

State of Alaska

**Alaska Telehealth Advisory Council
Medicaid Telehealth Reimbursement
Research Project**

II. Issues for Consideration

Final Report

For

Alaska Native Tribal Health Consortium

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II. MEDICAID TELEHEALTH SERVICES IN ALASKA: ISSUES FOR CONSIDERATION

Executive Summary

Myers and Stauffer conducted research on issues to be considered for Medicaid telehealth services in the state of Alaska. The issues range from those unique to Alaska, like geography, culture and climate to more universal issues like technology.

1. The climate and geographic characteristics of Alaska are the primary issues for telehealth services. The extremely cold weather conditions create a barrier for transportation; traveling in sub zero temperatures is hazardous.
2. The decentralized population areas are faced with limited modes of transportation, which hinders easy access to health care services.
3. The geographic design of Alaska creates limitations in data transmission and telecommunication services that are not common to more centralized areas.
4. The development of a telehealth delivery model must consider licensure requirements. Practicing medicine without a license is unlawful; however, the state of Alaska must define lawful practice of medicine for health care providers who provide telehealth services outside of Alaska.
5. The scope of telehealth services must be considered. Most states generally provide coverage for telehealth consultations, but other services are on the horizon for coverage or consideration. Telehealth services can be limited by the availability of technology and reimbursement.
6. Technical capacity and the telecommunication service present a challenge for implementing and sustaining telehealth services in Alaska particularly in decentralized areas. Most areas have basic voice and audio telecommunication services provided by the public service telephone network.
7. As more advanced communication and technology are required, i.e. Internet access, the availability of bandwidth and the capacity for these services becomes an issue. In areas where services are available, the expense of maintaining a viable system to support the technical needs of telehealth services can be costly.

Significant questions raised by the issues examined in this report include the following:

1. How will geographical features influence the quality of images, data transmission, access to Providers or other telehealth service functions?

2. Are there preferable data standards, bandwidth requirements, equipment, or other mechanisms that ATAC should require providers to observe to insure that natural geographical barriers have a minimal impact on the quality of data images and other telehealth services?
3. Are there preferable data standards, bandwidth requirements, equipment, or other mechanisms that ATAC should require providers to observe to insure that solar, climatic, and geomagnetic phenomena have a minimal impact on the quality of data images and other telehealth services?
4. How will Alaskan cultural beliefs and practices influence the use of telehealth services? Should ATAC consider special marketing to increase patient confidence and interaction with telehealth services?
5. Will linguistics influence practitioner-practitioner or practitioner-patient relationships? Will linguistics influence the interpretation of medical information or other aspects of telehealth quality?
6. Who will be allowed to receive reimbursement for telehealth services?
7. Which telehealth services will be allowed?
8. How will ATAC define the types of media that may be used to render telehealth services?
9. How will quality be standardized?
10. How will telehealth coverage and reimbursement be introduced to the practitioner community?
11. How will ATAC encourage the growth and development of the telehealth delivery system?
12. Are there specific providers who will be substantially impacted by telehealth policies?
13. Are practitioners currently providing telehealth services to Medicaid clients or other patients?
14. How will practitioner licensing be regulated and standardized?
15. Are there preferable data standards, bandwidth requirements, equipment, or other mechanisms that ATAC should require providers to observe to insure the quality of data images and other telehealth services?
16. What types of available technology will be authorized for use (BBS, Internet, videoconferencing, regular telephone lines, ISDN, T1, T3, fax, satellite, etc?)
17. What will be ATAC's role in facilitating provider access to technology?

18. Will differences in technology vendors impact the accurate transmission of data and information?
19. Will there be enhanced reimbursement for telehealth services?
20. How will consulting practitioners and referring practitioners be reimbursed? Will they share a payment? Will they be paid separately?
21. What will be ATAC/ Medicaid's role in facilitating provider access to funding for equipment and technology?
22. Will practitioners' costs for equipment and on-going technical services be reimbursed by Medicaid?
23. How will practitioners indicate, on a claim form, that a service was provided via telehealth mechanisms? Will a modifier be used? Will local codes be developed?
24. What will be the projected fiscal impact to Medicaid for telehealth services?
25. What will be the projected utilization pattern for telehealth services?
26. What will be the projected utilization and fiscal impact of telehealth services provided to Indian Health Services eligibles?
27. How can telehealth services be promoted and/ or enhanced by collaborative relationships with Alaskan tribal authorities and Indian Health Services contracted agencies?
28. How can telehealth services be promoted and/ or enhanced by collaborative relationships with Alaska's colleges and universities?
29. Are there other entities in Alaska who may be approached as partners for enhancing and promoting telehealth services?

The state of Alaska has other telehealth initiatives that have made great strides for the development of telehealth systems. These initiatives are a result of work from the following organizations: The Alaska Federal Health Care Access Network, the Alaska Telemedicine Project, the Alaska Native Medical Center, and the Alaska Native Tribal Health Consortium, and the University of Alaska.

The Alaska Telehealth Advisory Council

The Alaska Telehealth Advisory Council (ATAC) is a group of private and public stakeholders (e.g., hospitals, professional practitioner groups, utility companies, and

government agencies) that all have an interest in promoting telehealth in the state of Alaska. ATAC's primary goals are to accomplish the following:

- Explore and document the potential for and challenges to telehealth development and delivery in Alaska.
- Propose a framework for rational development and deployment of statewide capacity for telehealth systems.
- Establish core principals to ensure a coordinated, cost-effective, and integrated approach to telehealth in Alaska.
- Consider ways to assess effectiveness, efficiency, and whether or not telehealth is improving equity of access to health services for all Alaskans.
- Recommend a long-term process for addressing issues as they emerge with changing technologies and practice patterns.

Subcommittees or “workgroups” have been formed to deal with certain telehealth issues. In 1999, ATAC created a Reimbursement Workgroup to (1) determine the scope of current coverage of Medicaid programs across the country for telehealth applications, (2) analyze issues relevant to Alaska's unique geographic environment, and (3) assist in collecting information to support recommendations for future telehealth coverage for Medicaid beneficiaries. Teri Keklak is the Alaska Department of Health and Social Services/Division of Medical Assistance (the Medicaid office) Designated Representative to the ATAC Reimbursement Workgroup.

Project Overview

The Alaska Telehealth Advisory Council agreed to fund a contract with a private consultant who could assist the Reimbursement Workgroup with the development of reimbursement policies. Accordingly, Alaska's Division of Medical Assistance engaged Myers and Stauffer, LC to develop a reimbursement methodology for Medicaid telehealth services. Myers and Stauffer's workplan for this project contains four components: a report summarizing other states' telehealth initiatives; a report outlining Alaska's telehealth issues; a report recommending coverage and reimbursement policies, and an implementation plan. This report is the second of a series of reports Myers and Stauffer will prepare for ATAC.

Introduction

Alaska is the largest state in the country in landmass, contributing approximately 16% of the United States' total size. Conversely, the state is the 48th most populated state, with an estimated population of 617,000 people, or 1.1 people per square mile. The majority of Alaska's population resides in regional centers throughout the state, with large areas of unoccupied, rural land. Approximately 83% of the state's population resides in eight boroughs. These include the Municipality of Anchorage, Matanuska-Susitna Borough, Fairbanks North Star Borough, Kenai Peninsula Borough, Kodiak, Bethel, North Slope, and Juneau Borough. Climate, geographical location, job types, demographic and other factors create unique challenges for the health care delivery system. Many of these same factors have also caused the state to have a very atypical transportation and communications infrastructure. Technological conveniences and advances found in other states at moderate costs are significantly more expensive in Alaska.

Title 42, Section 254e of the United States Code defines a health professional shortage area as “(A) an area in an urban or rural area...which the Secretary [Department of Health and Human Services] determines has a health manpower shortage and which is not reasonably accessible to an adequately served area, (B) a population group which the Secretary determines has such a shortage, or (C) a public or nonprofit private medical facility or other public facility which the Secretary determines has such a shortage.” There are multiple health professional shortage areas in Alaska. The entire state is classified as a health professional shortage area¹. Few states with the landmass, technological challenges and complex socio-economic factors comparable to that of Alaska face such substantial shortages in the availability of health care practitioners.

To deliver health care services in this environment, Alaska is in the process of developing a telehealth delivery model that facilitates services with consideration of the following:

- Delivery of and increased access to high quality medical services.
- Delivery of services to a sparse population in cities and villages separated by a rugged, vast, varied terrain with atypical climatic and solar phenomenon.
- Delivery of services to a population whose health practices may be influenced by ethnic, cultural, religious, and socio-economic factors.
- Availability of medical services to the greatest number of Alaskans using limited resources.
- Delivery of telehealth services in the most appropriate, cost effective manner.
- Most efficient integration of Alaskan medical practitioners.

¹ Information provided by the Alaska Division of Medical Assistance.

- Promoting and efficiently using available technology to facilitate the delivery system, with consideration for quality medical service delivery.
- Advancing telehealth services through the acquisition of new technologies.

This report examines, in detail, geographical, cultural, health service, and technological factors in Alaska that may impact the development and implementation of a telehealth reimbursement and service delivery model. Additionally, it identifies issues and considerations specific to, and often unique to, Alaska. The information presented in this report is comprehensive in its examination of factors that may require consideration, and it is meant to provoke thought regarding even remote factors that may impact Alaskans, Medicaid, health practitioners, and other telehealth stakeholders. With this approach, it is likely that new and previously unconsidered ideas may be ushered forth to benefit the overall objectives of telehealth in Alaska.

THE GEOGRAPHY

Alaska is a geographical marvel. The state boasts huge forests, towering mountains, deep valleys, deep and icy waters, glaciers, and volcanoes. Alaska is a haven for tourists, hoping to appreciate the state's spectacular wonders. Though the geography of Alaska is legendary, it also presents an array of unique circumstances for those who live and travel in the state.

Most states have an abundance of roads available for traveling, but the numerous decentralized populated areas of Alaska create a unique situation for transportation. Where mountain ranges and glaciers create barriers to transportation, flying is popular among Alaskans. Alaska has approximately 14 times as many aircraft per capita as the rest of the United States and 6 times as many pilots. In the Far North Region, all terrain vehicles are especially important where there are few roads and the terrain is difficult. Snowmobiles are often used during the winter. The only road access to this area of the state is the Dalton Highway, which is a gravel service road that links Prudhoe Bay to the Alaska public highway system. The Alaska Railroad covers 470 miles in south central and interior Alaska. The southernmost point is Seward, which is on the Kenai Peninsula, and the northernmost point on the railroad is near Fairbanks. The railroad services over 30 points in between Seward and Fairbanks.

The Alaska Marine Highway System (AMHS) provides ferry service for residents in southwest and southeast Alaska. The AMHS is essential for Alaskans because many citizens would be isolated from surrounding areas. Travel on the ferry ranges from several hours to several days. The southeast AMHS route provides service to points in between Skagway, Juneau, and Metlakatla, as well as Bellingham, WA and Prince Rupert, British Columbia. The southwest routes service the Kodiak and Aleutian Islands and Prince William Sound. Some trips are not made during the winter due to adverse weather conditions.

Southeastern Alaska

Southeast Alaska is a combination of water and forested islands that create the state's famous Inside Passage. It stretches 500 air miles north/south and 100 miles east/west. Within these boundaries lie 1,000 islands, 15,000 miles of shoreline; America's largest national forest; one national park/preserve, two national historical parks, two national monuments, 12 national wilderness areas, thousands of coves and bays and bights, 15,000 bald eagles, 25,000 brown bears, and 60 major glaciers.

