HB
805

1 Seat the child near the front of the classroom where he can read your lips and follow classroom activities the easiest. If he does not wear a hearing aid, his better ear should be toward the teacher and the rest of the class. If he does wear an aid, the aided ear should be toward the teacher and the class. More important than this, however, is that he should sit on the window side of the room so that he is not facing the sunlight while attempting to lipread.

2 The child should be encouraged to watch the face of the teacher and other students when they are talking.

3 The teacher should try to face the hard of hearing child as much as possible when speaking to the class. She should try to give important instructions from a position close to the child.

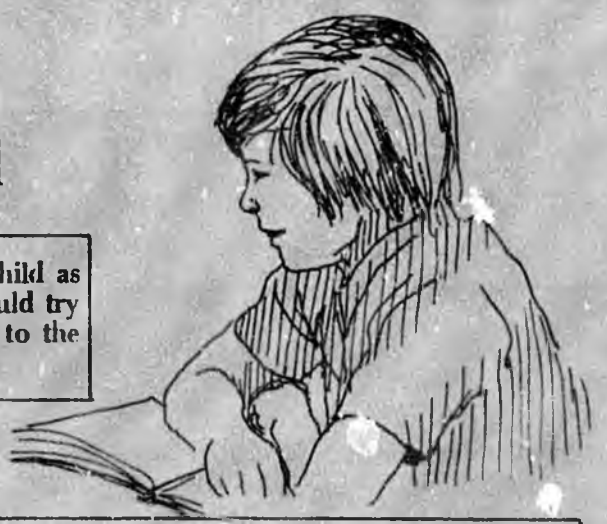
4 The hard of hearing child should be encouraged to turn around in his seat so that he can see the faces of other children participating in class activities.

5 The teacher should not use an excessively loud voice or exaggerated lip movements in speaking to the child.

6 If a choice of teachers is possible, the hard of hearing child should be placed with the teacher who speaks slowly and precisely.

7 We are apt to overestimate the hearing efficiency of the child because when he pays attention he apparently hears quite well. Remember that this child must use more effort to hear than the normally-hearing child. It is to be expected that holding the attention of this child will be difficult.

8 A hearing loss caused by nerve damage may cause the child to speak with a dull voice and inaccurate diction, simply because he does not hear speech clearly. Although it is all right to encourage him to use his best speech, do not expect too much of him or be too critical of his speech.



9 A hearing loss will affect the development of language skills. Therefore the child should be encouraged to compensate by a more active interest in all language activities such as reading, spelling, etc.

10 The hard of hearing child should be watched carefully to see that he is not withdrawing from the group or that he is not suffering a personal reaction as a direct result of his impairment. The teacher may wish to discuss in class what a hearing loss may be like, and to show the children how they may help their classmate in certain activities. If the hard of hearing child wears an aid, it could be the subject of "show and tell" interest--what it does, how it is worn, etc. The children should be aware, however, that wearing an aid is no more unusual than wearing eyeglasses.

11 The nurses and teachers should be careful to watch for common colds, influenza, throat infections, earaches, etc. in this child. He should be given medical atention as quickly as possible.

For TEACHERS With Hearing-Impaired Students in a Regular Classroom

For further information, contact the regional office nearest you:

Regional Audiologist
Audiology Unit, 1 South
PO Box 577
Mt.Edgecumbe, AK 99835
Phone: 966-9320

Regional Audiologist
Communicative Disorders Program
3401 East 42nd Avenue
Anchorage, Alaska 99504
Phone: 274-1559

Regional Audiologist
Communicative Disorders Program
1020 Barnette Street-Annex
Fairbanks, Alaska 99701
Phone: 452-6291

Alaska Department of Health & Social Services
Division of Public Health
Communicative Disorders Program
3401 East 42nd Avenue
Anchorage, Alaska 99504

9/77

Pamphlet #10

TYPES OF COMMUNICATIVE PROBLEMS «»

~LANGUAGE

DELAYED LANGUAGE

LEARNING DISABILITIES

APHASIA

~SPEECH

ARTICULATION

VOICE

STUTTERING

~HEARING

MIDDLE EAR PROBLEMS

NERVE DEAFNESS

FOR INFORMATION CONCERNING COMMUNICATION PROBLEMS AND SERVICES, CONTACT :

REGIONAL AUDIOLOGIST
AUDIOLOGY UNIT, SOUTH
P.O. Box 577
Mt. Edgecombe, Alaska 99835
Phone: 966-8320

REGIONAL AUDIOLOGIST
COMMUNICATIVE DISORDERS PROGRAM
525 E. 4th Ave.
Anchorage, Alaska 99501
Phone: 274-1559

REGIONAL AUDIOLOGIST
COMMUNICATIVE DISORDERS PROGRAM
1020 Barnette Street
Fairbanks, Alaska 99701
Phone: 452-6291

SPEECH PATHOLOGY COORDINATOR
COMMUNICATIVE DISORDERS PROGRAM
3701 E. 20th Ave.
Anchorage, Alaska 99504
Phone: 276-6717

Communication

Language, Speech and Hearing

WHO CAN HELP?

COMMUNICATIVE DISORDERS PROGRAM
DIVISION OF PUBLIC HEALTH

If a child you know exhibits signs of a communicative disorder, do you know where to go for help? Sometimes people think and are told "He'll outgrow it". Another year goes by and the problem is still there. If any of the following conditions exist, you should seek help....

- † Not talking by 2 years of age.
- † Unintelligible speech after the age of 3.
- † Not using 2 to 3 word sentences by the age of 3.
- † Speech consists mostly of vowels.
- † Word endings are missing.
- † Leaving off many beginning consonants after the age of 3.
- † Noticeably non-fluent after the age of 6.
- † At any age embarrassed by his speech.
- † Still making speech errors at the age of 7 1/2.
- † Voice is too loud, too soft, monotone and /or too high or too low for sex and age.
- † Other persons notice and comment on his speech.
- † Sentence structure is not adequate at age 5.

HELP!

FOR COMMUNICATION DISORDERS

WHO

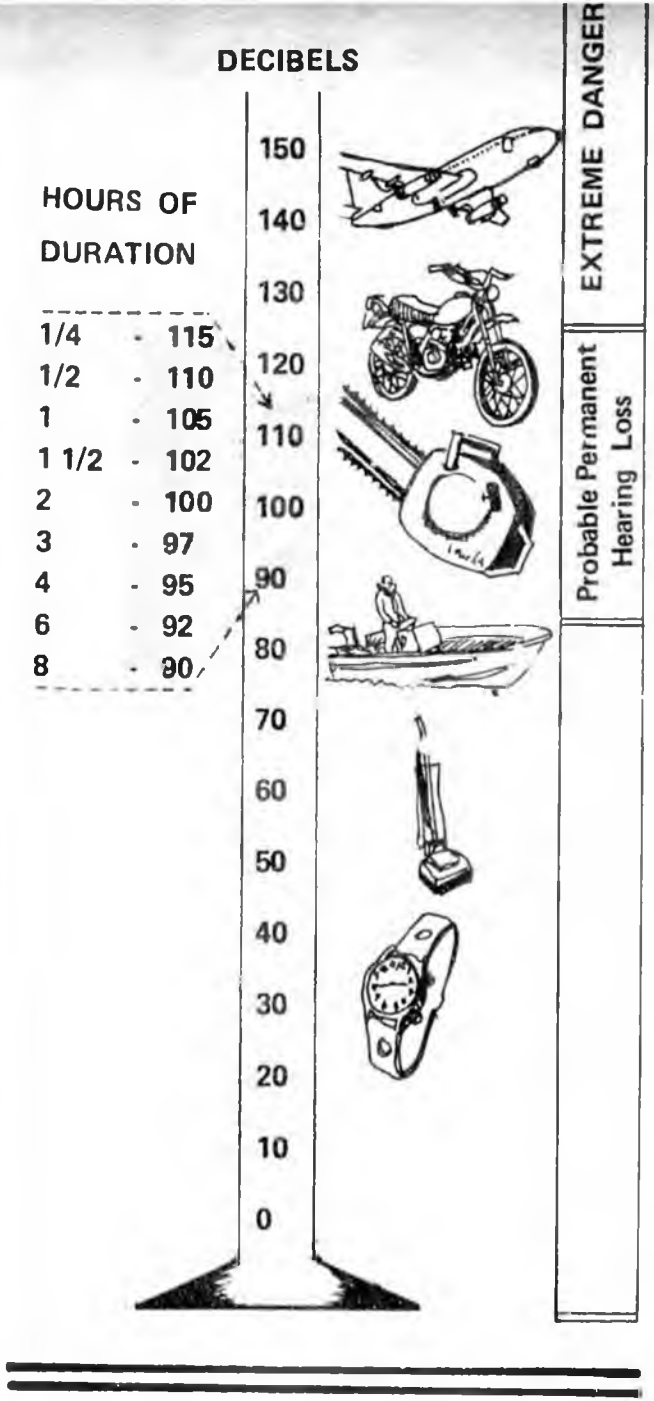
1. An AUDIOLOGIST is defined as a professional who is concerned with NORMAL and IMPAIRED hearing, and with identifying, evaluating, and remediating those who have hearing problems. If a hearing problem exists, an AUDIOLOGIST can determine what type and amount of impairment, how the person can best use his remaining hearing, if the person could benefit from a hearing aid and can assist in the selection of the most appropriate aid.

2. A SPEECH PATHOLOGIST is a professional who is concerned with the NORMAL DEVELOPMENT of speech and language and with speech and language disorders. The SPEECH PATHOLOGIST can determine through evaluations if an oral communication problem exists and if so, decide the best method for treatment.

WHERE

* SCHOOLS
* PRIVATE CLINICS
* REHABILITATION CENTERS
* RESOURCE CENTERS
* PRIVATE PRACTICE
* STATE AND FEDERAL AGENCIES

For information on available services in your area, call or write to one of the addresses on the back of this pamphlet.



Noise))) Sources

FOR MORE INFORMATION AND HELP CONTACT:

YOUR LOCAL HEALTH AIDE
OR
PUBLIC HEALTH NURSE

REGIONAL AUDIOLOGIST
Audiology Unit South
Mt. Edgecumbe
Alaska 99835

Phone. 966-8320

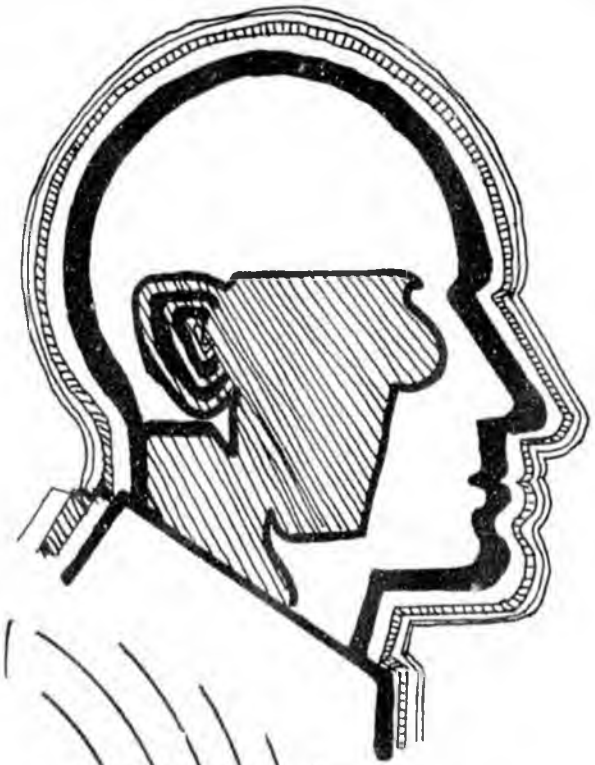
REGIONAL AUDIOLOGIST
Communicative Disorders Program
525 East Fourth Avenue
Anchorage, Alaska 99501

Phone. 274-1559

REGIONAL AUDIOLOGIST
Communicative Disorders Program
1020 Barnette Street
Fairbanks, Alaska 99701

Phone.452-6291

DEPARTMENT
OF
HEALTH AND SOCIAL SERVICES



NOISE CAUSED HEARING LOSS

EXPOSURE TO NOISE IS A COMMON CAUSE OF HEARING LOSS!

