referring members of their communities who seek medical care and consultation. Alaska CHA/Ps are the frontline of healthcare in their communities.
- Three training centers:
 - Anchorage, Norton Sound, Yukon-Kuskokwim



Locations of Newborn Hearing Screening Hospitals

Average 2013-2017 births



TRANSPORTATION TO PEDIATRIC AUDIOLOGY DIAGNOSTIC CENTER



GOALS FOR PILOT PROGRAM

Expand

Expand existing successful telehealth project while maintaining Mission, Vision & Values of the agency

Identify

Identify practices that are successful in serving Alaska's small remote communities

Identify

Identify technology sustainable for rural communities averaging 300-800 residents

Identify

Identify the infrastructure needed to sustain and reproduce the teleaudiology practice

NORTON SOUND HEALTH CORPORATION (NSHC)

- Chosen based on history of successful telehealth practice and infrastructure in place:
 - Motivated leaders
 - Provider buy-in, support, and motivation
 - Training support
 - IT buy-in and support
 - Agency history of commitment to trying novel approaches to address access to care and staff shortage and turnover





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OTITIS MEDIA IN AI/AN POPULATION

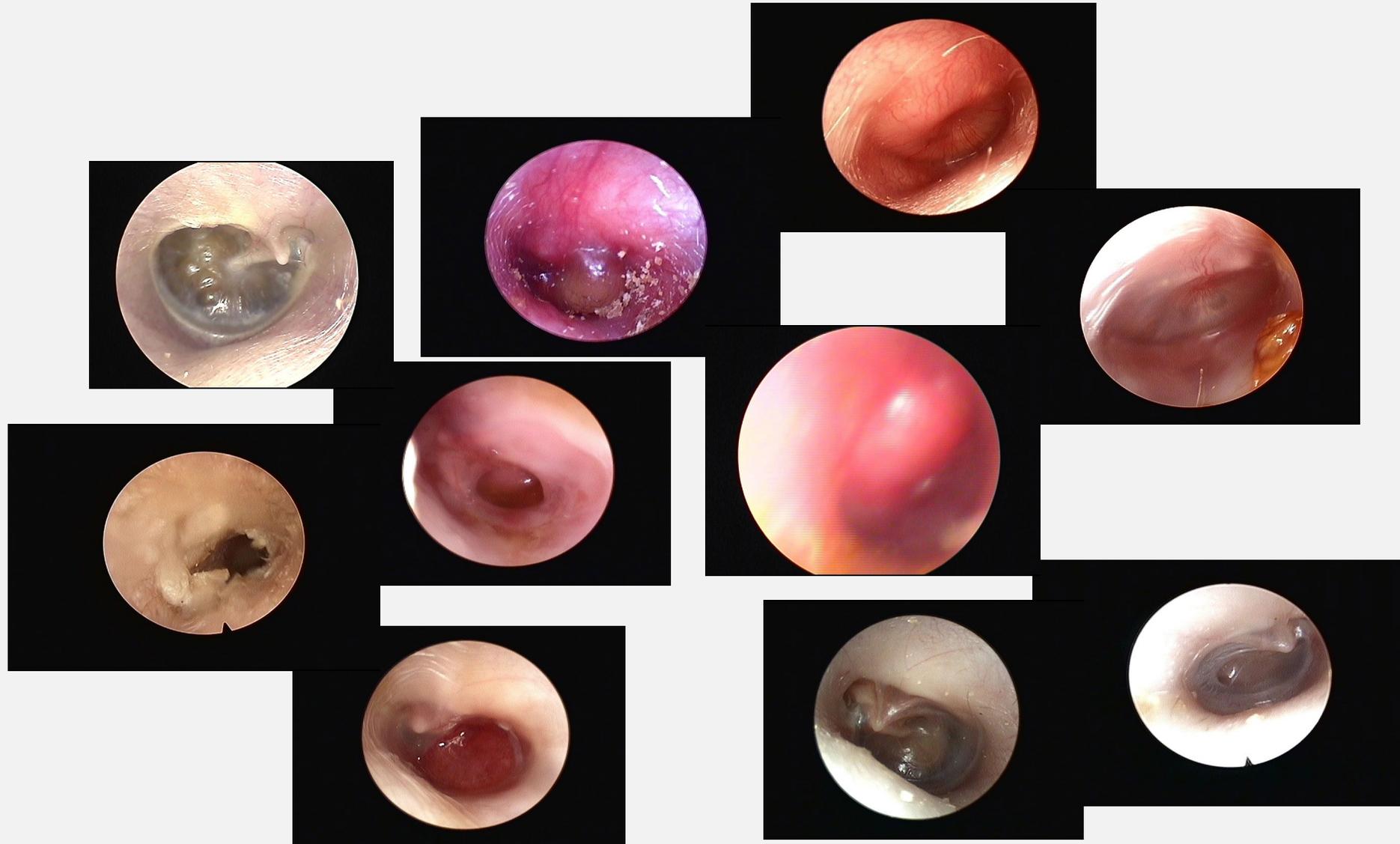
Higher rates of OM compared
to non-native population