The Tongass National Forest, managed by the U.S. Forest Service, occupies 77% the Southeast Alaska land. At 16.8 million acres this is the largest national forest in the country and the world's largest temperate rain forest.

There are three major ice fields in this area: the 1,500 square mile Juneau Ice Field just behind the capital city, the slightly smaller Stikine Ice Field near the communities of Wrangell and Petersburg, and the Brady Ice Field in Glacier Bay National Park. Other

dominating features of Southeast Alaska's geography created by the glaciers' retreat are the salt-water fjords. The primary mode of transportation for this area of the state is by ferry.

Northern Alaska

Northern Alaska spans the area above the Yukon River, beyond the Brooks Range to the Arctic coast. This is the home of the Inupiat Eskimos, the land of Northern Lights and the Midnight Sun. Traditional Eskimo life-style, modern oilfield technology, and immense herds of wild caribou coexist in this area. A number of national parks are located in northern Alaska, including Gates of the Arctic National Park & Preserve, Noatak National Preserve, and Kobuk Valley National Park. Alaska's two largest Eskimo communities, Kotzebue and Barrow, and Nome, are the major towns in this region. The only road access into Arctic Alaska is the Dalton Highway, a gravel service road that links Prudhoe Bay to the State's public highway systems.

Southwestern Alaska

Southwest Alaska ranges from the grasslands of the Aleutian Islands to the volcanic landscape of Katmai National Park. The principal ports in this area are Kodiak, Dillingham, Dutch Harbor/Unalaska, and King Salmon. The Yupik Eskimo community of Bethel is a major port serving as a commercial hub for villages of the Yukon and Kuskokwim River deltas. The native people are both Yupik Eskimo and Aleut. The area is accessible only by air and water.

Interior Alaska

The Yukon River runs nearly 2,000 miles across Interior Alaska and Canada, from the Klondike to the Bering Sea. The Native people of this land are largely Athabascan Indians. Fairbanks, Alaska's second largest city is here. Military bases and the main campus of the University of Alaska are also located here. Finally, this area boasts Mt. McKinley, the highest mountain in North America, and Denali National Park and Preserve.

South Central Alaska

South central Alaska is the most easily accessible region. More than one-half of Alaska's residents live here, amidst glaciers, fjords, roadside lakes, clamming beaches, and salmon streams. The area encompasses farmlands, fishing towns, national parklands, ski resorts and a modern city. The Alaska Railroad, and the Alaska Marine Highway are major methods of travel in this region. The state's major highways also serve this area. Anchorage is the hub of a busy transportation network linking large areas of the state. Kenai Peninsula and Kenai Fjords National Park lie southwest. Wrangell-St. Elias National Park, to the west, contains nine of the 16 highest peaks in the U.S.

Travel: The Greatest Challenge Amidst Alaska's Geography

Throughout Alaska the four seater “bush” plane is about as common as the lower 48 states’ automobile. Due to the large bodies of water, steep mountains, enormous icefields, and rugged terrain, flying is a very useful, although demanding, type of travel in Alaska. The term “bush” is also applied to the small planes and their pilots who service areas without roads. Much of Alaska’s flying is done by small planes with floats (floatplanes) or skis attached to the bottom. Floatplanes are widely used because they virtually can travel anywhere in Alaska. It may sometimes be necessary for Alaskans to travel within the state or to the lower 48 states to receive some health services. In these situations, travel may occur via the bush planes, float planes, or commercial airlines. Winds, fog, rain, and other natural phenomenon traditionally impacting air travel may complicate Alaskans’ ability to receive health care when air travel is necessary. Given that some parts of Alaska are remote and isolated, the ability to travel for receipt of health services can become especially critical when services are not otherwise available.

The Alaska Marine Highway is a main way to traverse. It was first organized in 1963 while serving the inside passage of southeast, then later extended to other communities in the other coastal regions. A half dozen vessels transport over 350,000 passengers and 98,000 vehicles annually while connecting nearly three dozen ports and communities. The ferry connects 28 Alaska towns and British Columbia and Bellingham, Washington.

Train travel is prominent in Alaska, with winding trails through mountains and large rain forests. The Alaska-owned railroad offers year-round service extending 470 miles of mainline tract from Seward to Fairbanks and the surrounding areas in the Interior. Although this railroad is very similar to others, it is susceptible to harsh weather in the winter. There are periods of intense cold during Fairbanks winters when the temperature may fall to 60 degrees below zero. Although this extreme cold only lasts a small part of the winter, it has some devastating effects. Diesel fuel can turn into soft and thick slush. All of this is combined with snow, sleet, and rain that can only create treacherous conditions that make it extremely hard and dangerous to railroad. A privately owned White Pass and Yukon Route also provide a connection between Skagway, Alaska and Whitehorse in the Yukon Territory.

Replacing large moving trucks as the common ground carrier, the ocean-going barge is able to go places that are not commonly accessible by land. Because of Alaska’s great amount of shoreline, many communities can be reached by water easier than by land. A number of barge companies help to move goods throughout Alaska. For example, many glaciers, an ice field, high mountain peaks and waterways surround Alaska’s capital, Juneau. All freight (including groceries, building supplies and autos) must come in by barge or airplane.

The automobile is still a necessary and useful mode of transportation throughout the state despite bringing some major challenges to its user. First of all, it is hard getting cars and trucks into the state due to its terrain and the distance from the rest of the United States. The two main ways that automobiles are brought to Alaska is by the ocean barge and the Alaska Highway.

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine how Alaska's geographical features will influence the quality of images, data transmission, access to practitioners or other telehealth service functions.
2. Determine if there are preferable data standards, bandwidth requirements, equipment, or other mechanisms that ATAC should require providers to observe to insure that natural geographical barriers have a minimal impact on the quality of data images and other telehealth services.
3. Determine if there are preferable data standards, bandwidth requirements, equipment, or other mechanisms that ATAC should require providers to observe to insure that solar, climatic, and geomagnetic phenomena have a minimal impact on the quality of data images and other telehealth services.

THE ALASKAN PEOPLE—MEDICAID PROFILE

Alaska is as diverse culturally as it is geographically. According to 1999 Census Bureau estimates, Alaska's population is approximately 619,500. Roughly 52% of the people are men, and 48% are women. Thirty one percent of the population is under the age of 18, and 6% of the population is over 64 years of age. Approximately 10,000 live births occur in Alaska each year. Typically, 40% of all live births are to Medicaid recipients². The number of Medicaid births in Alaska for SFY 2000 was 6,529. The ethnic mix of Alaska is reflected in Table 1.1, below.

Table 1.1: Ethnic Profile of Alaska

Racial/Ethnic Indicator	All Alaskans ³	Medicaid Eligibles ⁴	Percent of Medicaid Expenditures ⁵
White	75%	43%	50%
Alaska Natives	16%	37%	36%
Other	9%	20%	14%

In SFY 2000, there were 111,083 people enrolled in the Alaska Medicaid program. Of this number, 92,103, or 83 percent, used the services available to them. Just over \$467 million was expended to provide services to these groups⁶. Tables 1.2 and 1.3 reflect Alaska Medicaid enrollment by age and gender.

Table 1.2: Medicaid Enrollment by Age, Alaska SFY 2000⁷

Age Group	Medicaid Eligibles
0 – 20	65%
21 – 64	29%
65 and older	6%

Table 1.3: Medicaid Enrollment by Gender, Alaska SFY 2000⁸

Gender	Medicaid Eligibles
Female	56%
Male	44%

² Alaska Bureau of Vital Statistics—1998 Annual Report and Medicaid Births Volumes 1-3.

³ From the U.S. Census Bureau, 1999 State Population Estimates

⁴ Alaska DMA, FY 1999 Annual Report

⁵ Alaska DMA, FY 1999 Annual Report

⁶ Alaska DMA, FY 2000 Annual Report

⁷ Alaska DMA, FY 2000 Annual Report

⁸ Alaska DMA, FY 2000 Annual Report

Linguistic and Cultural Influences on Health Service Delivery

Culturally based beliefs and traditions can affect the course and outcome of disease. Both providers and patients bring their respective cultural backgrounds and expectations to the medical interview. These cultural differences can present barriers to appropriate care. In the U.S. for example, providers are accustomed to the Western emphasis on the individual. However, in many other cultures, the family plays the central role in managing illness. Illnesses can be categorized in strictly biological terms by Western medicine, but many individuals carry cultural assumptions that may influence the presentation of symptoms or the response to diagnosis and treatment. A patient whose culture does not have a model for chronic diseases may perceive similar episodes of illness in the past as unrelated, a distinct illness having distinct causes and cures. Similarly, some cultures feel that informing a patient of potential medical risk can influence outcomes or be dangerous to the patient. While information about specific cultures can contribute to understanding, superficial knowledge sometimes leads to stereotyping that undermines the complexity of cultural health issues.

Cultural beliefs and behaviors evolve. Changes occur within individuals as they grow and develop and become exposed to new things. Changes also occur on a larger scale, as a cultural group adapts to new ideas and conditions. Some individuals may adhere closely to the traditional beliefs and practices of a birthplace, while others, born in the same locale, may fully acculturate into the U.S. way of life. In a cross-cultural patient/provider relationship, both parties may be called upon to acknowledge and respect health concepts and practices different from their own. While this is an opportunity for growth and enrichment, it can also cause discomfort. Tension arises when different health belief systems confront one another. Common responses to the unknown or unfamiliar are anxiety, wariness, and even anger or fear. For professionals in the health care setting, awareness of personal cultural biases is essential.

Linguistic and cultural diversity is an inescapable fact of modern Alaskan society. Language barriers, in particular, may influence patient interaction with health practitioners. Alaskans' primary languages include English, Russian, Japanese, or Native-Alaskan tribal languages. The challenge of learning a new language is significant. Basic language proficiency often takes years to achieve, and even then, familiarity with medical terminology and concepts may still be lacking. In times of significant stress or emotional trauma, such as dealing with an illness or injury, language barriers may become more pervasive.

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine how Alaskan cultural beliefs and practices will influence the use of telehealth services? Should ATAC consider special marketing to increase patient confidence and interaction with telehealth services.
2. Determine how linguistics will influence practitioner-practitioner or practitioner-patient relationships.

HEALTH SERVICE DELIVERY IN ALASKA—MEDICAID

Medicaid is a health services program that was created by the federal government to provide payment for medical services for eligible citizens. Individual states administer the program under the authority of the Health Care Financing Administration (HCFA). People qualify for Medicaid by meeting federal income and asset standards and by fitting into certain eligibility categories. Medicaid began as a program to pay for health care for the indigent who were unable to work. Alaska Medicaid covers the aged, the blind, the disabled, single parent families, children and pregnant women who may qualify under higher income limits, two parent families if one of the parents is unemployed, and people who need the level of care provided in an institution, such as a nursing home. In addition, recent changes within the Alaska Medicaid program give some people who need an institutional level of care the opportunity to receive that care at home.

The Chronic and Acute Medical Assistance program (CAMA) is a wholly state-funded medical assistance program that pays for a very limited amount of health care services for very low income adults who do not qualify for Medicaid. Covered services include limited inpatient hospital stays and prescription drugs for individuals with certain chronic illnesses.

The Alaska Legislature created the Permanent Fund Dividend Hold Harmless program (PFDHH) to protect those Medicaid clients who would lose their Medicaid eligibility as a result of receipt or retention of the Permanent Fund Dividend. Receipt of the PFD may force client income over the qualifying income limit. Under the PFDHH program, the state maintains the client's eligibility for up to four months by using state funds to pay for medical services.