INTENSE BURSTS OF LOUD NOISE MAY DAMAGE THE STRUCTURE OF THE EAR

HOWEVER, NOISE LEVELS OF LESSER INTENSITY MAY ALSO CAUSE A HEARING LOSS IF YOU ARE EXPOSED TO THE NOISE FOR A PERIOD OF TIME

EXCESSIVE EXPOSURE TO NOISE DOES DAMAGE TO THE SENSITIVE HAIR LIKE STRUCTURES IN THE INNER EAR. THE LOSS OF THEIR SENSITIVITY IS GRADUAL AND USUALLY NOT NOTICED UNTILL THE PERSON HAS LOST MUCH OF HIS HEARING

THIS DAMAGE IS PERMANENT!

SYMPTOMS:

1. RINGING EARS AFTER NOISE EXPOSURE

2. DIFFICULTY HEARING SPEECH IN SOME ENVIRONMENTS (GROUP MEETINGS, RESTAURANTS, CHURCH, NOISY ROOMS ETC.

3. DIFFICULTY DISTINGUISHING BETWEEN SIMILAR SOUNDING WORDS

Warning !!

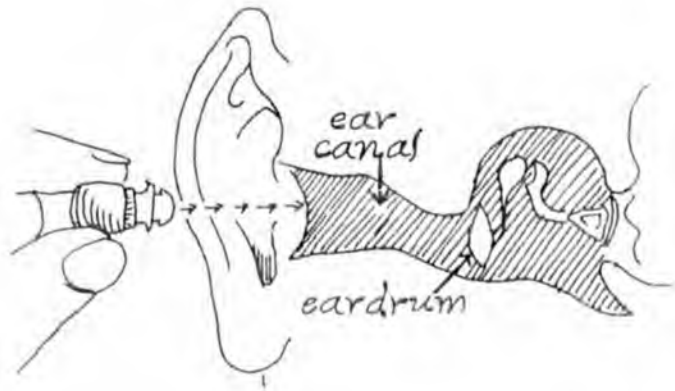
IF NOISE IS LOUD ENOUGH IN AN ENVIRONMENT TO CAUSE DIFFICULTY WITH THE UNDERSTANDING OF SPEECH OR IF INDIVIDUALS MUST RAISE THEIR VOICE TO BE UNDERSTOOD, THE NOISE LEVEL IS PROBABLY EXCESSIVE.

*REDUCE THE LOUDNESS OF THE NOISE IF POSSIBLE

*AVOID EXPOSURE TO LOUD NOISE

*IF THIS IS NOT POSSIBLE.....

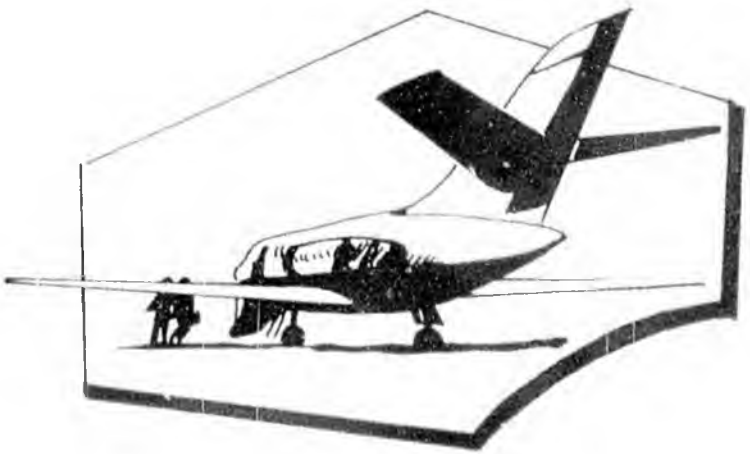
EAR PLUGS ARE VERY EFFECTIVE FOR MOST SOUND LEVELS. THEY MUST BE CAREFULLY FITTED AND PERIODICALLY CHECKED.



EAR MUFFS PROTECT ALL PARTS OF THE EAR AND OFFER WIDEST RANGE OF SOUND PROTECTION .....DON'T REQUIRE FREQUENT ADJUSTMENT.

Protection Against

NOISE-INDUCED Hearing Loss



STATE OF ALASKA

JAY S. HAMMOND, GOVERNOR

DEPT. OF HEALTH AND SOCIAL SERVICES

OFFICE OF THE COMMISSIONER POUCH H JUNEAU 99811

Dear Fellow Alaskan:

If you have noticed that you are not hearing as well as you once were, or if you have a ringing noise in your ears, we want to let you know what is happening and what you can do to prevent it.

Because there is no cure for hearing loss caused by noise, the Alaska Department of Health and Social Services is interested in attempting to prevent this type of hearing loss.

This pamphlet has been prepared to alert you to the possibility of hearing loss through your day to day activities. I hope that the information presented here will make you more aware of the reasons for hearing loss and cause you to take measures to preserve this irretrievable possession so essential to your health and well-being.

Sincerely,

Francis S. L. Williamson

Francis S. L. Williamson
Commissioner

NOISE-INDUCED HEARING LOSS:

Intense bursts of loud noise, such as a blast or an explosion, may produce severe damage to the structures of the middle and inner ear, causing hearing loss. Noise levels of lesser intensity may also produce a hearing loss if you are exposed to them for longer periods of time.

A hearing loss caused by excessive noise starts at high frequencies, usually 4000 cps and may go unnoticed at first. A loss may later occur in lower frequencies, also with continued exposure. At this point, speech may not be as clear as it once was.

Over-exposure to steady noise results in a slowly increasing hearing loss. You probably won't notice this type of loss until it reaches the point where speech is becoming difficult to understand. Unfortunately, this type of hearing loss is permanent. Even though you may be moved from the noisy environment, your hearing will not return to normal. Exposure to noise is the most common cause of hearing loss except for the aging process.

THIS CHART SHOWS THE INTENSITY (DECIBEL LEVEL) OF MANY PIECES OF EQUIPMENT, AND THE DANGER INVOLVED WHEN EXPOSED TO THIS NOISE WITHOUT ADEQUATE HEARING PROTECTION

	Decibel Level	Possible Sources
EXTREME DANGER	155 dB	Rifle blast, close-up jet engine
	140 dB	Shotgun blast, jet airport
	120 dB	Rock drill, hydraulic press, turbine engine
PROBABLE PERMANENT HEARING LOSS WITH REPEATED EXPOSURE	115 dB ↓ 90 dB	Airplane engine, snow machines, sheet metal hammers, chain saws, marine diesel engine room, air compressors, diesel trucks.
	60 dB to 70 dB	CONVERSATIONAL SPEECH

D A N G E R S I G N S

- Ringing Ears After Noise Exposure
- Difficulty Hearing After Noise Exposure
- Difficulty Hearing in Presence of Background Noise

If these symptoms are present consult your Audiologist or Public Health Nurse

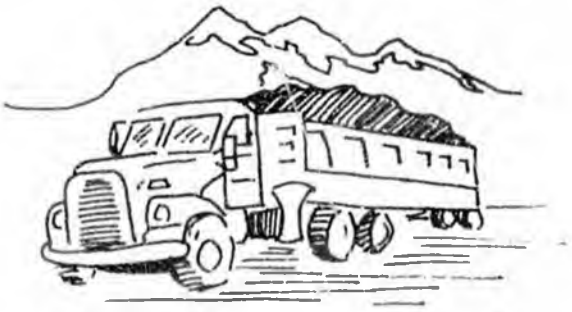
EAR PLUGS OR MUFFS?

Prevention of injury on the job is not new to you; you wear a hard hat, goggles, safety boots, etc...should you think of working in a high noise area without hearing protection?

Many ear plugs and muffs are designed to block out only the concussion of damaging noise. You can still hear conversation almost normally.

Ear plugs will not hurt your ears or put a hole in the eardrum. You may need a little time to get used to them, just like a new pair of eyeglasses. Ear plugs come in several sizes, and some need to be fitted. A snug fit is important in keeping out damaging sound.

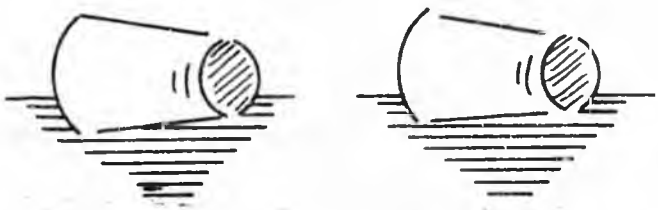
Ear muffs are worn over the entire ear, and may be worn with a hard hat. They may be a little more expensive than earplugs, but they are more comfortable to wear and offer more protection.



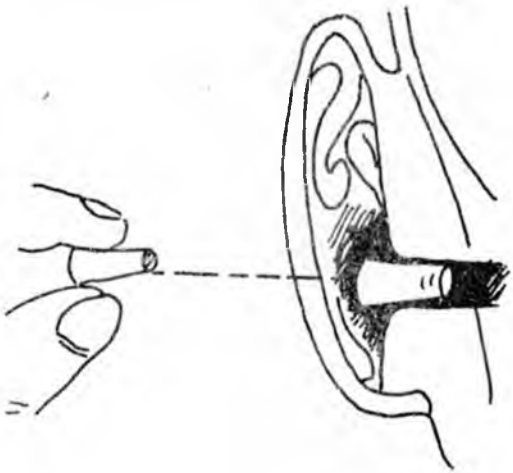
The following page shows you which type of ear protection is advisable in different situations. Ordering information is also shown.

RECOMMENDED FOR PERSONS WHO ARE EXPOSED TO GREATER THAN 90 dB OF NOISE (SEE CHART) THROUGHOUT THE WORKING DAY:

E.A.R. Ear Plugs



This ear plug fits nearly all ears and is comfortable and inexpensive.



A snug fit is important in keeping out damaging sound.

RECOMMENDED FOR THOSE PERSONS WHO ARE INTERMITTENTLY EXPOSED TO GREATER THAN 90 dB OF NOISE, SUCH AS BLASTS FROM JET ENGINES; OR THOSE WHO CANNOT TOLERATE A PROTECTIVE DEVICE IN THE EAR CANAL.