3x higher in children < 1yr
1.5x higher 1-4yr (Curns et al., 2002)

NSHC (88.7% AN)

OM is one of the top 5 diagnoses for nearly all
communities

OTITIS MEDIA IN THE AK NATIVE POPULATION



TELEHEALTH SERVICES



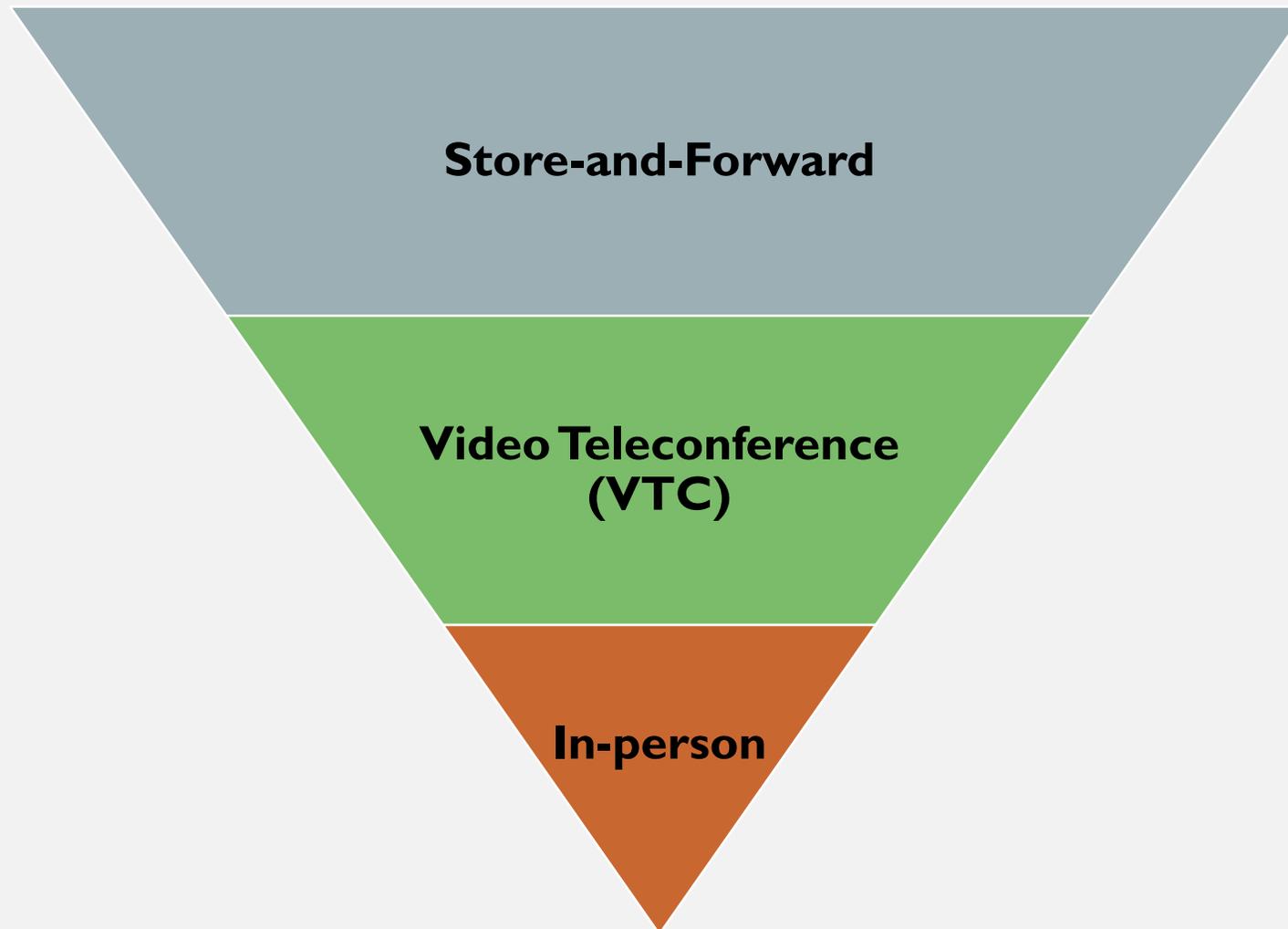
Telehealth Methods: Store and forward, real time (video/remote desktop), hybrid, mobile



Video otoscopy, tympanometry, acoustic reflexes, OAEs, surgical/medical management, hearing aid fitting and programming, troubleshooting, counseling, aural rehabilitation, newborn hearing screening