The Alaska Longevity Bonus Hold Harmless (ALBHH) was created by the Alaska Legislature to protect Medicaid clients from losing their Medicaid eligibility as a result of receiving the bonus. Without the program, some recipients would be over the qualifying Medicaid income limit. Since October 1991, the ALBHH program has undergone a significant reduction as the Division of Medical Assistance took advantage of a federal policy change allowing exemption of ALBHH income for most Medicaid recipients.

In 1998, the Medicaid program was expanded to incorporate the new federal Children's Health Insurance Program (CHIP). Under this expansion, children through age 18 and pregnant women are eligible for health care coverage if their family income is 200 percent below the federal poverty level. The expanded coverage of children and pregnant women was given a special name, Denali KidCare, to reflect the new emphasis on outreach and improved access to simplified eligibility processes. The expanded coverage began March 1, 1999. CHIP provides states with enhanced federal matching funds to provide health coverage to children without other health insurance who do not qualify for the state's regular Medicaid program. Under Alaska's expansion, all children with income 150 percent below the poverty level are covered; those with other health insurance receive the enhanced match rate. Only children without other health insurance may qualify if their income is between 150 and 200 percent below the poverty level. Expanded coverage for pregnant women is not

eligible for the enhanced match rate, and pregnant women are covered regardless of their health insurance status.

The Division of Public Assistance determines eligibility for Medicaid according to federal and state rules. Public Assistance staff considers age, income, assets, disability status, and other factors in determining a client’s eligibility category. Once determined eligible, the individual is assigned an identification number and issued a Medicaid coupon. Recipients are able to choose their own health care provider, among those enrolled or willing to enroll in the Medicaid program. Approximately 80,000 individuals are enrolled in Alaska Medicaid (Fiscal Year 1999 Annual Report, Alaska Division of Medical Assistance).

Residents in decentralized population areas tend to have a greater degree of poverty the more isolated their communities are from centralized population areas. These smaller villages and communities often rely on subsistence. Wages are earned through part time and seasonal employment. There are fewer hospitals and physicians in villages and smaller communities than in centralized geographic areas. In addition, the amount of time it takes to travel to receive medical care is longer and public transportation is less likely to be available. Since the early 1990s, various groups and organizations have collaborated to better serve the health care needs of residents in decentralized population areas in Alaska.

Table 1.4: Medicaid Expenditures by Type of Service, Alaska SFY ⁹

2000	
Type of Service	Expenditures in Millions
Hospital	\$108.3
Mental health services	\$76.0
Physician services	\$74.4
All other services	\$62.6
Pharmacy	\$46.3
Home/ Community Waiver services	\$45.9
Nursing homes	\$40.2
Transportation services	\$13.7
Total	\$467.4

Inpatient hospital services accounted for \$76.5 million during SFY00. This amount includes IHS patients. The remainder of the expenditure includes outpatient services and outpatient surgical centers. Community mental health services made up \$38.3 million of the total mental health services expenditure. Residential psychiatric treatment centers accounted for \$15.4 million during SFY00. Expenditures for home and community based care (HCBC) services totaled \$45.9 million during SFY00. Four “waivers” allow people who would need an institutional level of care to live in their home/community, as long as the cost of their services do not exceed the institutional level of care cost. During SFY00, 2,027 people

⁹ Alaska Division of Medical Assistance, FY 2000 Annual Report

received HCBC services. SFY00 expenditures for nursing homes was \$40.1 million. This is down from a recent high of \$45.2 million during FY96. Included are both skilled and intermediate nursing services. The transportation category includes, among others, ambulance, airline, taxi, medevac flights, and accommodation services. The rise in pharmacy expenditures can be partially attributed to the enrollment of twelve IHS providers in SFY99 who had not previously directly billed the Medicaid program. An increase in the average wholesale price of some generic drugs and the use and cost of mental health drugs are other contributing factors.

The majority of Alaska's Medicaid population reside in the Anchorage area (33 percent). Fairbanks ranks second with seven percent eligibles; six percent come from the Wasilla area. In SFY00, there were 11,083 people enrolled in the Medicaid program. Of this number, 92,103, or 83 percent, used the services available to them. Just over \$467 million was expended to provide services to these groups. Children account for 65 percent of all Medicaid eligibles, but only 34 percent of all expenditures. Adults account for 19 percent of Medicaid eligibles and 15 percent of all expenditures. The elderly account for 6 percent of Medicaid eligibles and 16 percent of all expenditures. Finally, The disabled account for 10 percent of Medicaid eligibles and 35 percent of all expenditures¹⁰.

Practitioner Profile

Alaska Medicaid has a variety of enrolled providers and community health aides/practitioners available to serve its Medicaid population. Data suggests, however, that there are areas of the state that are underserved or devoid of medical service providers. It is assumed that where no practitioners are available, Medicaid recipients have access to services in nearby villages, towns, or cities. There is an opportunity for the development of a telehealth delivery model to remedy these noted disparities. Appendix A¹¹ highlights specific findings and ratios of providers to eligibles in Alaska. Tables 1.5 and 1.6 display the number of eligibles served by IHS and other providers and the number of eligibles served in the centralized population areas compared to other others.

Community Health Aides and Community Health Practitioner (CHA/P) Services¹²

Effective April 1, 1998, Alaska Medicaid began reimbursement of services provided by Community Health Aides (Level III or IV) and Community Health Practitioners (CHA/Ps). CHA/P services are an important part of the Alaska health delivery system. CHA/Ps are employed by an Indian Health Services (IHS)/ Tribal facility that is owned or leased by the IHS, a tribal organization, or a contracted IHS entity operating a community health aide program in Alaska under the Indian Self-Determination and Education Assistance Act. CHA/Ps must be supervised by a Medicaid enrolled physician, who is familiar with the CHA/P program and is employed by the IHS/ Tribal health organization. The supervising

¹⁰ Alaska DMA, FY 2000 Annual Report.

¹¹ Data in Appendix A does not include CHA/P providers. A list of CHA/P providers is included in Appendix B. Data were derived from an Alaska Division of Medical Assistance claims extract provided to Myers and Stauffer. Recipients are not unduplicated, as they may have received services from multiple types of providers. Data is based on SFY 1999 paid claims, exclusive of Medicare crossover services.

¹² Alaska Division of Medical Assistance, IHS Provider Manual

physician must be separately enrolled with Medicaid. The supervising physician must also assume professional responsibility for the CHA/P services and assure that the services are medically appropriate. There are approximately 468 CHA/Ps providing services to 170 villages in Alaska¹³. Since CHA/Ps are not directly, independently enrolled in the Medicaid program, data in this report may not adequately identify specific service patterns for CHA/Ps. Appendix B contains a list of CHA/P providers by village.

Table 1.5: Distribution of IHS Providers Serving Medicaid Recipients¹⁴

	Recipients Served	Percentage
IHS Providers	24,895	8.47%
Other Providers	269,113	91.53%
	294,008	100.00%

Table 1.6: Distribution of Medicaid Recipients Served by Region

Region	Recipients Served	Percentage
Anchorage	66,128	36.20%
Fairbanks	15,398	8.43%
Juneau	6,301	3.45%
All Others	94,865	51.93%
	182,692	100.00%

For the most common diagnosed conditions in SFY 1999 (as reflected in Table 1.7), the ratio of available providers typically consulted for such diagnoses was examined city-by-city. Table 1.8 in Appendix D reflects the findings. The majority of provider types are represented in centralized populations like Anchorage, Fairbanks and Juneau, whereas other areas have notable shortages. Of the 49 cities/regions listed in Table 1.8, thirty do not have inpatient hospital services and 26 do not have outpatient hospital services. Thirty-two cities/regions lack an EPSDT screener to screen and treat infants and toddlers for otitis media. Thirty-seven areas lack a provider to provide mental health services, and seventeen areas lack an osteopath or physician to treat diabetes.

¹³ Based on Community Health Aide/ Practitioner List August 2000, provided by the Alaska Native Medical Center.

¹⁴ Tables 1.5 and 1.6 were derived from an Alaska Division of Medical Assistance claims extract provided to Myers and Stauffer. Information reflected does not include services provided by CHA/P providers. Recipients are not unduplicated, as they may have received services from multiple types of providers. Data is based on SFY 1999 paid claims, exclusive of Medicare crossover services.

Table 1.7: Most Common Diagnoses Among Medicaid Recipients, SFY 99

ICD-9 Code	Diagnosis
V20.2	Routine Infant or Child Health Check
V22.1	Supervision of Other Normal Pregnancy
465.9	Acute Respiratory Infection, Unspecified Site
382.9	Otitis Media, Unspecified
303.90	Other and Unspecified Alcohol Dependence
462	Acute Pharyngitis
V22.2	Pregnant State; Incidental
V22.0	Supervision of Normal First Pregnancy
250.0	Diabetes Mellitus without Complication
314.01	Attention Deficit Disorder with Hyperactivity
309.81	Prolonged Post Traumatic Stress Disorder
295.30	Subchronic Schizophrenic Disorders with Acute Exacerbation
295.70	Schizo-affective Type Schizophrenia
295.90	Unspecified Schizophrenia
313.81	Oppositional Disorder

Specific Practitioner Shortages

The Federal Department of Health and Human Services defines a health professional shortage area as one where the ratio of eligibles to providers is greater than 3500 to 1. Appendix A highlights various health care practitioner shortages in Alaska, based on Medicaid claims data. Some of these health services include the following: inpatient hospital services, home health services and rural health services. It must be noted that Community Health Aides/ Practitioners may provide services to some of these communities, though their services are not identifiable in Medicaid claims data. Please refer to Appendix B for a list of Community Health Aides/ Practitioners and the villages they serve.

Telehealth Service Delivery

Telehealth is the use of communication equipment to link health care providers and patients who are physically in different locations. Specifically, it involves remote health care delivery using video, teleconferencing and digitized image transmission. The technology is used for many reasons, including increased cost efficiency, reduced transportation costs, improved patient access to specialists and mental health providers, improved quality of care, and enhanced communication among providers. It includes:

- **Consultation.** Direct provider-patient interactions, such as psychiatric consultations, or analysis of dermatological symptoms that can be done using videoconference facilities.
- **Diagnosis.** Remote reading of digitized radiology images such as MRIs or x-rays, or analysis of pathology images.

- **Education.** Continuing medical education classes and live transmission of grand rounds or surgery to a remote but interactive audience. These may include distributed education programs that can be accessed via computer or television.
- **Invasive Treatment.** Remote treatment including the use of image-guided surgery systems is envisioned as a telehealth service that may be available in the future.

There are two primary methods used to facilitate telehealth services—store and forward and interactive media. Each is discussed below.

Store and Forward

Store and forward technology is used in telehealth for transferring digital images from one location to another. A digital image is taken using a digital camera, ('stored') and then sent ('forwarded') to another location. The image may be transferred within a building, between two buildings in the same city, or from one location to another anywhere in the world. Teleradiology, Telepathology and Teledermatology are the most common applications in use today.

Organizations opting to use a store and forward approach must consider whether to transmit information in an analog or digital format. Options include the aspects of file compression for storage, the direct communication or indirect use of server architecture for data delivery, and the display at the hub site (the site where the medical expert reviews data). There are several different types of store and forward, such as audio transfer, data and text transmission, and still or moving images. Often, store and forward is the only way to offer remote medical services because of the lack of infrastructure, different time zones, and large data sets. The store and forward approach is advantageous to organizations seeking to link health care providers, patients, and facilities over a large geographic area with a less-developed technological infrastructure and a limited budget.