Ear muffs are the most comfortable of all protection devices. They may be worn with hard hats.

THE MOST EFFECTIVE COMBINATION FOR EAR PROTECTION IN EXTREMELY HIGH RISK NOISE AREAS (120 dB+) ARE PLUGS WORN WITH MUFFS.

COMPANY	PRODUCT	PRICE
Big Three Lincoln Alaska 6415 Arctic Blvd Anchorage, AK 276-1216	E.A.R. foam ear plugs	.25 Pair
	David Clark headband muff	8.70 Each
Liquid Air, Inc. 6510 Arctic Spur Anchorage, AK 272-6541	Glendale headband muff	9.50 Each
	MSA headband muff	9.50 Each
	Glendale rubber ear plug	.85 Pair
Arctic Welding & Supply 1110 E. Northern Lights Blvd Anchorage, AK 276-6870	Glendale auraldome muffs	12.00 Each
	E.A.R. foam ear plug	.40 Pair 65.00 Box
Sahlberg Safety & Supply 1702 Ship Avenue Anchorage, AK	David Clark headband muff Type E310	8.20 Each
	E.A.R. foam ear plug	.19 Pair
	3-M, rubber fin plugs	.25 Pair

COMPANY	PRODUCT	PRICE
Safetv Inc. 1952 Dowling Road. Anchorage, AK	Flents FL 080 headband muff	8.95 (1-11) Each 8.75 (12-100) Each
	Piece & Quiet headband muff	3.00 Each
	Silaflex F-1092 moldable plastic ear plug	15.00 Box
	Dielectric FL 085 ear muff	6.00 Each
	Flexaplug five flanged silacone ear plug	1.50 (1-11) Pair 1.25 (12-99) Pair 1.00 (100+) Pair
	E.A.R. foam ear plug	.75 (1-11) Pair .60 (12-99) Pair .50 (100+) Pair

If you have questions, or if you require further information, contact the Audiologist in your area:

Southeastern Region:

Audiology Unit, 1 South
P.O. Box 577
Mt. Edgecumbe, Alaska 99835
Ph. 966-8320

Southcentral Region:

Communicative Disorders Program
3401 East 42nd Avenue
Anchorage, Alaska 99504
Ph. 274-1559

Northern Region:

Communicative Disorders Program
1020 Barnette Street-Annex
Fairbanks, Alaska 99701
Ph. 452-6291

The Alaska Department of Health and Social Services does not imply endorsement of only those products shown in this brochure. They are intended for samples of design and protection only.

Alaska Dept. of Health & Social Services
Communicative Disorders Program
3710 East 20th Avenue
Anchorage, Alaska 99504

September 1977

Pamphlet #3

STATE OF ALASKA
DEPT. OF HEALTH AND SOCIAL SERVICES
JAY S. HAMMOND, GOVERNOR
DIVISION OF PUBLIC HEALTH
COMMUNICATIVE DISORDER PROGRAM
3401 East 42nd Avenue
Anchorage, Alaska 99504

STATUS REPORT OF PREVENTIVE SERVICES TO THE HEARING IMPAIRED
REQUESTED BY REPRESENTATIVE THELMA BUCHHOLDT

Preventive programs for otitis media and noise induced hearing loss are two separate issues, although both conditions result in mild to moderate hearing loss with consequent degrees of handicap. Specific recommendations will be made for prevention in each of these areas with the realization that, for any such program to succeed it must be accomplished in a coordinated manner with each of the major health care organizations including the Community Health Aide Program, Alaska Department of Health and Social Services (public health nurses and Communicative Disorders Program) and the Indian Health Service physicians. A fiscal note is included on the final page.

NOISE INDUCED HEARING LOSS

The prevalence of noise induced hearing loss in rural Alaska has been found to be unusually high because of the repeated exposure of many individuals to snowmobiles, rifle fire, light aircraft, chain saws, motor boats, etc. This is a permanent but preventable condition through health education and use of proper ear protection. The following preventive steps are recommended.

1. A school health curriculum section on noise induced hearing loss and its prevention should be developed and provided to all school districts along with the necessary audio/visual materials and instructional guidelines for implementing this program.

2. Pamphlets have been developed by the Communicative Disorders Program explaining the hazards of exposure to excessive loud noises and protective measures. Samples of these are attached to this document. These items should be produced in greater volume and distributed more widely than is presently possible.

3. Policy and procedure for distribution of ear plugs by the public health nurses to high risk populations has been established by the Communicative Disorders Program but funding for purchase of these ear plugs in bulk is not a budgeted item. These ear plugs would be provided to individuals who are already experiencing various degrees of noise induced loss and to those persons who participate in health education programs with respect to noise induced hearing loss. For other individuals health education pamphlets should be provided which would inform them where they can write to purchase ear plugs at their own expense.

OTITIS MEDIA

Otitis media is a more complex issue because, even though it is a major source of morbidity in Alaska, a primary, initial cause of the problem has not been isolated. It is likely that a combination of factors are involved including nutrition, sanitation, availability of medical care, climate, crowded housing conditions, etc.. While PRIMARY PREVENTION (the prevention of otitis media before its occurrence) is a matter for ongoing clinical research to address, (see Dr. Spence's paper) several very positive steps can be taken in SECONDARY PREVENTION to manage the disease after its occurrence to lessen its debilitating effects and prevent further complications. These steps include (1) conducting early identification programs, insuring effective medical treatment and assuring prompt and appropriate referral (2) providing necessary surgical treatment (3) providing audiological and educational management for children with educationally significant hearing losses (4) conducting a systematic program to monitor hearing status of impaired and high risk individuals (5) implementing comprehensive hearing health education programs.

Some progress has been made in each of these areas but further effort is needed in each to insure a program with the necessary depth and continuity to handle a problem of the magnitude that exists. I will summarize these below:

1. Early identification, effective medical treatment and appropriate referral. A system for early identification has been established which includes identification and treatment by health aides and public health nurses with the assistance of regionally based audiologists followed by referral to the audiologists and Indian Health Service physicians when appropriate. However, well thought out training moduals need to be developed to insure that all health providers are able to conduct indentification, diagnostic and treatment programs in a uniform manner and according to guidelines which have been established jointly by Department of Health and Social Services and the Indian Health Service, Ear, Nose and Throat Section. (These guidelines have been developed but training packets and mechanisms for implementing training programs in this area have not been addressed.) In addition, TRACER studies need to be undertaken to check for gaps in the referral process. Through this mechanism cases of chronic otitis media would be studied retrospectively to evaluate each step of the treatment and referral process using Assessment of Medical Care for Children, Institute of Medicine (1974), as a guide.

2. SURGICAL CARE

   Effective surgical treatment for various types of otitis media is available through the Ear, Nose and Throat Section of the Alaska Native Medical Center, the Section of Family Health's Handicapped Children's Program and Medicaid working cooperatively. This is the desirable mechanism to employ to obtain surgery for clients in need however, all of these programs have been inadequately funded to meet the pressing need and considerable backlog of clients has accumulated in much of the State, especially in the Bethel area. (Dr. Spence will address this in his paper.)

3. Audiological and educational management of children with handicapping hearing loss.
Audiology programs have been established in three regions of the State and a fourth clinic in the Bethel region is being requested of the Legislature in the Governor's Budget for Fiscal Year 1979. Each regional clinic functions in a coordinated manner with the nurses, health aides, physicians and schools of their respecitve areas. These audiological facilities provide a high quality and substantial quantity of clinical audiology care and are the nucleus of services for the hearing impaired. If the Bethel office is funded by the Legislature the only deficit will be the lack of clerical support and travel monies needed to run the Bethel Regional Office. These items were deleted by the Governor's Budget Review Committee.

4. Need for a systematic approach to monitoring hearing status of clients.
An audiology data system has been designed by the Communicative Disorders Program which incorporates input from programs conducted by the public health nurses, the audiologists of the Communicative Disorders Program, personnel testing hearing for the Indian Health Service, Ear, Nose and Throat Section, and from school hearing conservation programs. Common input and data management for all of these health care providers is incorporated into one functioning data system to provide ongoing patient management information and statistical reports to participating parties. This system lacks only funding of part time clerical support and computer key punch costs to become fully functional.

5. Health education materials such as those attached, (For Teachers With Hearing-Impaired Students in a Regular Classroom + Who Can Help?) need to be produced in greater volume and distributed to parents, teachers, and health care providers. Appropriate films also are needed to enhance health education efforts.

David R. Canterbury, Ed.D., Chief
Communicative Disorders Program

1. Primary Prevention of Otitis Media.
Basic research must be conducted in this area to ascertain which additional measures should be instituted on a population-wide basis. Results of this research will be of sufficient interest nation-wide that federal maternal and child health research funds would very likely be awarded if a grant proposal can be developed. The high incidence of otitis media in Alaska and availability of an integrated health care network are factors which make Alaska an ideal location for this research. Existing staff can be delegated the responsibility for development of this grant proposal.

2. Surgical Care.
Since inception of the emphasis program to provide surgical restoration of chronic otitis media with perforation, there has been a priority system used

in selecting cases for surgery (bilateral, age 8-18 as high priority). In recent years there has been a rising level of expectation, i.e., a desire to extend the criteria for surgery to unilateral cases and older persons. These expectations are not unrealistic and, indeed, are being met in urban areas of our State. Funding, however, has not been increased to allow the Handicapped Children's Program and the Alaska Native Health Service to meet these expectations. In FY 1978 a $100,000 appropriation has resulted in 200 additional surgical cases in that area which had the largest backlog of cases. Renewal of th[illegible] funding within the Handicapped Children's Program would allow much needed [illegible]ased surgical care in other areas of the State.

David A. Spence

David A. Spence, M.D., M.P.H., Chief
Section of Family Health

STATUS REPORT OF PREVENTIVE SERVICES TO THE HEARING IMPAIRED
REQUESTED BY REPRESENTATIVE THELMA BUCHHOLDT

Attachment I Fiscal Note
Page One

NOISE INDUCED HEARING LOSS

1. School hearing health curriculum estimated cost quoted by South Central Regional Resource Center, Department of Education.

	CONTRACTUAL	SUPPLIES	PERSONNEL	TRAVEL	TOTAL
Personnel Cost: 2 people 6 weeks to develop curriculum + materials	9,720				
Typist	900				
Art Work	400				
Office Supplies		100			
Telephone Costs	50				
Overhead (Administrative)	993				
150 Intermediate Level Booklets	349				
150 High School & Adult Level Booklets	349				
Promotional Brochure	30				
6 Films @ $375 each		2,250			
	12,791	2,350			15,141

2. Printing and distribution of preventive brochures NOISE CAUSED HEARING LOSS and PROTECTION AGAINST NOISE CAUSED HEARING LOSS. Distribution includes 120 copies of each brochure to 215 Health Aides and 10 Public Health Service Hospitals.

Printing & Distribution	4,612				4,612

3. Supply and distribution of earplugs to Public Health Nurses. Distribution of 220 ear plugs will be made to each Health Center.