Not yet tackled: Balance assessment, CI mapping, electrophysiologic testing



NSHC Audiology Workflow for use of telemedicine in audiology and otolaryngology specialty care to increase access and timeliness of care, while reducing travel

OUTCOMES

01

Reduced wait-time

- Ferguson et al. (2008)
- Hofstetter, Kokesh, Ferguson, Hood (2010)

02

Improved Cost effectiveness, reduced travel

- Kokesh, Ferguson, Patricoski, LeMaster (2009)

03

Reduced burden on family and healthcare system

CASES EXAMPLES

- Cholesteatoma
- Sudden sensorineural hearing loss
- Brain Tumor/Throat Cancer
- Tube/tympanoplasty/mastoidectomy follow-up
- NBHS



PILOT PROJECT EQUIPMENT DECISIONS

The AFHCAN CART contains lot of technology with a small footprint that is portable in the regional health clinic location

The chosen manufacturer had to be willing to share programming code with AFHCAN IT so the system can be fully integrated in to Cart

Fully Diagnostic; included robust tympanometry and objective hearing assessment

For the program to be sustainable and reproducible in other regions the equipment costs must be supported by clinics that serve between 300-600 residents.



EQUIPMENT IMPLEMENTATION

- Build into the AFHCAN cart
- Set-up and configured for use
- Installation of hardware
- Preparation of supplies
- Training of staff and instructions on use

SENTIERO
PATH
MEDICAL



Norton Sound Health Corporation

COMMUNITY POPULATIONS

Location determined by:

- ✓ Need
- ✓ Population size
- ✓ Geographic location
- ✓ Staff resources
- ✓ Successful telemedicine use

COMMUNITY	POPULATION
Nome (regional hub) ★	3598
Brevig Mission ★	388
Elim ★	330
Gambell ★	681
Golovin	156
Koyuk	330
Little Diomede	115
Savoonga ★	671
Shaktoolik ★	260
Shishmaref ★	582
Saint Michael	401
Stebbins ★	556
Teller	229
Unalakleet (Sub Regional)	688
Wales	145
White Mountain	190

Village Clinics in the Bering Strait Region

Norton Sound Health Corporation (NSHC) is a nonprofit consortium owned by twenty Tribes in the 44,000 square-mile Bering Strait Region of Northwest Alaska, which is home to approximately 9,500 residents; 74.6 percent are Alaska Native.

NSHC operates the Norton Sound Regional Hospital in Nome, as well as clinics in the region's fifteen Native villages, which range in size from 150 to 900 residents. Each Village Clinic is staffed by local residents trained as Community Health Aides. In addition, NSHC stations a Physician Assistant or Nurse Practitioner in larger villages and Dental Health Aides are located in Savoonga, Shishmaref, Stebbins and Unalakleet. Although NSHC operates its own medevac service and telemedicine is available, the vast geographic distances within the service area can present challenges during inclement weather.





CASE STUDY

- Newborn male
- Born at 36 weeks, no complications with pregnancy/birth
- No family history of hearing loss but 3 older siblings with h/o recurrent ear infections and tubes
- Referred NBHS (AABR) left ear, passed right ear
- 5 weeks- completed VTC appt (otoscopy, tympanometry, OAEs, counseling)
 - Referred DPOAE screening (4 freq) left, passed right
- 7 weeks- completed AABR (In Nome)
 - Referred left, concern for possible effusion (type C tympanogram)
 - Consult with ENT via telemedicine resulted in recommendation for course of amoxicillin
- 8 weeks- completed diagnostic ABR (in Nome)
 - No sign of acute infection but tymps shallow with slight negative pressure
 - ABR normal Wave V right on click @ 20 dB nHL ,ABR NR left @ 90 dB nHL
 - ENT scheduled for exam with binocular microscope, genetics, ophthalmology
 - In discussion for amplification

BENEFITS AND CHALLENGES



Benefits

Earlier identification

Patient-Centered

Access to ENT/Audiology consult through telemedicine process without travel



Challenges

Infrastructure

- Start-up costs
- Training- initial, continuing, and new staff
- Maintenance services and costs

Personnel

Best Practice



PLANS TO EXPAND

- NSHC has plans to expand the PATH equipment upgrades to additional health clinic locations and NSHC HAT program
- Move toward AABR via telemedicine
- The Tribal health care system will evaluate the need and resources to expand to other regions
- Private pediatric audiology practices in the state have indicated they currently do not have plans to expand their practice to include teleaudiology

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- American Academy of Pediatrics (AAP) Early Hearing Detection and Intervention (EHDI) <https://www.aap.org/en-us/advocacy-and-policy/aap-health-initiatives/PEHDIC/Pages/Early-Hearing-Detection-and-Intervention.aspx>
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