Interactive Media

Interactive television (IATV) uses videoconferencing to allow a “real time” consultation to occur. This means that the patient does not have to travel to an urban area to see a specialist, and in many cases, provides access to specialty care when none has been available previously. Almost all specialties of medicine have been found to be conducive to this kind of consultation including psychiatry, internal medicine, rehabilitation, cardiology, pediatrics, obstetrics and gynecology. There are many on-going IATV projects and several new ones under development, both nationally and internationally.

The Health Care Financing Administration’s (HCFA) policies for Medicare reimbursement of telehealth services endorse the use of interactive media. HCFA defines telehealth as real-time, interactive audio-video consultations delivered via telecommunications systems. HCFA recently ended its exclusion of store and forward technology and consultations as reimbursable services. In Alaska, where the communications infrastructure can not widely support interactive approaches, the delivery of telehealth services may rely heavily on store and forward technologies. Such an approach will facilitate the extension of needed health

services to areas that are currently underserved within the constraints of existing infrastructure.

Ideally, organizations implementing new telehealth networks or fostering the growth of existing networks consider the following key issues and components affecting successful health service delivery.

Identification of Eligible Providers

HCFA has identified Alaska as a state currently experiencing a shortage of primary care physicians and specialists. Therefore, it may be beneficial to identify eligible telehealth providers with consideration to eliminating service gaps. For Medicare, HCFA has issued a strict interpretation of the types of providers who may be reimbursed for teleconsultations. HCFA has identified the following providers among those who may be reimbursed for telehealth services: a physician, a physician assistant, a nurse practitioner, a clinical nurse specialist, a certified nurse-midwife, a clinical social worker, or a clinical psychologist. Specialists who receive referrals from these providers may also be reimbursed.

Licensure

The practice of medicine without a license is prohibited, whether the physician is treating the patient in person or from a distant location. When a physician exercises primary responsibility for the care of a patient, that physician is practicing medicine in the state where the patient is located and is subject to that state's laws regarding medical practice. State licensing boards determine who can practice medicine within state borders, with varying rules of reciprocity for licenses awarded in other states. This system works well for the traditional healthcare model in which patients and healthcare providers see each other face-to-face in the same location. However, telehealth separates healthcare providers from patients, and sometime the separation goes beyond state boundaries. When this occurs, the issue becomes, "where is medicine being practiced?" Is medicine occurring at the place where the doctor is located, or is it occurring at the location of the patient? State boards have denied requests from out-of-state psychiatrists, for example, to conduct therapy with patients located in the state via telephone or videoconferencing equipment. Until recently, physicians who provided an opinion or interpretation to a local physician with primary patient care responsibility were not regarded as practicing in the state where the local physician and patient were located. The advent of telehealth and its potential to create a new form of competition for specialty services have prompted state legislatures and medical boards to re-examine this view.

The Nebraska legislature passed a law making it emphatically clear that medicine occurs at the site where the patient is located. Therefore, if an out-of-state physician treats a Nebraska resident through telehealth, he or she is presumed under the law to be practicing medicine in Nebraska, and therefore must be licensed to practice medicine in Nebraska.

Dr. Michael Farber from the State of California's Medi-Cal Program takes the opposite view of the Nebraska legislature. Dr. Farber believes that physicians practice medicine in the place where they themselves are located. Accordingly, hub site telehealth physicians in

California need only be licensed to practice medicine in the state where they are located. While at first blush this seems like a liberal view, it becomes less so when one discovers that the issue has never arisen in California. Stated differently, no out-of-state physician has ever provided a telehealth consult to a California Medicaid recipient, because out-of-state consults require prior authorization, and it is difficult to explain why a physician consult could not be done in California. Likewise, Minnesota Medicaid does not require hub site providers to be licensed in the State of Minnesota, but telehealth services provided by out-of-state providers require difficult-to-obtain prior authorization.

The majority of the states Myers and Stauffer contacted have passed legislation, promulgated rules, or published policies requiring both hub and spoke site providers to be licensed in the state that is providing Medicaid reimbursement for telehealth services. However, the Texas Medicaid Program left the matter up to its State Board of Medical Examiners. Texas Medicaid, in its response to comments submitted to a proposed rule regarding telehealth, stated the following:

If the State Board of Medical Examiners licenses providers outside the state to provide telehealth services, the state will reimburse those physicians for telehealth services provided to Texas Medicaid recipients. If the State Board of Medical Examiners does not license providers outside the State to provide telehealth services, the state will not reimburse them for telehealth services.

When Myers and Stauffer interviewed Texas Medicaid about this issue, it explained that Texas has a very strict medical practice act. Anyone providing medical services to Texas residents must meet the requirements of the act. Therefore, for purposes of telehealth, there is no reciprocity; providers must meet the requirements of the Texas medical practice act to provide telehealth services to Texas residents.

Montana and Oklahoma take a more lenient view than Texas when it comes to reciprocity for providing telehealth services. The Montana Medical Association and Board of Medical Examiners are trying to institute a certificate for out-of-state providers who want to practice telehealth on Montana recipients. This proposed process will not give providers full certification, but it will give them a certificate to practice telehealth. Similarly, the Oklahoma Medicaid Program supports the recommendations of the Telemedicine Committee of the Southern Governor's Conference concerning this matter. This committee suggests a reciprocity agreement between states to honor each other's medical licensing.

Obtaining licensure across state lines is a barrier to the advancement of telehealth. Currently, there are laws in approximately 21 states that respond to the practice of medicine or telehealth across state lines. These laws address a combination of the following issues:

- Certification – qualification to perform tasks and/or procedures of a specified practice, i.e. intravenous therapy.
- Credentialing – documentation of professional education, training and work experience.

- Privileging – practice of medicine in a specific work environment with constraints, i.e., admitting or clinical privileges.
- Licensure – the legal authority to practice medicine

Licensure Models

Although the Federal government has the authority to establish national regulations regarding health care, states have assumed the responsibility for establishing procedures for the acquisition of a health professional license, renewal of those licenses and the regulation of practicing medicine.

When addressing cross-state licensure, the following issues need consideration:

- separate license for the practice of telehealth,
- reciprocity agreements,
- defining a physician-patient relationship,
- legal ramifications, et al

Currently, Alaska Medicaid enrollment guidelines allow most out of state providers to enroll if they are licensed in the state where they practice. Table 1.9 lists examples of general licensure models, some of which are in use in other states.

Table 1.9: General Licensure Models

GENERAL LICENSURE MODELS ¹⁵	
Consulting Exceptions	A physician who is unlicensed in a particular state can practice medicine in a state at the request of or in consultation with a referring physician.
Endorsement	State boards grant licenses to health professionals in other states that have equivalent standards. Health professionals must apply for a license by endorsement from each state in which they seek to practice.
Reciprocity	The authorities of each state negotiate and enter agreements to recognize licenses issued by the other state without a further review of individual credentials.
Mutual Recognition	The licensing authorities of a state voluntarily enter into an agreement to legally accept the policies and licensure process of a licensee's home state.
Registration	A health professional licensed in one state would inform the authorities of other states that he or she wished to practice on a part-time basis in the state.
Limited Licensure	A health professional would obtain a license from each state in which he or she practiced but would have the option of obtaining a limited license for the delivery of specific health services under particular circumstances.
National Licensure	A license would be issued based on a universal standard for the practice of health care in the United States.
Federal Licensure	Health professionals would be issued one license, valid throughout the United States, by the Federal government.

Health professional and medical organizations have taken a step toward developing licensure models tailored to their specialty. Table 1.10 lists some of these models.

Table 1.10: Specific Licensure Models

SPECIFIC LICENSURE MODELS ¹⁶	
American College of Radiology (ACR)	The ACR adopted a "Standard for Teleradiology" and developed a Model Act that is similar to the general endorsement model.

¹⁵ Source: *Department of Commerce, Report to Congress on Telemedicine, 1997*

¹⁶ Sources: *Department of Commerce, Report to Congress on Telemedicine, 1997* and *Western Governors Association*

American Medical Association (AMA)	The AMA adopted a policy that “states and their medical boards should require a full and unrestricted license for all physicians practicing telehealth within a state.”
California Registration	California permits its Board of Medicine to create a registration program for telehealth providers.
College of American Pathologists (CAP)	The CAP requires physicians to have their licenses endorsed in each state from which they receive patient specimens or information.
Federation of State Medical Boards (FSMB)	The FSMB proposed an “Act to Regulate the Practice of Medicine Across State Lines”. A physician would be required to obtain a special license for telehealth issued by the state medical board.
National Council of State Boards of Nursing (NCSBN)	The NCSBN utilizes a general mutual recognition model and adopted language for an Interstate Nurse Licensure Compact. This compact creates a unified standard for nurses’ licenses and allows nurses to practice telehealth in states that adopt the compact.

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine who will be allowed to receive reimbursement for telehealth services.
2. Determine which telehealth services will be allowed.
3. Determine the types of media that may be used to render telehealth services.
4. Determine how quality will be standardized?
5. Determine how telehealth coverage and reimbursement will be introduced to the provider community.
6. Determine how ATAC will encourage the growth and development of the telehealth delivery system.
7. Determine if there are specific providers who will be substantially impacted by telehealth policies.
8. Determine if there are providers currently providing telehealth services to Medicaid clients or other patients.
9. Determine how provider licensing will be regulated and standardized?

THE TECHNOLOGICAL INFRASTRUCTURE

Contrary to popular perceptions, Alaska is not devoid of modern technological services and conveniences. According to the Department of Commerce's National Telecommunications and Information Administration, ninety-five percent (95%) of Alaskan households have a telephone. Fifty-five percent (55%) of Alaskan households have a computer. Ninety-five (95%) of Alaskan households have access to Internet service providers, and forty-four percent (44%) of Alaskan households access the Internet.

The development of Alaska's rural communication infrastructure promises improved quality of life and increased productivity. Many human endeavors that are difficult or impossible now can be made easy and convenient by ubiquitous access to all forms of communication and information. Ideally, citizens living and working in decentralized population areas should have the same access to information and telecommunication services that is available in centralized population areas.

The large distances between homes and towns, i.e., low population density, is the fundamental characteristic of decentralized population areas. It is this characteristic that makes the deployment of telecommunication systems in decentralized population areas more expensive. Often telecommunication equipment and facilities are designed for urban areas and are less than optimal for decentralized population areas. For example, a typical system in decentralized population areas would be required to cover much larger distances but, at the same time, would need less information carrying capacity

The higher deployment costs involved normally result in higher costs to the user in decentralized population areas. Possibly offsetting this, the large distances involved make telecommunication services more valuable in decentralized population areas than in centralized population areas. When telecommunications makes a trip unnecessary, more fuel and time are saved. When communication takes place, a greater degree of isolation is reduced. It should also be remembered that some decentralized population areas are more remotely located than others are. For this reason, most statements that can be made about telecommunications in decentralized population areas do not apply to every decentralized population area. The majority of Alaska's rural population lives on farms and in small towns.