Supply		1,500			
Distribution	80				
	80	1,500			1,580

Noise Induced Hearing Loss Total 21,333

OTITIS MEDIA

1. Early identification, effective medical treatment and appropriate referral.
   SEE: Narrative and Fiscal note by Dr. Spence.

2. Surgical Care.
   SEE: Narrative and Fiscal note by Dr. Spence.

3. Audiological and educational management of children with handicapping hearing loss.

	CONTRACTUAL	SUPPLIES	PERSONNEL	TRAVEL	TOTAL
Clerical support for Bethel Regional Office			19,473		
Travel for Bethel Regional Office				7,500	
			19,473	7,500	26,973

4. Need for systematic approach to monitoring hearing status of clients.

Clerical Support: 1/2 time C/T II, permanent part time position.			7,334		
Key Punch Costs	3,510				
	3,510		7,334		10,844

5. Otitis media health education.

Production of 2 additional pamphlets, distribution of 4.	1,532				
Distribution of 4 pamphlets.	500				
2 Films		900			
	2,032	900			2,932
				Otitis Media Total	40,749
			NOISE INDUCED HEARING LOSS & OTITIS MEDIA		62,082
6. Surgical Care within Handicapped Children's Program component	100,000				100,000
			COMBINED TOTAL		162,082

STATE OF ALASKA
DEPT. OF HEALTH AND SOCIAL SERVICES
OFFICE OF THE COMMISSIONER

JAY S. HAMMOND, GOVERNOR

POUCH H 01 – JUNEAU 99811

February 8, 1978

Document# Legislature General #19

The Honorable Thelma Buchholdt
State of Alaska
House of Representatives
Pouch V
Juneau, Alaska 99811

Dear Mrs. Buchholdt:

Please find enclosed a status report of preventive services to the hearing impaired.

Respectfully submitted,

Helen Beirne

Helen Beirne
Commissioner

06-F38LH

155 clients in Bethel

(1) eardrum perforation

(2) fluid behind the eardrum

(3)

We should ask him what he said as a joke?

Thelma:

Otitis Media is like the weather - everyone talks about it but nobody does much about it.

The original intent of HB 805 - at least as far as I am concerned - was to fund for preventative measures in the areas of OT and NIHL. The original proposal papers furnished by Dr. H. Beirne, identified and concentrated on this area of the issue and offered resolutions.

The bill, as is, doesn't seem to be headed in the same direction. It doesn't say anything about Hearing Loss related to Noise nor about the preventative aspects of the problem.

We have only remedial work being accomplished in any concentrated way; we need both that and preventative.

From Anchorage:

Testimony has been scheduled to be heard from

Dr. David Canterbury - Dir., State program.

Phil Smith - Ruralcap

STATE OF ALASKA
DEPT. OF HEALTH AND SOCIAL SERVICES
JAY S. HAMMOND, GOVERNOR
DIVISION OF PUBLIC HEALTH
COMMUNICATIVE DISORDER PROGRAM
3401 East 42nd Avenue
Anchorage, Alaska 99504

PUBLIC HEALTH AUDIOLOGY IN RURAL ALASKA
An Inter-agency Approach

David R. Canterbury, ED.D.

For many years otitis media has been recognized as a major health problem in rural Alaska. Perhaps the highest prevalence of this condition in the United States is found in the Alaskan Natives. This fact has been documented on numerous occasions and as the identification and evaluation techniques have evolved, the true scope of the problem has become increasingly evident. The Communicative Disorders Program of the Alaska Department of Health and Social Services working cooperatively with other state and federal agencies, is attempting to establish identification, evaluation, referral and remedial programs in perhaps the most challenging geographic area in the continental United States from the health services delivery perspective.

While the State's land mass of 586,500 square miles is larger than California, Montana and Texas combined, the population only slightly exceeds 400,000 people. Most of these individuals reside in the Anchorage area but there are 150 communities with populations of less than 5,000 people and 40% of all Alaskans are located in communities of less than 1,000. Most of the rural communities are accessible only by light aircraft and in the cases of larger villages, by scheduled airline services. Road systems to rural areas are almost non-existent and distances between these villages are substantial e.g. distances from Anchorage, the largest city, to various outlying communities are; Adak 1,209 miles, Barrow 722 miles, Ketchikan 768 miles and Bethel 420 miles. The entire State west to east spans a distance equivalent to that

from California to Florida. The terrain and climate vary widely from the deep cut fjords of the Southeast Panhandle where rainfall averages exceed 150 inches per year, to the tundra of Northern and Western Alaska with predictable winter lows in excess of -50° Fahrenheit. In Northern and Western Alaska exists one of the most unique human environments known in the State as "the bush". The term refers to the predominately Native villages of the area. Although urban conveniences are being introduced to these villages, they are not modern in character nor do they share much in common with America's small towns. "In bush" telephone and television are not common and in many locations residents rely upon shortwave radio. "The bush" is not connected internally or with other portions of the State by road network. Boats in the summer, snow machines in the winter and small airplanes are the most common means of travel. Residents participate in a market economy, still substantially relying on the land and water resources near their home to meet their subsistance needs. About one sixth of the State's population is Alaskan Eskimo or Alaskan Indian. There are six major languages with over twenty significantly different dialects.

There are four organizations in the State of Alaska supplying hearing health care to residents of rural areas. These include:

1. The Community Health Aide Program.
2. The Alaska State Public Health Nurses.
3. Physicians of Federal Indian Health Service.
4. Audiologists of the Alaska State Communicative Disorders Program.

COMMUNITY HEALTH AIDE PROGRAM

Since 1968 Community Health Aides have been employed by the Regional Native Health Corporations. Health Aides are Native residents of the villages who are trained in primary health care at basic and advanced levels by accredited

programs provided through the University of Alaska. There are 205 full time Aides located in 171 villages. They operate under the medical direction provided by physicians of the Indian Health Service Hospitals and their activities are monitored by the State Board of Medical Examiners. They are often the only full time health providers in residence in smaller villages and carry much of the responsibility for intervention in cases of acute otitis media and the ongoing care of chronic otitis media conditions which are quite prevalent. They operate from an established set of standing orders and are in frequent radio/telephone contact with physicians of the Indian Health Service Hospitals. It is estimated that the Community Health Aide Programs conduct 200,000 patient encounters annually for all types of problems. Otitis media is one of the most frequent causes of referral.

ALASKA STATE PUBLIC HEALTH NURSES

Approximately 60 public health nurses supply a wide range of health care to even the most remote of the Alaskan villages. These nurses are based in larger villages and itinerate out to the less populous areas on a scheduled basis as do the physicians of the Indian Health Service. In addition to their other duties, nurses receive training from the Communicative Disorders Program audiologists to provide specific services to the hearing handicapped including pure tone and impedance screening techniques, basic threshold testing, first level counselling, making of earmold impressions for prospective hearing aid users and the fitting of ear plugs as a protection against noise induced hearing loss. Nurses may also provide medication to clients with middle ear disorders from established medical standing orders. The Communicative Disorders Program provides an audiometer for each nurse involved in direct services and the nurses are responsible for administering and/or performing hearing screening activities according to established guidelines. These activities call for all children to be screened on a scheduled basis through their

preschool and school years. While the school systems share responsibility for the implementation of screening programs for school age children, this is often done by the public health nurse in less populous areas. Local volunteers and health aides are trained to work with the nurse in screening activities.

Screening failures receive pure tone threshold tests and sometimes tympanometry from the public health nurse during his/her village visit. All test results are sent to the Communicative Disorders Program audiologists for review, interpretation and recommendations for further management. The nurses also make earmold impressions for prospective hearing aid wearers so that custom fitted ear molds are available when an individual is seen by an audiologist for a hearing aid evaluation and possible fitting. This service provided by the public health nurse often eliminates the necessity of transporting the client out of the village more than once to see the audiologist.

INDIAN HEALTH SERVICE

Physicians of the Federal Indian Health Service program staff hospitals in six outlying areas of the State and in addition a large Indian Health Services Hospital, located in the community of Anchorage. The Anchorage facility contains a staff of two to three Ear, Nose and Throat physicians and one audiologist. They see approximately 300 patients per year for surgery and conduct an ongoing out-patient program. Most of the surgeries scheduled are tympanoplasties. One of the outlying hospitals located in the Southeast section of the State (Mt. Edgecumbe Hospital) also has the services of an Ear, Nose and Throat specialist on a philanthropic fellowship routed through an Eastern university training program. Referrals are made to the ENT programs from the health aides, public health nurses, physicians functioning out of rural hospitals and from the audiologists.

AUDIOLOGY-COMMUNICATIVE DISORDERS PROGRAM

Three levels of services are provided in audiology by the Alaska Communicative Disorders Program.

1. Regional Clinic Services (located in Anchorage, Mt. Edgecumbe, Fairbanks and Bethel).
2. Community or large village clinics.
3. Remote village services.

1. REGIONAL CLINICS

Regional clinic services are provided by a staff of eight audiologists who function out of four regional clinics. Each audiologist devotes about 50% of his or her time to providing the full range of audiology services through the clinic. Regional clinics are fully equiped diagnostic facilities including two channel audiometers, clinical impedance equipment, sound level meters, hearing aid analyzers, etc. Most regional clinics also have either double or single wall sound proof rooms. These facilities form the nucleus of audiology services and are located in, or are highly coordinated with, Indian Health Service and/or nursing facilities. Clients flown in from villages receive evaluations, are fitted with hearing aids, are counselled and are referred for medical management. These regional clinics also serve as training facilities. Before each public health nurse assumes her field station a required orientation into the management of hearing disorders is provided by the audiologist. Periodically, more extensive additional training is accomplished to further enhance the level of skills. Fifty-five nurses attended such extensive training programs in 1977.

2. COMMUNITY OR LARGE VILLAGE CLINICS

Community or large village clinics are held on a scheduled basis three to six times annually. (Presently there are fifteen sites in the State which receive this type of service. All are accessible by commercial jet

service or the limited road system.) When the audiologist leaves the regional clinics to visit these areas he customarily takes with him a portable pure tone audiometer with speech circuitry, portable impedance instrumentation and the necessary supplies for conducting a clinic. Down filled parkas and bunny boots (cold weather boots) are also standard equipment for bush travel during the winter months. The case load during these clinics is referred by physicians, community health aides and public health nurses from their activities in those communities and the surrounding more remote villages. Computer print outs from a recently developed audiology data system integrates diagnostic audiology, nursing and medical information from all sources. This facilitates the follow up of cases seen previously. Medical referral to Indian Health Service Hospital facilities is usually possible at these sites.

3. REMOTE VILLAGES

Remote villages are accessible only by light aircraft flown by "bush pilots". When traveling to these villages it is necessary to also take along a down filled sleeping bag and enough food to last the duration of the trip (two to five days). Since no other accomodations are available, visitors often resort to sleeping in the school house, church or health aides office and eating food stuffs that are brought along. The audiologist works directly with the community health aide, an itinerant public health nurse or itinerant Indian Health Service physician. He performs audiological evaluations, provides counselling, fits hearing aids, and provides training for the nurse or health aide. The nurse or health aide in turn initiates medical standing orders when necessary on identified cases. Some cases are then referred into the regional or community clinics for more extensive management.

In the past a large number of remote villages were visited annually by the audiologist but as the case load in the regional community clinics has risen, so has the ability of the health aides, and public health nurses to manage and refer. Presently only about twenty remote villages are visited each year by the audiologist. Because of the small populations in these areas and travel expense, these clinics, when attended, are for everyone in the village regardless of age, referral source or hearing complaint.

The Central Office of the Communicative Disorders Program (in Anchorage) offers direct support to the audiologists and nurses by furnishing audiometers, impedance testing equipment, supplies, testing forms and calibration services. Annually and as needed all of the 90 audiometers owned by the program are calibrated. This service is also supplied to the few school-based hearing conservation programs at cost. In addition, the computer based data collection system incorporating audiological, nursing and medical information into one ongoing patient management and statistical system was implemented in 1977 and is based in the Central Office.

EXTENT OF HEARING LOSS ENCOUNTERED

Acute otitis media and its chronic sequellae, including hearing loss has been recognized as a leading cause of medical referral among Alaskan Natives for at least the last three decades. This high prevalence of otitis media has been documented by numerous publications including, the McGrath's Project (1962); Brody (1964); Brody et al (1965); Reed and Brody (1966); Reed et al (1967); Maynard (1969); and Reed and Dunn (1970). The most comprehensive study was begun in 1960 by the Arctic Health Research Center, Kaplan et al (1973). This investigation included 643 live births occuring

between October 1960 and December of 1962 in 27 Eskimo villages in the Yukon-Kuskokwim River Deltas. In addition to periodic visits of a research nurse to these villages through the initial years of study, 489 of these children were evaluated by a physician, a nurse, an audiologist and a psychologist in a follow-up done in 1969, 70, and 71. The findings of these studies revealed that perforations and scarring of the tympanic membrane were present in 41% of the children evaluated. A hearing loss of 26 decibels (PTA) or greater was present in 16% and an additional 25% had a measurable conductive hearing loss less than 25 decibels (for a total of 41% with measurable conductive hearing impairment). Children with a history of otitis media prior to age two and a hearing loss in excess of 26 decibels for the middle speech range had a statistically significant loss of verbal ability and were behind in reading, math and language development. In addition, the children who possessed a conductive component but had hearing better than 26 decibels (PTA) were also adversely affected in verbal areas. The number of otitis media episodes was related to the tympanic membrane abnormalities observed, the amount of hearing loss and low verbal ability on achievement test scores.

Use of impedance audiometery for identification and diagnosis was begun in the early 1970's and today is used extensively throughout urban and rural Alaska. The result has been the collection of a great deal of information about the prevalence of middle ear pathology in the State. Data collection during 1975 to 1978 by the Communicative Disorders Program once again, revealed the scope of the problem encountered. During that period of time, several different age groups were monitored to establish prevalence figures. Of the pre-school population seen, middle ear effusion or tympanic membrane perforations were found in 20% of the children in Southeast Alaska and 38% of the same age group in Southwestern Alaska. Statewide prevalence is about 27% for pre-schoolers. Impedance documented negative middle ear pressure exists in

roughly 20% of this group (In excess of -100mm negative pressure). Most of the problems identified are due to serous otitis media presenting at various stages. The numbers of chronic tympanic membrane perforations are being steadily reduced due to an active surgical program but bush communities of Southwestern Alaska still have an alarming number of cases (the Bethel Alaska area, population about 15,000 had approximately 200 unilateral and bilateral surgeries performed during the 1977-78 fiscal year utilizing both State and Federal resources. Most of these were tympanoplasties).

The hearing status of high school age children from Northern villages has been monitored for more than four years by the audiology facility at Mt. Edgecumbe, (Kimball (1975). Conductive hearing losses have been found in 20-39% of the cases seen each year, sensory neural loss was found in 9-17%, Kimball (1977). The latter finding is believed to be due to noise induced hearing loss from excessive exposure to snow mobiles, rifle fire, light aircraft, motor boats etc.

The amount of ear pathology in Alaska is substantial and the continued efforts of all health care providers will be needed to eventually bring the situation to a manageable level. Prevention efforts are being emphasized through early identification and health education on several programmatic fronts and as the system of management between the many parties involved continues to develop a more and more efficient client management system should result.

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STATE of ALASKA

MEMORANDUM

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

TO: The Record

DATE: December 9, 1977

FILE NO:

TELEPHONE NO:

FROM: David A. Spence, M.D., Chief
Section of Family Health

SUBJECT: Prevalence listing of otitis media with perforation.

The attached, unduplicated prevalence listing has been compiled by Cozzi Alward, R.N., and Michelle Riccardi, R.N., from the following sources: October and November, 1977, observations of perforations by field and ENT physicians, public health nurses, and audiologists (442) ears; and previous listings of persons awaiting tympanoplasties (501 ears). This is not a listing, per se, of persons for whom a tympanoplasty has actually been recommended, but it follows that a very significant number of them will be so classified once they have been evaluated by an ENT surgeon.

The bar chart shows the age distribution of the individuals under 21 years of age with chronic otitis media with perforation. In this disease, recurrent, closely-spaced or inadequately treated acute infections (which proceed to perforation and drainage) lead eventually to a rising prevalence of non-healing of the perforation. Below age five years there is inconsistent reporting since surgery has not been recommended for these ages. Further study and analysis will be required to reveal any changing incidence of perforation within the last five to ten years.

It must be noted that 119 persons have received tympanoplasty surgery at the Bethel Hospital within the last eight months and are thus not included in this listing.

Three conclusions seem warranted from this information: (1) consideration of an improved reporting format for otitis media, (2) a continued cooperative effort should be made to reduce this backlog of persons needing ear surgery, and (3) preventive measures should be undertaken to lower the incidence of new cases.

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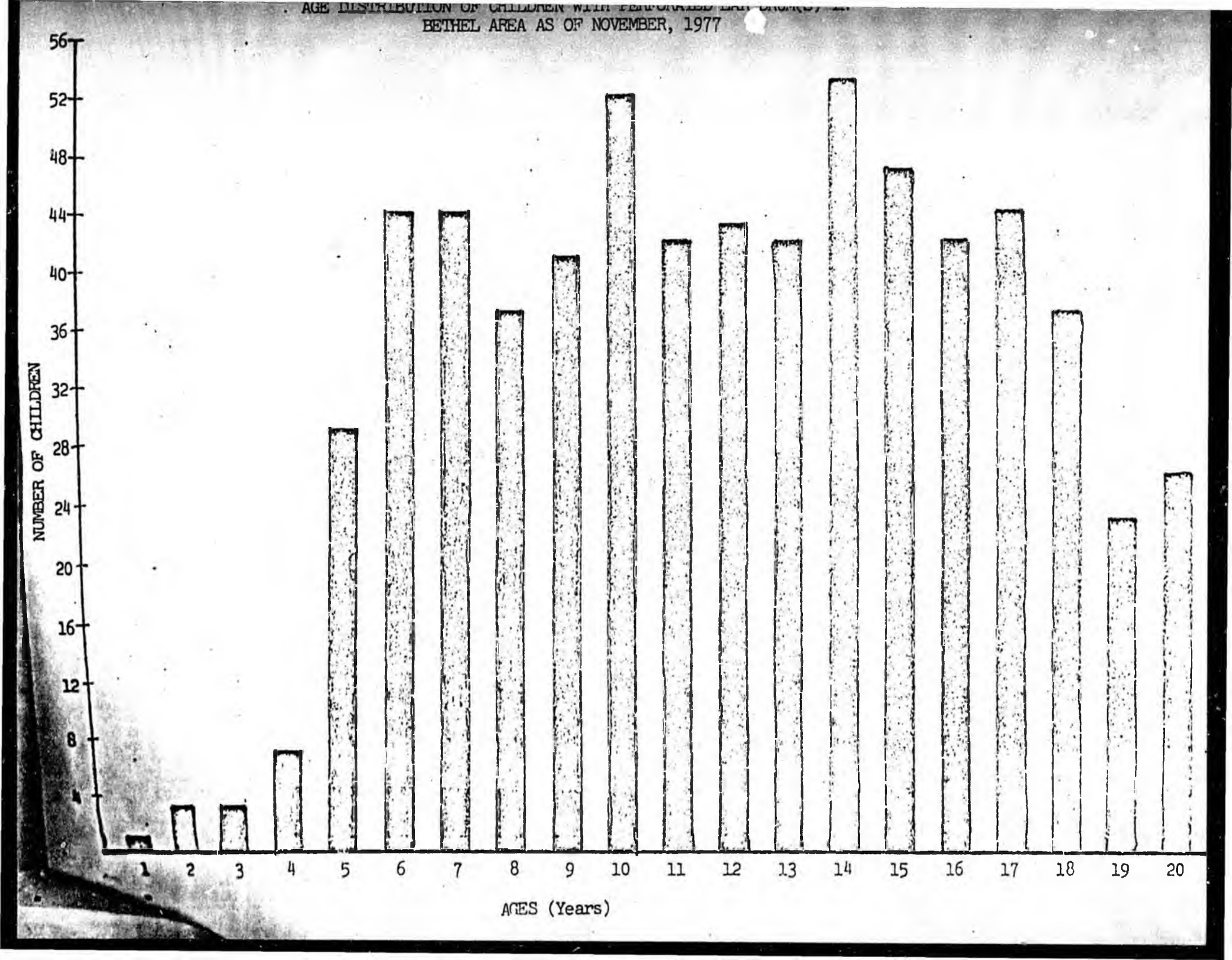
AGE DISTRIBUTION OF CHILDREN WITH REPORTED EAR INFECTION(S) IN
BETHEL AREA AS OF NOVEMBER, 1977



NOVEMBER 1977 PREVALANCE LISTING OF
CHRONIC OTITIS MEDIA WITH PERFORATION IN
45 VILLAGES IN THE BETHEL AREA

	Persons with birthdates of 1/1/56 or later (under 21 years of age)		Persons with birthdates Prior to 1956 (over 21 years of age)		
	Unilateral Perforation	Bilateral Perforations	Unilateral Perforation	Bilateral Perforations	Total Ears Perforated
Alakanuk	27	12	3	0	54
Akiachuk	18	15	0	0	51
Akiak	1	1	0	0	3
Aniak	9	1	0	0	11
Anvik	0	1	0	0	2
Atmautluak	3	1	0	0	5
Bethel	69	20	14	2	127
Chauthbaluk	3	0	0	0	3
Chefornak	9	3	1	0	16
Chevak	29	2	4	0	37
Eek	0	1	0	0	2
Crooked Creek	5	0	1	0	6
Emmonak	26	5	1	0	37
Greyling	0	0	0	0	0
Holy Cross	7	3	0	0	13
Hooper Bay	30	7	3	0	47
Kasigluk	8	1	2	0	12
Kipnuk	28	15	0	0	58
Kongiganak	11	7	2	0	27
Kotlik	18	2	3	0	25
Kwethluk	28	2	4	0	36
Lower Kalskag	2	2	0	0	6
Lime Village	"Several"	"Several"			
Kwigillingok	5	1	0	0	7
Marshall	5	2	2	0	11
Mekoryuk	13	0	0	0	13
Mountain Village	42	15	4	0	76
Napakiak	7	6	3	0	22
Napaskiak	7	3	0	0	13
Newtok	5	7	1	0	20
Nightmute	7	5	1	1	19
Nunapitchuk	4	0	0	0	4
Oscarville	6	0	0	0	6
Pilot Station	19	9	0	0	37
Pitka's Point	1	0	0	0	1
Quinhagak	8	6	0	0	20
Russian Mission	5	0	0	0	5
Scammon Bay	7	0	0	0	7
Shageluk	3	0	0	0	3
Sheldon's Point	9	0	0	1	11
Sleetmute	4	1	0	0	6
Saint Mary's	12	1	0	0	14
Stony River	4	1	0	0	6
Toksook Bay	15	3	1	0	22
Tuluksak	7	0	1	1	10
Tuntutuliak	2	0	0	0	2
Tununak	15	1	2	0	19
Upper Kalskag	8	1	1	0	11
45 Villages	551 Persons	163 Persons	57 Persons	5	943