The following services represent major classes of telecommunication capabilities that already exist or are expected to become available in urban Alaska:

- Two-way Voice
- Multiple-way Voice Teleconferencing
- Multiple-channel Audio Programming
- Low-speed Computer Networking

- Medium-speed Computer Networking
- High-speed Computer Networking
- Very High-speed Computer Networking
- Video Conferencing,
- Video Conferencing, Broadcast Quality
- Multiple-channel Video Programming
- Video on Demand
- Interactive Video

Historically, the telecommunication industry in America has been extensively regulated. A regulated monopoly model was initially used, but in the last 30 years, regulations have been somewhat relaxed. This process has left us with a telecommunication infrastructure that has been determined by a mix of regulatory and competitive forces. In the past decade we have seen competitive forces play a larger role as deregulation has accelerated. The impact of this trend can be seen in the restructuring that is taking place in the telecommunication industry. Continued deregulation will result in further changes in the U.S. telecommunication infrastructure. It must be pointed out that the competitive forces at work on the information infrastructure may well result in different outcomes in rural areas than in urban areas. Competition should be promoted in general because of the many benefits it can confer on users, such as lower costs and more diverse service offerings. Where market forces fail, public policymakers should apply appropriate regulations to the resulting single provider.

Major telecommunication legislation has recently changed communications in America. Such changes include laws that:

- ✓ Allow cable television companies to offer telephone service.
- ✓ Allow telephone companies to offer cable television service.
- ✓ Deregulate cable television rates.
- ✓ Relax restrictions on radio and television station ownership.
- ✓ Force local telephone companies to give competitors access to their networks.
- ✓ Permit regional Bell telephone companies to offer long-distance service.

Voice and Audio Telecommunication Services

Looking first at the Voice and Audio Telecommunication Services, it is clear that a number of technologies are available to provide these services. The most widely deployed technology is the telephone system, Public Service Telephone Network (PSTN). There is currently no other wireline telephony system to provide competition to the PSTN in decentralized population areas. Telecommunication legislation passed by Congress may allow cable TV

systems to provide telephone service. It is highly unlikely, however, that cable TV systems would be extended to serve individual farms or isolated homes.

In some decentralized population areas, wireless technologies such as cellular telephone may be able to provide competition to the PSTN. Cellular telephone coverage over the United States should be nearly complete by the year 2000. Only large wilderness areas of Alaska, the desert west, and possibly some parts of the central northern states will remain uncovered. The wilderness areas of Alaska are particularly difficult to serve because of the low population density. Other wireless technologies can provide not only mobile/portable service, but also fixed service into some of the more remote areas. In the most remote areas, only HF radio and satellite telephone technologies may be feasible. As with wireline systems, service providers may be reluctant to extend their wireless systems to farms or isolated homes, thus limiting choices for consumers who live in more remote locations.

Computer Telecommunication Services

Computer Telecommunication Services may be the heart of Alaska's telehealth initiatives. Many technologies are available to provide fixed and mobile/portable low-speed computer networking services. Dial-up modem access through the PSTN is most commonly used to provide fixed low-speed service today. So far, the demand for mobile/portable low-speed service has been slow in developing. Again, the most remote areas may only be covered by HF radio and satellite systems.

Medium-speed computer networking service can be provided through narrow-band ISDN and switched digital circuits. In principle, these technologies are or can be deployed in many decentralized population areas. Only in the most remote areas would they not be feasible. In the future, cable TV systems may provide medium-speed service in towns and small towns. Again, service providers may be reluctant to extend their systems to farms or isolated homes.

High-speed and very high-speed computer networking services may be very difficult to deploy in decentralized population areas. In the future, enhanced PSTN and cable TV systems may be able to provide high-speed service in towns and small towns. Outside of the towns, the cost of covering long distances with fiber optics or coaxial cable and technical difficulties with broadband radio systems limit what can be done without future technological development. In principle, high-speed and very high-speed computer networking services can be designed to effectively support voice, data, and video transmission. The provision of all telecommunication services through one infrastructure increases the value of that infrastructure. The degree to which this could be used to extend the reach of the RII into remote areas is not known.

Video Telecommunication Services

Very few technologies currently exist for providing video telecommunication services in rural areas. Switched digital circuits and narrow-band ISDN are currently available in many centralized population areas, but are only available on a limited basis in decentralized population areas. Video programming up to 150 channels is available from both cable TV

and satellite broadcasting. More than 150 channels is expected to become available from cable TV in the future.

Telephone companies and cable TV companies are currently the primary providers of telecommunication services in decentralized populated areas in America. It is expected that this will continue to be the case.

Distance and low population density are the distinctive features of decentralized population areas affecting telecommunications. These factors increase the costs of providing telecommunication services. In addition, systems and technologies developed for urban areas may be less than optimal for rural areas. The distances involved in living in rural areas increase the benefit and therefore value of telecommunication services. Telecommunication enables applications such as distance learning that can alleviate or eliminate some rural disadvantages. Telecommunication can make rural areas more attractive for some businesses and result in revitalization of the rural economy.

Satellite Communications

Satellites provide communication over long distances by relaying radio frequency signals. Digital coding methods have enhanced the satellite services by reducing the rate of transmission required to carry voice channels. This improves the capacity of existing facilities and reduces the size of ground stations that provide telecommunications service. The Time Division Multiple Access (TDMA) method divides radio channels into time slots to get higher capacity. No other conversations can access an occupied TDMA channel until the channel is vacated.

Many satellites follow a circular pattern over the equator and complete an orbit every 24 hours. This is called a geosynchronous orbit. The satellite moves in the same direction as the earth's rotation in a fixed position over one point on the equator and provides coverage over a large area. Solar interference in satellite communications is affected by the following:

- The latitude of the observing station impacts the time of year the interference occurs.
- The duration of the interference depends on the beam width of the receiving antenna.
- The relative position of the satellite affects the time of day the interference occurs.
- The level of interference depends on frequency of operation, antenna beam width, receiver bandwidth, signal to noise ratio and level of solar activity.

Satellites in the western sky will most likely experience interference in the afternoon; whereas, interference is mostly likely to occur in the morning for satellites in the eastern sky.

Potential Communication Concerns Influenced by Alaska's Geographical Location

Alaska's global position, located at the extreme northern Polar Regions of North America, makes it particularly susceptible to phenomena not typically experienced in the lower 48

states or Hawaii. Solar exposure, heightened magnetic activity, extreme cold, lunar phenomenon and other circumstances impact communication in the state. These factors must be understood and taken into account in the development of a telehealth service delivery model. Each is highlighted below.

Sun Transits

Sun transits occur when the sun crosses the earth's equatorial plane during the spring and fall equinoxes (late February or early March; September or October). At these times, the sun aligns directly behind the satellites for a few minutes each day. When the sun moves directly behind the satellite to your receive antenna, the satellite signal can be overwhelmed by the enormous amount of thermally generated radio frequency (RF) noise radiated by the sun. This can cause reception interference for a few minutes everyday during this occurrence. The time of occurrence depends on the geographic location of the earth station and the location of the satellite. The sun may degrade the signal for several minutes depending on the antenna size and available link margin, although it is not unusual for the effect to go unnoticed.

The number of outages, outage duration and the time of outage depend on the radio emission activity of the sun, the movement of the earth with respect to the sun, the pointing and location of receive antenna, and characteristics of the communication system. Those characteristics, in turn, include the operating receive radio frequency, the receive antenna gain pattern, the clear sky operating carrier-to-noise ratio (C/N), the clear sky equivalent system noise temperature and the minimum acceptable C/N.

When the sun transits occur, the antenna noise temperature varies depending on the antenna size, the elevation angle, location and environment.

Precipitation

Satellite transmissions are carried on one of two frequencies: C-band or Ku-band. When operating at the higher frequency Ku-band, the strength of the satellite signal may be temporarily reduced under severe rain conditions. To compensate for these potential effects, earth stations located in heavy rain areas are designed with more transmit power. C-band transmissions are virtually immune to adverse weather conditions. Signal attenuation due to rain is a characteristic of both microwave and satellite transmissions. It is the interference caused by raindrops on electromagnetic signals travelling through the atmosphere. When this phenomenon occurs, the transmission is weakened by absorption and scattering of the signal by raindrops.

Echo

Echo results from the imbalance when two-wire twisted pair local telephone circuits connect to a four-wire long distance transmission line, causing part of the transmitted signal to return along the line from the far end of the circuit. In land-based networks, echo is less noticeable due to the shorter delay time for the returning echo signal, typically in the order of 50 milliseconds. However, in satellite networks the echo returns to the sender's handset about half a second after transmission.

Digital echo cancellers are now used to eliminate echo by storing a replica of the digitized voice and superimposing the replica in inverted form over the returning echo. The echo

problem will disappear entirely when integrated digital services are adopted throughout the telephone industry - since integrated digital networks require four wire circuits throughout, which eliminate unbalanced lines.

In data communications, satellite propagation delay has prevented use of older binary synchronous or block-by-block protocols. Protocols such as IBM Bisynchronous Link Control and ISO Basic Mode operate at throughput efficiencies of less than 50 per cent over satellite, since the delay time in receiving an acknowledgment is comparatively long-- particularly when small block sizes are used.

Electromagnetism

The earth's atmosphere has a layer called the "ionosphere" which is ionized by radiation from the sun. The ionosphere acts like a mirror. When a shortwave radio station transmits a signal, it reflects off the ionosphere rather than shooting off into space. Shortwaves can bounce many times and thus travel long distances around the globe. This is how ham radio operators can communicate over long distances.

During solar maximum the ionosphere is relatively dense 24 hrs a day. Shortwave radio signals from the cosmos reflect off the ionosphere back into space, and terrestrial radio stations and other sources of static are trapped inside the ionosphere and cause a great deal of interference. Radio astronomers who observe at shortwave frequencies can attest that it's nearly impossible to observe cosmic radio sources during the sunspot maximum, especially during the daytime when the ionosphere is particularly dense.

Solar events (sunspots, eruptions, solar flares) cause an increase in the Sun's electromagnetic output. This may result in an increase in radio background noise here on Earth. This is particularly noticeable with directional antennas during periods of the day when the antenna is pointed toward the Sun.

Increases in the volume and intensity of the solar wind effect the ionosphere, changing its refractivity. This causes a loss of communication at MF and lower HF frequencies, while producing exaggerated skip phenomena at higher HF and VHF frequencies. Having skip conditions where usually none exist can produce severe interference problems for mobile radio users from 30 to 160 MHz. It is unlikely that frequencies much higher than that (UHF, cellular telephones, PCS and microwave) would notice any effects at all, except for communications with satellites. The thickening of the ionosphere can produce effects at microwave frequencies. These effects could potentially affect the accuracy of the Geo-Positioning Satellite (GPS) system.

Satellites have even more problems to overcome. Since they are in orbit, they are subjected to much of the direct force of the solar wind, while terrestrial systems are not. If not well shielded, the charged particles striking a satellite can damage its electronics. The particles can also create a differential static charge within the satellite, which can produce electrical arcs, again causing damage. This could severely damage a communications satellite.

Another problem occurs during very intense solar wind events, where oxygen from the Earth's atmosphere becomes electrically charged and is drawn upward into the Van Allen

radiation belts. This effectively increases the density of the atmosphere in the orbits of Low Earth Orbit (LEO) satellites up to about 1000 km. This increased density slows the satellites and changes their orbit slightly. If the orbit is not corrected, the satellite could fall and burn up in the atmosphere.

A very intense solar wind also causes changes in the shape of the Earth's magnetic field. This moving magnetic field induces currents in electrical power lines, sometimes causing systems to fail and power outages to occur. North America is especially vulnerable because it is closer to the north magnetic pole, and certain areas of igneous rock formation (the Pacific Northwest, British Columbia and the Yukon, eastern Canada, the Great Lakes, New England, central California, and northern Mexico) produce a greater intensity of induced electrical currents.

While scientists are learning to predict the occurrence of solar storms, they are not sure about the predicted intensity of the solar peak we are about to experience. For the past few decades, solar activity has been especially intense. If the upcoming peak follows the recent trend, it could be the highest in recorded history. However, some scientists are using a new technique to predict the Sun's cyclic fluctuations that result in a prediction of a lower peak than we have seen in recent decades.

Technical Considerations

Bandwidth

Among the first challenging questions when planning a telehealth network is 'What is bandwidth?' Bandwidth is the "capacity" that determines how quickly bits may be sent down the channels in a telecommunication medium. Bandwidth is proportional to the complexity of the data for a given level of system performance. For example, it takes more bandwidth to download a photograph in one second than it takes to download a page of text in one second.

In analog systems, such as voice communication, bandwidth is defined in terms of the frequency signal components, measured in cycles per second (hertz). The bandwidth of a typical voice signal is approximately three kilohertz (3 kHz), while an analog television broadcast video signal has a bandwidth of six megahertz (6 MHz) -- some 2,000 times as wide as the voice signal. In digital systems, bandwidth is measured as data speed in bits per second (bps). A modem that sends data at 57,600 bps has twice the bandwidth of a modem that works at 28,800 bps. Bandwidth can be carried across a variety of physical mediums, such as twisted wire pairs, coaxial cable, optical fiber, or wireless mediums such as radio waves or satellite transmissions.

With a baseline understanding of bandwidth and a description of frequently used telecommunication technologies, it is important to consider the amount of bandwidth necessary for efficient data transmission. One way to approach this issue is to first determine what applications of telehealth will be facilitated and whether those applications will be live/real-time (synchronous) or store-and-forward (asynchronous) interactions.

Infrastructure for Interactive videoconferencing

The marriage between videoconferencing technology and medical systems has ushered forth a more sophisticated means of treatment and diagnosis of illness. Medical system-related applications of videoconferencing allow for the fast transfer of x-rays, MRIs, and medical histories that can assist in patient care. The resources from a technologically advanced medical facility can be made instantaneously accessible to doctors operating in rural or inner city areas, where assistance may be scarce. Live teleconsultations require a clear video image of the patient so the provider may interpret a patient's subtle facial expressions and physical movements. (Clarity of live video images is typically measured in frames per second, or number of images (or frames) displayed in 1 second of video.) Some researchers suggest 10-20 frames per second (fps) is required for mental health teleconsults to differentiate facial expressions, and 20-30 fps to detect eye movements. The target for videoconferencing is 30 fps (broadcast quality) but requires bandwidth in the range of 1.5 mbps, although lesser quality can be utilized with appropriate image compression. In comparison, videoconferencing over standard telephone lines (56 kbps) appears choppy and delayed, transferring the "live" video at a slower 10-15 frames per second.

Studies have shown that higher bandwidth systems provide significant improvement in the accuracy of ultrasonic images, including fetal anomalies. Compression techniques and bandwidth control methods may permit more telehealth applications to be done over narrower (less costly, more accessible) bandwidths. Unfortunately, higher frame rates require upper bandwidths, and may not be available in low telecommunication infrastructure regions, such as rural regions where many applications of telehealth are most critically needed.

One of the most important items with regard to improving the picture quality with videoconferencing is that of available bandwidth for the data being sent between the two systems. ISDN (Integrated Services Digital Network) is the preferred minimum requirement for successful business videoconferencing. Modem or internet videoconferencing typically do not offer sufficient bandwidth. ISDN-2 will allow 128 kilobits per second, compared with 56 kilobits per second from a modem to modem connection.

The larger systems can use multiple ISDN-2 lines to increase picture quality, typically 3x ISDN-2 allows 384 Kilobits per second and results in near-TV quality. Call costs are the same as normal telephone calls per ISDN channel, of which two are used simultaneously for a 128Kbps connection. Therefore a 384Kbps call costs six times an equivalent normal telephone call. International ISDN calls are on a completely different tariff.

Analog Video Transmission

Presenting the user with analog video provides the best quality when issues of signal loss along the signal path are properly addressed. This is the method currently used for transmitting high quality video, for example in television studios. To reduce the signal loss along the signal path, coaxial cables are used. Coaxial cables have a grounded outer core that provides screening, reducing interference and signal loss between sending and receiving points. The question, that would come to mind is, why not use it with existing network infrastructures? The drawback is the economics of using coaxial cables. There are very

expensive to make and also deploy. Currently most network infrastructures use pairs of twisted wires to carry the data. The signal loss over such a medium limits the cable length or the distance between the sending and receiving points.

Multi-point conferencing functionality

In a two-party-conference, the parties are presented with each other's video and audio. To allow more than two members to participate in the conference, a multipoint conference service must be provided. The multipoint conference service should provide the following features:

- Round robin
- Token parsing
- Voice activated selection
- Fixed Hollywood squares
- Cyclic Hollywood squares

It should be possible during conferencing to allow users to select any multipoint service type that best suits their conferencing environment.

Infrastructure for Store-and-Forward Applications

Many telehealth applications do not necessarily require live video, but instead may be accomplished with store-and-forward transmission. Telepathology, teledermatology and teleradiology typically involve high-resolution images; compression of these images is often possible, but at some risk for loss of image integrity. The compression technology used and the dependability of accurate transfer media are both critical factors since the loss of a few pixels of data can lead to misdiagnosis, with serious clinical and legal repercussions.

When determining how much bandwidth is required for store-and-forward applications, another important factor to consider is time. Increasing the amount and quality of the data and reducing the transfer time requires higher bandwidth. A simple x-ray image transmitted over regular telephone lines may take upwards of 20 minutes compared to 2 minutes using 1/2 T-1 speed. Given the same bandwidth, higher bit depth images will naturally take longer to transfer.

Telecommunication Connections

Typically, telecommunication technologies can be delivered on a variety of transmission media, either strung on telephone poles, buried as cables beneath the surface or completely wireless. Although standard phone lines can support several telehealth applications, frequently higher bandwidth technologies are necessary. In a 1999 survey of telehealth programs, the most common telecommunication technologies were ISDN, T-carrier (T-1 or fractional T-1), and regular telephone service. Each is briefly highlighted below.

- **Integrated Services Digital Network (ISDN)** is a telecommunication technology that allows the transport of voice and data on-demand. ISDN is a dial-up (not

dedicated, but used on a call-by-call basis) digital connection to the telecommunication carrier. An ISDN line can carry information at nearly five times the fastest rate achievable using analog modems over POTS. Basic Rate Interface (BRI) defines an ISDN digital communications line consisting of three independent channels: two bearer (or B) channels, each at 64 kilobits per second (kbps), and one data (or D) channel at 16 Kilobits per second. The B channels are used for carrying the digital information, whether computer data, digitized voice, or motion video. With appropriate equipment these B channels can be linked together to provide an aggregate 128 kbps data channel. For this reason the ISDN Basic Rate Interface is often referred to as, "2B+D". The D channel is used to carry signaling and supervisory information to the network.

- **T-1** transmits voice and data digitally at 1.554 mega bits per second (mbps), can be used to carry analog and digital voice, data and video signals, and can even be configured for ISDN service. T-1 service can be sub-divided into smaller groupings such as $\frac{1}{4}$ T-1 or $\frac{3}{4}$ T-1. For even faster transmission speeds, several T-1s can be multiplexed together, such as a T-3, which offers 44.736 mbps--the speed equivalent of 28 T-1s. T-1 is a lightning quick connection and is more than sufficient for live telehealth consultations. Typically, 384 kbps (equivalent to $\frac{1}{4}$ T-1) is sufficient to deliver most telehealth care
- **Regular Telephone Service** transmits data at a rate of up to 56kbps and is the most widely available telecommunication technology in the U.S. Regular telephone service can be suitable for audio conferencing, store-and-forward communication, Internet, and low bandwidth videophone conferencing.

Internet

The Internet is impacting provider methods of delivering some care to patients. With the increasing proliferation of e-health sites on the Web today, many consumers are finding access to on-line patient scheduling, health education, review of lab work and even e-mail consultations. As far as clinical care is concerned, some Internet-based activity is taking place, most commonly using store-and-forward applications.

BBS

A bulletin board system (BBS) is comprised of a computer and associated software which typically provides an electronic message database where people can log in and leave messages. Messages are typically split into topic groups similar to the newsgroups on Usenet, which is like a distributed BBS. Any user may submit or read any message in these public areas. Apart from public message areas, a BBS may provide archives of files, personal electronic mail and any other services or activities of interest to the bulletin board's system operator (the "sysop"). Many BBS are currently operated by government, educational, and research institutions. Bulletin Board Systems are self-contained online communities. A BBS is almost like a miniaturized Internet. A BBS has a variety of things for users to do: Read and Write messages in Discussion Forums, Upload and Download files, and Play online games.

On some systems the local weather is available, online magazines and newsletters, and other factual information related to the specialty of the BBS.

Current Communication Partners and Capabilities

Alaskans have a variety of choices for information exchange. Telephone and online services are widely available and common. Carriers offer such features as 1.2 megabits per second data exchange, direct subscriber lines, DSL, cable connections, and high speed Internet access. Carriers also support fiber optics, long distance toll service, distance learning applications, microwave radio, Pagers & Paging services, 800MHz Trunking & Dispatch, VHF Marine & Business Band, Phone cards & Long Distance, Satellite & Avionics Communications, Dial-up Internet access, E-mail, and Web-site hosting.

New Advancements/ New Communications Partners

Recognizing the need for cutting-edge technologies and capabilities in Alaska, private firms are making great investments and contributions to Alaska's technological advancement. Recently a firm announced plans to offer a new service that beams phone calls and high-speed Internet into homes, bypassing the wires strung throughout the cities. Another firm will offer "two-way" dishes that allow downloads and uploads just as fast as cable modems or DSL.

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine if there are there preferable data standards, bandwidth requirements, equipment, or other mechanisms that should be required to insure the quality of data images and other telehealth services.
2. Determine what types of available technology will be authorized for use (BBS, Internet, videoconferencing, regular telephone lines, ISDN, T1, T3, fax, satellite, etc?).
3. Determine the appropriate role of ATAC, if any, in facilitating provider access to technology.
4. Determine if differences in technology vendors may impact the accurate transmission of data and information.

PROGRAM FUNDING AND SERVICE REIMBURSEMENT

Provider Acquisition of Telehealth Technology

Many small community hospitals/clinics do not have access to high-speed data lines, so low bandwidth store-and-forward solutions have become one viable way to deliver telehealth care. However, if high bandwidth telecommunication technologies are available, yet unaffordable, the problem of access persists. Compared to urban settings, higher bandwidth services, such as ISDN, frame relay, and T-1 are often expensive in rural regions.

A growing number of health care facilities are considering Universal Service, a federal program established by Congress in 1934 and revamped by the Telecommunications Act of 1996. Universal Service programs are a mechanism of discounts on higher bandwidth and Internet usage for America's schools, libraries and rural health care providers. For instance, the price for bandwidth needed to support many telehealth applications, such as leasing a full T-1 for videoconferencing, can be well over \$3000 per month in many rural communities, while in an urban center, this fee may be one-third the price. Universal Service seeks to remedy the urban-rural price disparity.

According to the 1996 Act and the Universal Service Orders that were developed by the Federal Communications Commission, eligible telcos contribute to the Universal Service Fund (USF), then deliver discounted telecommunication services to eligible rural health care providers. The telco then invoices the Rural Health Care Division (RHCD) of the Universal Service Administrative Company (USAC) to recapture the original contribution to USF. The discounts available to rural health care providers is essentially the difference between the cost of a telecommunication service, such as a T-1 line, in the applicant's area and the nearest city of at least 50,000 population. Since implementation of this program, over \$5 million has been committed to health care providers as the program's second year closes. According to the RHCD, a total of \$5,019,635 has been committed to 244 rural health care providers for Year 2 of the program (as of May 22, 2000).