STATEMENT OF PROBLEM

For many years otitis media has been recognized as the major cause of morbidity in rural Alaska. Studies done in the middle and late 1950's reported unusually high incidence & prevalence rates of this disease among the Natives, (Haymen and Koster 1957, and the McGrath Project 1962). An infant morbidity and mortality study begun in 1960 revealed that 38% of a cohort group of Alaskan Eskimo infants had at least one episode of draining ear during their first year of life (Maynard and Hammes 1970). By 1964 otitis media was recognized as the second highest cause of morbidity among Alaska Natives. In 1965, Reed, in a follow up on the Alaska Eskimo cohort group, found that 62% of the children had had one or more episodes since birth. In the same year, Reed and Dunn also found that 63% of the children examined in six Eskimo villages showed past or present evidence of otitis media.

In the most recent studies, Kaplan, Fleshman, Bender, Baum and Clark studied 489 Alaska Eskimo children who had been followed through the first ten years of life; 76% had one or more episodes of otitis media since birth. Of these, 78% had their first attack during the first two years of life. Perforation and scarring of the tympanic membrane were present in 41%. A mild hearing loss of 26 decibels or greater was present in 17% and an additional 25% were in the normal range but had measurable conductive hearing loss. Children with a history of otitis media prior to two years of age and a mild loss (26 dB or greater) had a statistically significant loss of verbal ability and

were behind in total reading, total math and language development. In addition, children who had an early onset of otitis media but now had normal hearing with a conductive component were also adversely affected in verbal areas. The number of otitis media episodes was related to the tympanic membrane abnormality, hearing loss and low verbal ability in achievement scores.

Data collection during the first half of FY 1975 by the Communicative Disorders Project once again revealed the scope of the problem encountered. During that period of time, three specific groups were studied in detail. One group consisted of twelve preschool and Head Start classes located in Southeast Alaska. Of the 328 children tested using impedance audiometric techniques, 20% showed indications of tympanic membrane perforations or middle ear effusion, and 27% showed substantial negative middle ear pressure which indicates lack of eustacian tube functioning. This negative pressure is often a prelude to middle ear difficulties and these children could be considered at high risk.

A similar study was conducted in ten villages in the Bethel area where 211 children were seen. Of these, 33% were medical referrals, and 22% showed evidence of eustachian tube malfunctions. These two preschool studies indicate that there is still a substantial incidence of early occurance of middle ear pathology. This is especially significant since if uncorrected these hearing losses will undoubtedly affect school performance, cause emotional problems, and significant deficits in language ability. Such a hearing loss occurs at an age when speech and language readiness is at its peak.

The problem of ear pathology in rural Alaska is not a transitory one as is indicated by our third FY 197[illegible] study which included the total

incoming population of new students to the BIA high school at Mt. Edgecumbe. A total of 256 students were evaluated with total diagnostic batteries. About 97, or 38% of those seen demonstrated a significant hearing loss. Of those 97 individuals, 63% were conductive losses, 30% were sensori-neural, and 7% mixed. The high incidence of sensori-neural losses found in this relatively young population (ages 14 through 16) indicates either that these impairments may be due to the secondary effects of otitis media, or to excessive noise exposure or perhaps both. Alaskan Natives are exposed to an inordinate amount of high intensity noise originating from snowmobiles, rifle fire, light aircraft and motor boats. This is another problem which will receive more attention during the coming year. (For more detailed breakdown of these three specific studies, please refer to the progress report for FY 1975.)

Studies accomplished in the first half of Fiscal Year 1976 also confirm earlier findings. During that period of time, 617 Head Start children located in villages throughout the state were examined by impedance and pure tone testing procedures. Of these children, ages 3-5 years, 166 (27%) had middle ear conditions which necessitated medical referral. An additional 106 children (17%) demonstrated negative middle ear pressure, a condition associated with eustachian tube malfunction which often occurs prior to the development of serous otitis media. Another 34 children could not be tested. Only 271 (43%) were found to have no indications of middle ear problems. A summary of these findings is enclosed in Appendix C.

During Fiscal Year 1975 there were 1,745 individuals (mostly children) who were referred for medical attention by the Communicative Disorders

Program. During the first half of Fiscal Year 1976, 1,115 clients were referred for medical attention. While these referrals represent the full range of pathology, a great many of these suffer from serous otitis media.

In addition to problems encountered in attempting to deliver services in a large geographic area with poor transportation availability, Alaska has multiple layers of state and federal governmental agencies operating. Many of these have services which are of value to communicatively handicapped individuals; however, fragmentation or geographic isolation has significantly reduced any impact they may have upon the state as a whole. The programs that have established services are usually restricted to relatively small geographic areas. Few attempts to reach the communicatively handicapped individual in rural Alaska have been made.

A child with a communicative disorder has been one of the most neglected of the many health and educational problems. (Otitis media is no doubt contributing to this problem significantly.) There are virtually no clinical speech pathologists who routinely serve children in rural Alaska. When such positions have been established they have been filled with inadequately trained individuals who soon become overwhelmed by the scope of the pathology with which they are confronted. Their tenure is consequently of short duration in most cases. Staff turnover in rural Alaska is a persistent problem because of the break thus created in the continuity of services. If quality personnel are acquired for programs within the state, staff retention problems persist because there is very little that can be done to obtain on going enrichment

professionally. Funds are restricted for out-of-state travel to short courses and seminars.

Examination of the scope of the problem, areas of need and possible approaches to amelioration of the situation have been discussed from various perspectives from time to time. Some fruitful activities have developed on the clinical level and efforts expended in the area of prevention and surgical management of acute and chronic otitis media have been outstanding examples of productivity by the Public Health Service field hospitals and the ear, nose and throat section of the Alaska Native Medical Center.

Answers to the problem of serous otitis media, however, remain unresolved., This condition, which is evident in a very high percentage of children in rural Alaska, has only become evident in the last several years. Whether this condition was previously overlooked in light of the presence of more severe pathology and less sensitive diagnostic tools, or whether this is a secondary effect of antibiotic treatment representing incompletely resolved bacterial infections of the middle ear is unknown. The following is an exerpt from the 10th edition of The Textbook of Pediatrics which refers to the condition of serous otitis media specifically.

> SEROUS OTITIS MEDIA. Serous effusions of the middle ear are believed to originate as a physical phenomenon secondary to blockage of the eustachian tube and negative pressure in the middle ear cavity. The inciting cause of the obstructing edema or lymphoid hyperplasia may be nasopharyngeal inflammation, allergy or barotrauma, as from rapid descent in a nonpressurized aircraft cabin. The increasing recognition of serous otitis in the antibiotic era suggests that some cases represent incompletely resolved bacterial infections of the middle ear, but proof of this hypothesis is lacking. Attempts to isolate

viruses from serous effusions have generally been unsuccessful, but viruses may play an indirect role by setting the stage for tubal dysfunction accompanying nasopharyngitis.

The serous fluid produces a sensation of fullness in the ear, decreased hearing and a popping or clicking sound with swallowing or jaw movement. The tympanic membrane is bulging and dull, with a few injected vessels or a diffuse, dusky hue, but there is much variation in the appearance, and pneumatoscopy may indicate fluid when the membrane looks almost normal. Later in the couse when the fluid becomes viscous ("glue ear") there may be retraction, with the prominence of the short process of the malleus, and the drum may acquire a blue-white coloration.

Electroacoustic impedance testing procedures are a highly sensitive method of identifying and diagnosing this problem. However, the availability of such instrumentation is presently restricted to the audiologists in the state and needs to be extended to other health care providers. Since the condition of serous otitis is very difficult to diagnose by an otoscopic examination, the health care provider who is treating the case of serous otitis and does not have impedance instrumentation has no way to tell when the condition resolves. Consequently, the effectiveness of various remedial measures is poorly documented.

There is a lack of consensus among the medical community concerning what type of management is appropriate for serous otitis. Some individuals believe that this is a highly transient phenomena which is of short duration and do very little in the area of medical treatment of the condition. (Preliminary studies by the Communicative Disorders Project on Alaskan children indicate that it is often of longer duration. More study of this factor is needed, however.) Others believe that treatment with antihistamines and decongestants is a proper approach. Still others are quite uncertain as to whether or not these medications have any effect but use them nevertheless as a precautionary measure. There is

no unanimity concerning how long such decongestants should be administered and what should be done should the child fail to respond to such treatment.

There is also some disagreement concerning the advisability and the feasibility of using polyethelene tube insertions with persistent cases of otitis. This is relatively standard practice by otolaryngologists practicing in cities. It has never been utilized to any extent in bush Alaska.

A medical, audiological and educational policy for the treatment of serous otitis media is needed at this time. Multidisciplinary course of pathology studies on representative populations could answer some of these nagging questions. For example, serial audiologic examinations using impedance and pure tone audiometry performed monthly on representative groups could for the first time give some solid indications as to what the seasonal variations of serous otitis are, how much hearing loss is involved, and what the duration of various stages of the condition are. A longer term study would be necessary to evaluate the functional impact of this disease upon language and educational abilities of the children so affected. Studies confirming the effectiveness or lack of effectiveness of various medications and surgical procedures necessitates the full cooperation of the medical community. One such study is being undertaken at this time by the Rural Alaska Community Action Program in eleven Head Start villages in the Bethel area. The Communicative Disorders Project has worked cooperatively with this agency to initiate this undertaking. It will be a demonstration project of the effectiveness of the utilization of polyethelene tubes in the treatment of serous otitis. (See Appendix C)

This outline is a description of the segments of the overall problem on which there appears to be lack of complete information that is quantifiable or lack of clearly defined and/or commonly known policy and procedure.

PHASE II

DEFINITION OF THE PROBLEM AND STATEMENT OF NEEDS

Otitis Media in Alaska

EPIDEMIOLOGY	NEEDS
age of onset projected course of pathology seasonal variation (sanitation) (housing) (nutrition)	With each of the areas of concern listed more intensive study needs to be undertaken to establish some quantifiable measures the parameters of the problem.
PREVALENCE	
by geographic area by size of village	The development of a functional and comprehensive data system should facilitate the gathering of data on specific geographic areas within the state and the grouping of high incidence areas according to village size, climate, frequency of medical care, etc.
DIAGNOSIS	
serous acute chronic	A consensus of opinion needs to be developed among all health care providers concerning an operational definition with each type of pathology. There not only needs to be a consensus on the labels which are used with each condition but also specific observations which are necessary to classify the person in each category should be clarified to all health care providers

MANAGEMENT CRITERIA

A. History	Documentation on representative population of health history.
B. Audiologic Evaluation	Extention of duties to PHR's and Health Aides (training and equipment needed).
C. Physical Examination	PHN and Health Aide training needed.
D. Medication	Agreement on medication needed for each condition.
E. Follow up	Use of data system for follow up. Coordination with AIHC.
F. Referral for Medical	Clarification of referral channels to all medical providers. Check at specific locale on effectiveness of referral channel.

IMPACT OF CARE

Effectiveness of medication	Course of pathology studies on the local level.
Effectiveness of surgery	Post surgical follow up results obtained via data system.

FUNCTIONAL IMPACT

Educational Speech, Language Psycho-social	Documentation of effect of otitis media on performance in each area by well controlled investigations. Coordination of efforts with: 1. Local and regional educational agencies (Regional Resource Center - Regional Educational Attendance Areas). 2. Speech pathology 3. Psychologist and social worker 4. Native Health Corporations

STATEMENT OF PROBLEM

For many years otitis media has been recognized as the major cause of morbidity in rural Alaska. Studies done in the middle and late 1950's reported unusually high incidence & prevalence rates of this disease among the Natives, (Haymen and Koster 1957, and the McGrath Project 1962). An infant morbidity and mortality study begun in 1960 revealed that 38% of a cohort group of Alaskan Eskimo infants had at least one episode of draining ear during their first year of life (Maynard and Hammes 1970). By 1964 otitis media was recognized as the second highest cause of morbidity among Alaska Natives. In 1965, Reed, in a follow up on the Alaska Eskimo cohort group, found that 62% of the children had had one or more episodes since birth. In the same year, Reed and Dunn also found that 64% of the children examined in six Eskimo villages showed past or present evidence of otitis media.

In the most recent studies (1973), Kaplan, Fleshman, Bender, Baum and Clark studied 489 Alaska Eskimo children who had been followed through the first ten years of life; 76% had one or more episodes of otitis media since birth. Of these, 78% had their first attack during the first two years of life. Perforation and scarring of the tympanic membrane were present in 41%. A mild hearing loss of 26 decibels or greater was present in 17% and an additional 25% were in the normal range but had measurable conductive hearing loss. Children with a history of otitis media prior to two years of age and a mild loss (26 dB or greater) had a statistically significant loss of verbal ability and

were behind in total reading, total math and language development. In addition, children who had an early onset of otitis media but now had normal hearing with a conductive component were also adversely affected in verbal areas. The number of otitis media episodes was related to the tympanic membrane abnormality, hearing loss and low verbal ability in achievement scores.

Data collection during the first half of FY 1975 by the Communicative Disorders Project once again revealed the scope of the problem encountered. During that period of time, three specific groups were studied in detail. One group consisted of twelve preschool and Head Start classes located in Southeast Alaska. Of the 328 children tested using impedance audiometric techniques, 20% showed indications of tympanic membrane perforations or middle ear effusion, and 27% showed substantial negative middle ear pressure which indicates lack of eustachian tube functioning. This negative pressure is often a prelude to middle ear difficulties and these children could be considered at high risk.

A similar study was conducted in ten villages in the Bethel area where 211 children were seen. Of these, 33% were medical referrals, and 22% showed evidence of eustachian tube malfunctions. These two preschool studies indicate that there is still a substantial incidence of early occurance of middle ear pathology. This is especially significant since if uncorrected these hearing losses will undoubtedly affect school performance, cause emotional problems, and significant deficits in language ability. Such a hearing loss occurs at an age when speech and language readiness is at its peak.

The problem of ear pathology in rural Alaska is not a transitory one as is indicated by our third FY 1975 study which included the total

Incoming population of new students to the BIA high school at Mt. Edgecumbe. A total of 256 students were evaluated with total diagnostic batteries. About 97, or 38% of those seen demonstrated a significant hearing loss. Of those 97 individuals, 63% were conductive losses, 30% were sensori-neural, and 7% mixed. The high incidence of sensori-neural losses found in this relatively young population (ages 14 through 16) indicates either that these impairments may be due to the secondary effects of otitis media, or to excessive noise exposure or perhaps both. Alaskan Natives are exposed to an inordinate amount of high intensity noise originating from snowmobiles, rifle fire, light aircraft and motor boats. This is another problem which will receive more attention during the coming year. (For more detailed breakdown of these three specific studies, please refer to the progress report for FY 1976.)

Studies accomplished in the first half of Fiscal Year 1976 also confirm earlier findings. During that period of time, 617 Head Start children located in villages throughout the state were examined by impedance and pure tone testing procedures. Of these children, ages 3-5 years, 166 (27%) had middle ear conditions which necessitated medical referral. An additional 106 children (17%) demonstrated negative middle ear pressure, a condition associated with eustachian tube malfunction which often occurs prior to the development of serous otitis media. Another 34 children could not be tested. Only 311 [redacted]) were found to have no indications of middle ear problems. A summary of these findings is enclosed in Appendix C.

During Fiscal Year 1975 there were 1,745 individuals (mostly children) who were referred for medical attention by the Communicative Disorders

Program. During the first half of Fiscal Year 1976, 1,115 clients were referred for medical attention. While these referrals represent the full range of pathology, a great many of these suffer from serous otitis media. But a very large % of Chronic otitis with perforations also. (See attached info.)
In addition to problems encountered in attempting to deliver services in a large geographic area with poor transportation availability, Alaska has multiple layers of state and federal governmental agencies operating. Many of these have services which are of value to communicatively handicapped individuals; however, fragmentation or geographic isolation has significantly reduced any impact they may have upon the state as a whole. The programs that have established services are usually restricted to relatively small geographic areas. Few attempts to reach the communicatively handicapped individual in rural Alaska have been made.

A child with a communicative disorder has been one of the most neglected of the many health and educational problems. (Otitis media is no doubt contributing to this problem significantly.) There are virtually no clinical speech pathologists who routinely serve children in rural Alaska. When such positions have been established they have been filled with inadequately trained individuals who soon become overwhelmed by the scope of the pathology with which they are confronted. Their tenure is consequently of short duration in most cases. Staff turnover in rural Alaska is a persistent problem because of the break thus created in the continuity of services. If quality personnel are acquired for programs within the state, staff retention problems persist because there is very little that can be done to obtain on going enrichment

professionally. Funds are restricted for out-of-state travel to short courses and seminars.

Examination of the scope of the problem, areas of need and possible approaches to amelioration of the situation have been discussed from various perspectives from time to time. Some fruitful activities have developed on the clinical level and efforts expended in the area of prevention and surgical management of acute and chronic otitis media have been outstanding examples of productivity by the Public Health Service field hospitals and the ear, nose and throat section of the Alaska Native Medical Center.

NEW INFO - INDICATES THERE IS STILL A GREAT NEED IN THIS AREA ESPECIALLY PREVENTION

Answers to the problem of serous otitis media, however, remain unresolved. This condition, which is evident in a very high percentage of children in rural Alaska, has only become evident in the last several years. Whether this condition was previously overlooked in light of the presence of more severe pathology and less sensitive diagnostic tools, or whether this is a secondary effect of antibiotic treatment representing incompletely resolved bacterial infections of the middle ear is unknown. The following is an exerpt from the 10th edition of the Textbook of Pediatrics which refers to the condition of serous otitis media specifically.

> SEROUS OTITIS MEDIA. Serous effusions of the middle ear are believed to originate as a physical phenomenon secondary to blockage of the eustachian tube and negative pressure in the middle ear cavity. The inciting cause of the obstructing edema or lymphoid hyperplasia may be nasopharyngeal inflammation, allergy or barotrauma, as from rapid descent in a nonpressurized aircraft cabin. The increasing recognition of serous otitis in the antibiotic era suggests that some cases represent incompletely resolved bacterial infections of the middle ear, but proof of this hypothesis is lacking. Attempts to isolate

> viruses from serous effusions have generally been unsuccessful, but viruses may play an indirect role by setting the stage for tubal dysfunction accompanying nasopharyngitis.
>
> The serous fluid produces a sensation of fullness in the ear, decreased hearing and a popping or clicking sound with swallowing or jaw movement. The tympanic membrane is bulging and dull, with a few injected vessels or a diffuse, dusky hue, but there is much variation in the appearance, and pneumatoscopy may indicate fluid when the membrane looks almost normal. Later in the course when the fluid becomes viscous ("glue ear") there may be retraction, with the prominence of the short process of the malleus, and the drum may acquire a blue-white coloration.

Electroacoustic impedance testing procedures are a highly sensitive method of identifying and diagnosing this problem. However, the availability of such instrumentation is presently restricted to the audiologists in the state and needs to be extended to other health care providers. Since the condition of serous otitis is very difficult to diagnose by an otoscopic examination, the health care provider who is treating the case of serous otitis and does not have impedance instrumentation has no way to tell when the condition resolves. Consequently, the effectiveness of various remedial measures is poorly documented.

There is a lack of consensus among the medical community concerning what type of management is appropriate for serous otitis. Some individuals believe that this is a highly transient phenomena which is of short duration and do very little in the area of medical treatment of the condition. (Preliminary studies by the Communicative Disorders Project on Alaskan children indicate that it is often of longer duration. More study of this factor is needed, however.) Others believe that treatment with antihistamines and decongestants is a proper approach. Still others are quite uncertain as to whether or not these medications have any effect but use them nevertheless as a precautionary measure. There is

no unanimity concerning how long such decongestants should be administered and what should be done should the child fail to respond to such treatment.

There is also some disagreement concerning the advisability and the feasibility of using polyethelene tube insertions with persistent cases of otitis. This is relatively standard practice by otolaryngologists practicing in cities. It has never been utilized to any extent in bush Alaska.

MAY NOT BE FEASIBLE IN RURAL ALASKA. USING LOWER 48 STDS.

A medical, audiological and educational policy for the treatment of serous otitis media is needed at this time. Multidisciplinary course of pathology studies on representative populations could answer some of these nagging questions. For example, serial audiologic examinations using impedance and pure tone audiometry performed monthly on representative groups could for the first time give some solid indications as to what the seasonal variations of serous otitis are, how much hearing loss is involved, and what the duration of various stages of the condition are. A longer term study would be necessary to evaluate the functional impact of this disease upon language and educational abilities of the children so affected. Studies confirming the effectiveness or lack of effectiveness of various medications and surgical procedures necessitates the full cooperation of the medical community. One such study is being undertaken at this time by the Rural Alaska Community Action Program in eleven Head Start villages in the Bethel area. The Communicative Disorders Project has worked cooperatively with this agency to initiate this undertaking. It will be a demonstration project of the effectiveness of the utilization of polyethelene tubes in the treatment of serous otitis. (See Appendix C)

FY 76-77 study nearly completed.