Medicaid Reimbursement

Another key barrier to the practice of telehealth is reimbursement. Although telehealth provides easier access to health care services over a distance, there are few insurers who will reimburse for telehealth services. There are at least 17 state Medicaid programs and some private insurers who pay for these services. In the absence of established policies, Medicare has traditionally reimbursed telehealth services that did not require face-to-face interaction between a patient and a health care provider, i.e. teleradiology and telepathology. However, a provision in the Balanced Budget Act (BBA) of 1997 that requires Medicare to reimburse teleconsultations began on January 1, 1999. *Volume III of this series of reports examines Medicaid reimbursement and coverage models in detail.*

The Influence of Other Payers' Policies

Typically, providers serving Medicaid beneficiaries also serve Medicare beneficiaries and other clients with private insurance. Medicare reimburses telehealth services, as do many

private insurance companies. Providers enjoy similarities between payers with regard to reimbursement, coverage, and billing requirements. Similarities between Medicaid policies and Medicare policies, in particular, are extremely advantageous and preferable to providers. The development of a telehealth delivery system should consider how Medicare and other payers cover and reimburse telehealth services.

The Balanced Budget Act (BBA) of 1997 requires Medicare to pay for teleconsultations via interactive video in rural Health Professional Shortage Areas (HPSA). The legislation does not allow reimbursement for line charges or for facility fees. The Health Care Financing Administration (HCFA) considers all rural geographic HPSAs eligible for reimbursement regardless if the entire county is a HPSA. If a patient resides in a rural HPSA, Medicare will reimburse for teleconsultations regardless of where the service was provided. Medicare will provide reimbursement for teleconsultations that offer live interaction between the patient and the health care provider. The intent is to model a standard office consultation. Thus, it is rare that Medicare will reimburse for store and forward technology. Coverage for this technology will be considered provided that a patient is present for real-time audio or video interaction.

The BBA allows only certain health care professionals to be reimbursed for teleconsultations. Examples include clinical nurse specialists, physician assistants and certified nurse-midwives. More specifically, those who are the referring provider in the teleconsult must be defined as a physician or provider under the Social Security Act. Consequently, a clinical social worker may act as a referring provider, whereas registered and licensed practical nurses may not refer patients

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine if there will be enhanced reimbursement for telehealth services.
2. Determine how consulting providers and referring providers will be reimbursed. Determine if they will share a payment? Determine if they will be paid separately.
3. Determine ATAC/ Medicaid's role, if any, in facilitating provider access to funding for equipment and technology.
4. Determine if providers' costs for equipment and on-going technical services will be reimbursed by Medicaid.
5. Determine how providers will indicate, on a claim form, that a service was provided via telehealth mechanisms. Determine if a modifier will be used. Determine if local codes will be developed.
6. Determine the projected fiscal impact to Medicaid for telehealth services.
7. Determine the projected utilization pattern for telehealth services.

8. Determine the projected utilization and fiscal impact of telehealth services provided to Indian Health Services eligibles.

COLLABORATIVE RELATIONSHIPS

It is a complex undertaking to implement and sustain a telehealth service model. Collaboration with local and national stakeholders is vital. Some of the primary mechanisms for collaboration are outlined in this section.

Alaska Telemedicine Project

The Alaska Telemedicine Project (ATP) is a consortium of partners seeking to improve the delivery of health care in Alaska through telecommunication and information technologies. This consortium includes Alaska health care providers, telecommunication carriers, the University of Alaska Anchorage and the state of Alaska. In 1996, on behalf of the members of the Alaska Telemedicine Project, the Applied Science Laboratory of the University of Alaska Anchorage was awarded a \$2M contract from the National Library of Medicine to evaluate the uses of narrow bandwidth telemedicine and telehealth applications and technologies in “frontier” Alaska. Frederick W. Pearce, Ph.D. is the Principal Investigator.

The “Alaska Telemedicine Testbed Project” (ATTP) developed, deployed and evaluated the use of narrow bandwidth telemedicine for otolaryngology and dermatology. Twenty-six villages and four regional medical hubs in western Alaska were chosen from among twelve proposals for participation in the project: Bethel, Dillingham, Kotzebue, and Nome. Ear, nose and throat (ENT) services were chosen for statistical reasons, as they exhibited no evaluation bias for gender and age. In addition, otitis media was viewed as a serious clinical problem in rural Alaska.

ATTP was developed and deployed an Alaska Telemedicine Workstation designed to work in villages and clinics and to be used as productive tools by Community Health Aides. A one-year delay in the customization of Medvision software was a major obstacle in deployment and evaluation of timelines. ATP was designed to deliver a three-pronged evaluation to the National Library of Medicine. Using 1996 air transportation records as baseline for study, ATTP was designed to discover the following:

- Whether patient and providers perceived telemedicine encounters as good or better than current transportation-based models of healthcare delivery for ENT and dermatology
- Whether the use of advanced telecommunications and information technologies could mitigate “professional isolation”, the most cited reason for the high turnover of healthcare professionals in rural Alaska
- A cost and benefits study designed to analyze the benefits of telemedicine and telehealth services
- To identify the “cost per transaction” of each telemedicine encounter

Since 1997, there have been over 1,500 clinical encounters for ENT and an additional 4,500 clinic encounters for dermatology, emergency medicine, and assorted clinics. A preliminary analysis of data suggests that both patients and providers perceive telemedicine to be “as good or better” than transportation-based models of health care delivery. Preliminary cost analysis suggests that the average encounter is under \$40 and falling. Evidence that telemedicine and advanced telecommunications and information technologies could have a positive impact on the length of stay on jobs by rural health care providers proved inconclusive. The NLM has provided additional funding to ATTP for finalizing data collection, manuscript preparation, and for implementing seven additional sites in private clinics serving non-Native and Native populations. A qualitative evaluation will be applied to add to data sets for final evaluation and publication in fiscal year 2001.

Specific collaboration opportunities are listed below.

1. To obtain information on the medical efficacy of delivering services via telehealth
2. To obtain cost-benefit information for modeling potential Medicaid transportation cost savings
3. To obtain information on provider participation and provider acceptance
4. To obtain information on specific technological successes
5. To obtain information on Medicaid beneficiaries who may have been studied
6. To obtain specific information on Indian Health Services
7. To share information from ATAC, ANTHC, and Alaska Medicaid studies, as appropriate.

Alaska Federal Health Care Access Network

The Alaska Federal Health Care Access Network (AFHCAN) was created as a result of a partnership of the Department of Defense (DOD), Indian Health Service (IHS), Veterans Administration (VA), United States Coast Guard (USCG), and managing partner, the Alaska Native Tribal Health Consortium (ANTHC). This partnership, the Alaska Federal Health Care Partnership (AFHCP) began as an effort to improve federal health care in Alaska. AFHCP continues to seek avenues to extend and improve access to health care services for federal beneficiaries in Alaska. The goal is being achieved through AFHCAN.

AFHCAN’s role is to improve access to health care for federal beneficiaries in Alaska through the use of sustainable telehealth systems. AFHCAN supports 37 member organizations, representing over 235 sites across Alaska for the benefit of over 200,000 federal beneficiaries. These member organizations include: IHS/Tribal Entities (32); DOD (2); VA (1); USCG (1); and State of Alaska Public Health Nursing (1). (Note: the State of Alaska Public Health Nursing is considered as one member organization, but has seven sites.

AFHCAN is designed as a four-year (1999 – 2002) project with an estimated \$30,000,000 budget. The first year, Fiscal Year 1999, focused on project development. The second year,

Fiscal Year 2000, the focus was on planning, implementation, and preparing for initial deployment of equipment to sites. Based on needs and priorities for each organization, initial deployment in general, was planned to include a clinical workstation (computer, video otoscope, digital camera, and digital ECG) to sites.

This year, Fiscal Year 2001, the focus is on initial deployment to all sites. This year will also evaluate and plan for additional telemedicine applications such as health education kiosk and video conferencing and the development of a comprehensive long-term sustainability plan. During the final and fourth year of the project, Fiscal Year 2002, the focus will be on continuing implementation and support of the telehealth system. Monitoring and evaluation will be ongoing throughout the duration of the project.

Indian Health Service

The Indian Health Service (IHS), an agency of the U.S. Department of Health and Human Services (DHHS), is responsible for the providing or contracting for health care for federally recognized tribes and Alaska natives. This program was established as a result of a U.S. government treaty acknowledging a need for greater responsibility for the health and education of the indigenous people of Alaska. The level of financial support over the past 50 years has increased to approximately \$2.3B annually.

In 1975, the Indian Self Determination and Education Act (Public Law 93-638) was passed which stated that the federal government recognized a perpetual obligation for health, education, and welfare benefits for Native American people. Furthermore, tribes are encouraged to manage their own program to the extent that they wish to do so. Alaska has seen the greatest transition from federally operated health care programs for Alaska Natives to tribally operated programs than any other part of the country. Regional native health care consortiums have assumed all former federally operated programs in Alaska. These consortiums are not tribes, but rather tribal entities and native non-profit corporations created on a regional basis. In 1992, the Indian Self Determination and Education Assistance Act was amended to provide self-governance by Indian tribes. The Tribal Self-Governance Demonstration Project (SGDP) was designed to improve the government-to-government relationships between Indian tribes and the United States and to increase the Indian tribes' control over federal funds and the management of their programs. The SGDP places the administration and management of health programs into the hands of the tribal governments. Consequently, this allows flexibility in designing health programs to meet the unique needs of its members.

Alaska Native health care organizations control ninety-nine percent of Alaska's funding from the Indian Health Service. The Alaska regional health care corporations are organized in health care service units that are unique in their culture and transportation patterns. These major service areas include the following: Annette Island, Anchorage, Barrow, Bristol Bay Area, Interior Alaska, Kotzebue, Mt. Edgecumbe, Norton Sound and Yukon-Kuskokwim Delta. Seven hospitals, 24 health centers and 161 village-built clinics, all tribally operated,

provide health care to Alaska Natives. The Alaska Native Medical Center (ANMC), the gatekeeper for specialty care required in all regions of Alaska, is managed by the Alaska Native Tribal Health Consortium (ANTHC) and the Southcentral Foundation (SCF).

Alaska tribal health organizations contract with private practitioners and entities to provide health care services to Alaska natives. These include services from physicians, dentists, hospitals and pharmacies. These contractual arrangements are necessary where services are not readily accessible or available at IHS facilities.

Distance Learning and Telemedicine Program

The Rural Utilities Services, under the auspices of the United States Department of Agriculture, awards loans and grants for the advancement of telecommunications in rural communities through the Distance Learning and Telemedicine Program (DLT). The monies can be used to acquire equipment and technologies to improve the education and health care in the rural communities. Examples of items purchased include computer software and interactive video equipment. Since 1993, eight Alaskan organizations have received DLT awards ranging from \$186,000 to \$500,000. The most recent award grantees from 1999 are listed below:

- The **Tanana Chiefs Conference, Inc.** in Fairbanks provides medical services to tribal members and beneficiaries in Fairbanks and in 25 tribal villages in interior Alaska.
- The **Norton Sound Health Corporation** in Nome uses Telehealth technology in 15 village clinics, IRA tribal government office and two health care providers providing links to health care specialists in Anchorage.
- The **Aleutians East Borough** links training centers, government offices and schools with hospitals in Anchorage to exchange health care information, training classes and videoconferencing.
- The **City of Galena** has a consortium of schools and health centers that provides health services, mental health services and educational opportunities to residents in Galena and Tanana.