This outline is a description of the segments of the overall problem on which there appears to be lack of complete information that is quantifiable or lack of clearly defined and/or commonly known policy and procedure.

PHASE II

DEFINITION OF THE PROBLEM AND STATEMENT OF NEEDS

Otitis Media in Alaska

EPIDEMIOLOGY	NEEDS
age of onset projected course of pathology seasonal variation (sanitation) (housing) (nutrition)	With each of the areas of concern listed more intensive study needs to be undertaken to establish some quantifiable ~~measures~~ the parameters of the problem.
PREVALENCE	
by geographic area by size of village	THIS DATA SYSTEM HAS NOW BEEN DEVELOPED & IMPLEMENTED BY COMM. DIS. PROGRAM The development of a functional and comprehensive data system should facilitate the gathering of data on specific geographic areas within the state and the grouping of high incidence areas according to village size, climate, frequency of medical care, etc.
DIAGNOSIS	
serous acute chronic	IN PROCESS OF DEVELOPMENT A consensus of opinion needs to be developed among all health care providers concerning an operational definition with each type of pathology. There not only needs to be a consensus on the labels which are used with each condition but also specific observations which are necessary to classify the person in each category should be clarified to all health care providers.

MANAGEMENT CRITERIA

A. History . . . . . .Documentation on representative population of health history.

B. Audiologic Evaluation . . . . . .Extention of duties to PHN's and Health Aides (training and equipment needed). DONE

C. Physical Examination . . . . . PHN and Health Aide training needed.

D. Medication . . . . . Agreement on medication needed for each condition.

E. Follow up . . . . . .Use of data system for follow up. Coordination with AIHC. DONE

F. Referral for Medical . . . . . Clarification of referral channels to all medical providers. Check at specific locale on effectiveness of referral channel.

REF. CHANNELS CLARIFIED BUT EFFECTIVENESS HASN'T BEEN CHECKED.

IMPACT OF CARE

Effectiveness of medication . . . . . .Course of pathology udies on the local level.

Effectiveness of surgery . . . . . Post surgical follow up results obtained via data system.

FUNCTIONAL IMPACT

Educational
Speech, Language
Psycho-social

Documentation of effect of otitis media on performance in each area by well controlled investigations. Coordination of efforts with:

1. Local and regional educational agencies (Regional Resource Center - Regional Educational Attendance Areas).
2. Speech pathology
3. Psychologist and social worker
4. Native Health Corporations

STATE of ALASKA

MEMORANDUM

DEPARTMENT OF HEALTH AND SOCIAL SERVICES

TO: The Record

DATE: December 9, 1977

FILE NO:

TELEPHONE NO:

FROM: David A. Spence, M.D., Chief
Section of Family Health

SUBJECT: Prevalence listing of otitis media with perforation.

The attached, unduplicated prevalence listing has been compiled by Cozzi Alward, R.N., and Michelle Riccardi, R.N., from the following sources: October and November, 1977, observations of perforations by field and ENT physicians, public health nurses, and audiologists (442) ears; and previous listings of persons awaiting tympanoplasties (501 ears). This is not a listing, per se, of persons for whom a tympanoplasty has actually been recommended, but it follows that a very significant number of them will be so classified once they have been evaluated by an ENT surgeon.

The bar chart shows the age distribution of the individuals under 21 years of age with chronic otitis media with perforation. In this disease, recurrent, closely-spaced or inadequately treated acute infections (which proceed to perforation and drainage) lead eventually to a rising prevalence of non-healing of the perforation. Below age five years there is inconsistent reporting since surgery has not been recommended for these ages. Further study and analysis will be required to reveal any changing incidence of perforation within the last five to ten years.

It must be noted that 119 persons have received tympanoplasty surgery at the Bethel Hospital within the last eight months and are thus not included in this listing.

Three conclusions seem warranted from this information: (1) consideration of an improved reporting format for otitis media, (2) a continued cooperative effort should be made to reduce this backlog of persons needing ear surgery, and (3) preventive measures should be undertaken to lower the incidence of new cases.

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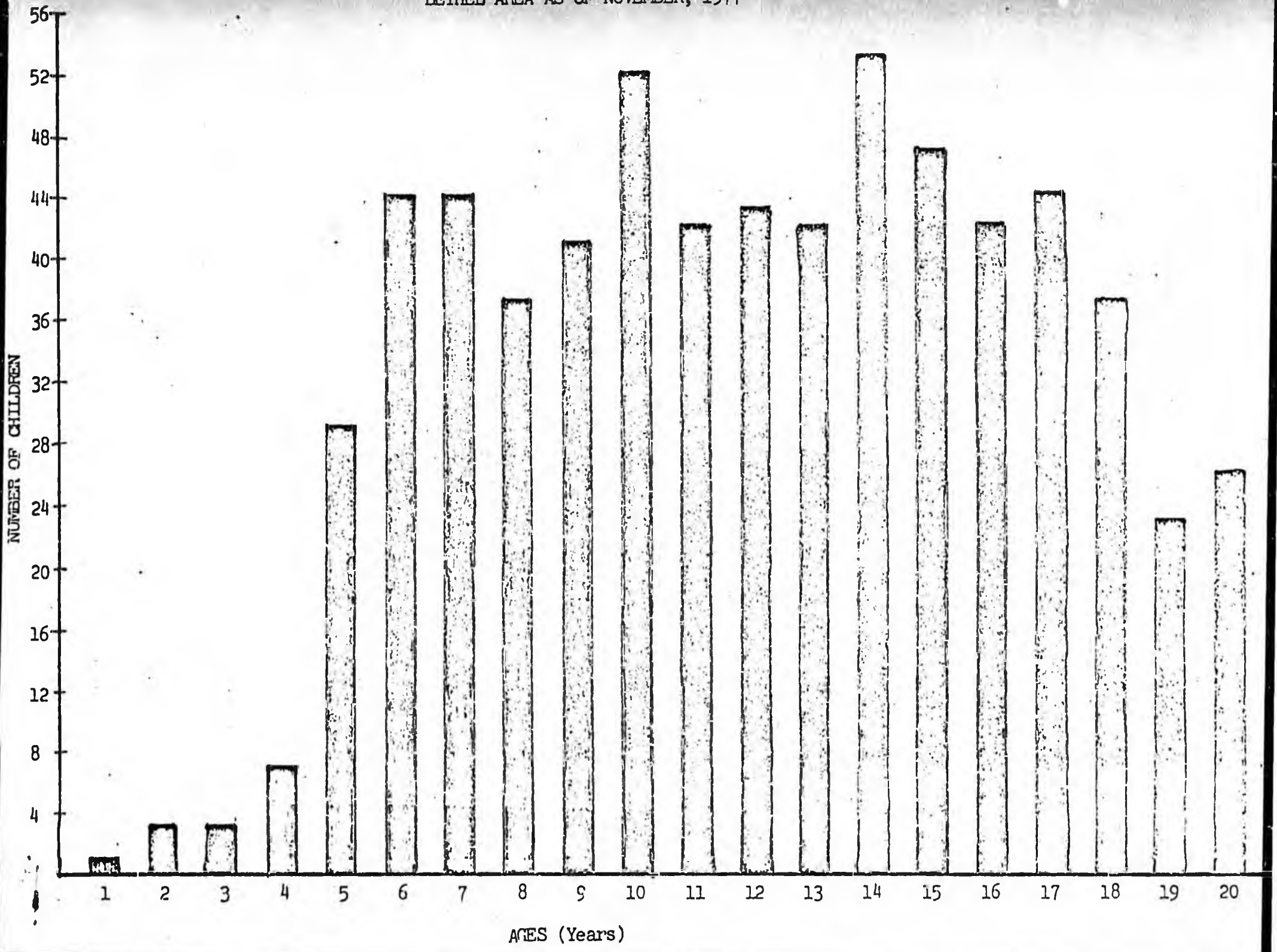
AGE DISTRIBUTION OF CHILDREN WITH PERFORATED EAR DRUM(S) IN
BETHEL AREA AS OF NOVEMBER, 1977



NOVEMBER 1977 PREVALANCE*LISTING OF CHRONIC OTITIS MEDIA WITH PERFORATION IN 45 VILLAGES IN THE BETHEL AREA

	Persons with birthdates of 1/1/56 or later (under 21 years of age)		Persons with birthdates Prior to 1956 (over 21 years of age)		
	Unilateral Perforation	Bilateral Perforations	Unilateral Perforation	Bilateral Perforations	Total Ears Perforated
Alakanuk	27	12	3	0	54
Akiachuk	18	15	0	0	51
Akiak	1	1	0	0	3
Aniak	9	1	0	0	11
Anvik:	0	1	0	0	2
Atmautluak	3	1	0	0	5
Bethel	69	20	14	2	127
Chauthbaluk	3	0	0	0	3
Chefornak	9	3	1	0	16
Chevak	29	2	4	0	37
Eek	0	1	0	0	2
Crooked Creek	5	0	1	0	6
Emmonak	26	5	1	0	37
Greyling	0	0	0	0	0
Holy Cross	7	3	0	0	13
Hooper Bay	30	7	3	0	47
Kasigluk	8	1	2	0	12
Kipnuk	28	15	0	0	58
Kongiganak	11	7	2	0	27
Kotlik	18	2	3	0	25
Kwethluk	28	2	4	0	36
Lower Kalskag	2	2	0	0	6
Lime Village	"Several"	"Several"			
Kwigillingok	5	1	0	0	7
Marshall	5	2	2	0	11
Mekoryuk	13	0	0	0	13
Mountain Village	42	15	4	0	76
Napakiak	7	6	3	0	22
Napaskiak	7	3	0	0	13
Newtok	5	7	1	0	20
Nightmute	7	5	1	1	19
Nunapitchuk	4	0	0	0	4
Oscarville	6	0	0	0	6
Pilot Station	19	9	0	0	37
Pitka's Point	1	0	0	0	1
Quinhagak	8	6	0	0	20
Russian Mission	5	0	0	0	5
Scammon Bay	7	0	0	0	7
Shageluk	3	0	0	0	3
Sheldon's Point	9	0	0	1	11
Sleetmute	4	1	0	0	6
Saint Mary's	12	1	0	0	14
Stony River	4	1	0	0	6
Toksook Bay	15	3	1	0	22
Tuluksak	7	0	1	1	10
Tuncutuliak	2	0	0	0	2
Tununak	15	1	2	0	19
Upper Kalskag	8	1	1	0	11
S: 45 Villages	551 Persons	163 Persons	57 Persons	5 Persons	943 Ears
	714 Persons		62 ** Persons		

* There are two levels of certainty comprising this prevalence listing: Of the 943 ears listed, 442 have been observed during October and November 1977, by health program professionals working in the Bethel Area; the remaining 501 ears have been compiled from previous listings of persons needing care for chronic draining ears.

** For these persons over 21 years of age, this prevalance of 62 persons represents only the tip of the iceberg since there has been no effort to list persons over 21.