Alaska Distance Education Technology Consortium¹⁷

Through the efforts of Alaska Senator Ted Stevens, the United States Congress established the Alaska Distance Education Technology Consortium. The Consortium's charge is to:

- Review the current and future distance education and technology needs for the State of Alaska

¹⁷ * Information obtained and copied, from the Alaska Distance Education Technology Consortium's web-site, with permission from Dr. Michael Sfraga.

- Determine the role of educators, telecommunication companies, community organizations, government agencies, and other stakeholders in meeting these needs
- Develop a long-term distance education and technology strategic plan, including benchmarks for evaluation, that more effectively develops, coordinates, enhances, and expands distance education opportunities as well as Alaska's information technology infrastructure
- Provide to Senator Stevens and the Alaska Delegation a final Consortium report in the Spring of 2001

Issues to Consider in the Development of a Telehealth Delivery Model

1. Determine how telehealth services can be promoted and/ or enhanced by collaborative relationships with Alaskan tribal authorities and Indian Health Services contracted agencies.
2. Determine how telehealth services can be promoted and/ or enhanced by collaborative relationships with Alaska's colleges and universities.
3. Determine if there are other entities in Alaska who may be approached as partners for enhancing and promoting telehealth services.

CONCLUSIONS

There are several factors that must be considered and integrated into the development of a telehealth reimbursement model for Alaska Medicaid:

- ✓ Alaska has a sparse population separated by multiple geographical barriers. Telehealth delivery models must be designed to leverage advantages that circumvent geographical barriers while making the greatest volume of services available to the greatest number of people in a cost-efficient manner.
- ✓ Travel can be challenging and unconventional in Alaska. Telehealth delivery models must insure that people who require services, providers, equipment, and other necessary resources have fluidity.
- ✓ Alaskan society is a mixture of cultures and races, each having differing beliefs and values regarding interaction with the health service delivery system. Telehealth delivery models must recognize cultural attitudes towards health care and how these attitudes may impact the uses of telehealth applications and practices.

- ✓ Given their importance in Alaskan society, there may be a need to design telehealth delivery models with a heightened awareness to Native Alaskans, the Indian Health Services, tribal government and other factors that may influence how these citizens perceive and receive services.
- ✓ The ratios of health providers to Medicaid beneficiaries reveal many areas of Alaska that are underserved. Telehealth delivery models must focus on assisting underserved areas.
- ✓ Alaska has several universities, Internet Service providers, and other hubs that are geographically accessible and technologically advanced. Telehealth delivery models must leverage these resources.
- ✓ Alaska has numerous decentralized population areas and is technologically under-developed, but not to the extent that is stereotypically assumed. Technological conveniences necessary to facilitate telehealth service delivery are plentiful in Alaska, but not standardized. Differences in bandwidth, media, application are prevalent and must be considered. Telehealth delivery models must assist providers locating required infrastructure and must also standardize bandwidth and other factors that may influence the quality of the telehealth system.
- ✓ Alaska's global position invites solar and atmospheric interference with communications that will be used to facilitate telehealth services. Telehealth delivery models must consider how these factors will impact the quality of the health care services provided.
- ✓ The telehealth delivery model must clearly define appropriate types of telehealth interactions.
- ✓ Health delivery in Alaska often requires unique use of health care providers.
- ✓ The telehealth delivery model must clearly define who may render and be reimbursed for telehealth services.
- ✓ While most providers own and/ or operate some equipment traditionally used to facilitate telehealth services, there are variances in the sophistication of the providers' resources. Providers must tap into available sources to fund standardized, appropriate equipment to facilitate telehealth services.

The next installment of this study, "Alaska Medicaid Telehealth Reimbursement Project; III: Coverage and Reimbursement," will consider the issues outlined in this report and attempt to address the following questions:

- What telehealth services should Alaska Medicaid allow and reimburse?
- How will telehealth services be reimbursed?
- How will the referring provider and the consulting provider bill for services rendered?
- What fees will be paid for services?
- What utilization parameters will be established?

- How will quality be standardized and insured?
- What will the licensing requirements be for the referring and consulting providers?
- What MMIS modifications will be required to facilitate reimbursement for telehealth services?

**APPENDIX A:
PROVIDERS¹⁸**

MEDICAID ELIGIBLES' ACCESS TO MEDICAL

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
AKUTAN	Nurse Practitioners	2	9	1 : 5
ANCHOR POINT	Physician Services	1	464	1 : 464
ANCHORAGE	Nurse Practitioners	99	30,301	1 : 309
	Physician Services	1435	30,301	1 : 21
	Therapy Services	80	30,301	1 : 379
	Audiologists	15	30,301	1 : 2020
	Home Health Providers	10	30,301	1 : 3030
	Lab Services	8	30,301	1 : 3788
	Mental Health Services	73	30,301	1 : 415
	Inpatient Services	2	30,301	1 : 15151
	Outpatient Services	2	30,301	1 : 15151
	IHS Hospital	1	30,301	1 : 30301
	IHS Clinic	4	30,301	1 : 7575
	Vision Provider	86	30,301	1 : 352
	Dental Provider	259	30,301	1 : 117
ANIAK	Mental Health Services	1	0	1 : 0
	IHS Clinic	1	0	1 : 0
AUKE BAY	Therapy Services	1	0	1 : 0
BARROW	Physician Services	6	270	1 : 45
	Therapy Services	1	270	1 : 270
	Audiologists	1	270	1 : 270
	Mental Health Services	1	270	1 : 270
	IHS Hospital	1	270	1 : 270
	Dental Provider	2	270	1 : 135
BETHEL	Physician Services	65	1,482	1 : 23
	Audiologists	2	1,482	1 : 741
	Mental Health Services	3	1,482	1 : 494
	IHS Hospital	1	1,482	1 : 1482
	Nurse Practitioners	7	1,482	1 : 212
	Vision Provider	1	1,482	1 : 1482
	Dental Provider	38	1,482	1 : 39
BIG LAKE	Therapy Services	1	605	1 : 605
BREVIG MISSION	Dental Provider	2	142	1 : 71
CHIGNIK BAY	IHS Clinic	1	0	1 : 0
CHUGIAK	Physician Services	2	574	1 : 287
	Therapy Services	1	574	1 : 574
	Mental Health Services	1	574	1 : 574
	Vision Provider	1	574	1 : 574
	Dental Provider	1	574	1 : 574

¹⁸ Based on Medicaid paid claims data for SFY 1999. "Health Service Providers" include enrolled Physician, Therapy, Audiology, Waiver Services, Home Health, Laboratory, Mental Health, Inpatient Facility, Outpatient Facility, IHS Hospitals, IHS Clinics, Nurse Practitioner, Vision or Dental service providers. If data indicates that there is no enrolled provider of the types noted, that provider type is excluded from the table. "Eligibles" include those beneficiaries who were eligible for receipt of Medicaid services during SFY 1999 regardless of whether they accessed services. The table does not reflect services provided by CHA/Ps. "Therapy Services" include physical, occupational, respiratory, and speech therapy.

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
CLAM GULCH	Home Health Providers	1	59	1 : 59
COLD BAY	Nurse Practitioners	4	0	1 : 0
COPPER CENTER	Physician Services	2	182	1 : 91
	Therapy Services	1	182	1 : 182
	Audiologists	1	182	1 : 182
	Mental Health Services	1	182	1 : 182
CORDOVA	Physician Services	26	221	1 : 9
	Home Health Providers	1	221	1 : 221
	Mental Health Services	1	221	1 : 221
	Inpatient Services	1	221	1 : 221
	Outpatient Services	1	221	1 : 221
	Dental Provider	1	221	1 : 221
CRAIG	Physician Services	33	246	1 : 7
	Mental Health Services	1	246	1 : 246
	Dental Provider	8	246	1 : 31
DELTA JUNCTION	Physician Services	4	717	1 : 179
	Nurse Practitioners	2	717	1 : 359
	Dental Provider	4	717	1 : 179
DILLINGHAM	Physician Services	34	519	1 : 15
	Audiologists	2	519	1 : 260
	Home Health Providers	1	519	1 : 519
	Mental Health Services	1	519	1 : 519
	IHS Hospital	1	519	1 : 519
	Vision Provider	2	519	1 : 260
	Dental Provider	34	519	1 : 15
DOUGLAS	Home Health Providers	1	189	1 : 189
	Nurse Practitioners	1	189	1 : 189
EAGLE RIVER	Physician Services	24	1,124	1 : 47
	Therapy Services	9	1,124	1 : 125
	Audiologists	1	1,124	1 : 1124
	Mental Health Services	1	1,124	1 : 1124
	Nurse Practitioners	17	1,124	1 : 66
	Vision Provider	7	1,124	1 : 161
	Dental Provider	13	1,124	1 : 86
ELIM	Dental Provider	1	108	1 : 108
ELMENDORF AFB	Inpatient Services	1	59	1 : 59
	Vision Provider	1	59	1 : 59
ESTER	Dental Provider	1	21	1 : 21
FAIRBANKS	Physician Services	340	6,521	1 : 19
	Therapy Services	22	6,521	1 : 296
	Audiologists	4	6,521	1 : 1630
	Home Health Providers	2	6,521	1 : 3261
	Lab Services	4	6,521	1 : 1630
	Mental Health Services	8	6,521	1 : 815
	Inpatient Services	1	6,521	1 : 6521
	Outpatient Services	1	6,521	1 : 6521
	IHS Clinic	1	6,521	1 : 6521
	Nurse Practitioners	7	6,521	1 : 932
	Vision Provider	23	6,521	1 : 284
	Dental Provider	72	6,521	1 : 91
FORT	Therapy Services	1	0	1 : 0

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
WAINWRIGHT				
FORT YUKON	Physician Services	1	174	1 : 174
	IHS Clinic	1	174	1 : 174
	Dental Provider	2	174	1 : 87
FT WAINWRIGHT	Inpatient Services	1	51	1 : 51
	Outpatient Services	1	51	1 : 51
GALENA	Mental Health Services	1	58	1 : 58
	Dental Provider	2	58	1 : 29
GAMBELL	Dental Provider	2	174	1 : 87
GIRDWOOD	Physician Services	3	72	1 : 24
	Nurse Practitioners	2	72	1 : 36
GLENNALLEN	Physician Services	26	109	1 : 4
	Therapy Services	1	109	1 : 109
	Inpatient Services	1	109	1 : 109
	Outpatient Services	1	109	1 : 109
	Nurse Practitioners	1	109	1 : 109
	Vision Provider	1	109	1 : 109
	Dental Provider	3	109	1 : 36
GUSTAVUS	Physician Services	1	28	1 : 28
HAINES	Physician Services	17	295	1 : 17
	Mental Health Services	1	295	1 : 295
	IHS Clinic	1	295	1 : 295
	Dental Provider	2	295	1 : 148
HOMER	Physician Services	50	1,382	1 : 28
	Therapy Services	4	1,382	1 : 346
	Audiologists	1	1,382	1 : 1382
	Home Health Providers	1	1,382	1 : 1382
	Mental Health Services	3	1,382	1 : 461
	Inpatient Services	1	1,382	1 : 1382
	Outpatient Services	1	1,382	1 : 1382
	IHS Clinic	1	1,382	1 : 1382
	Nurse Practitioners	1	1,382	1 : 1382
	Vision Provider	3	1,382	1 : 461
	Dental Provider	6	1,382	1 : 230
HOONAH	IHS Clinic	1	134	1 : 134
HOUSTON	Nurse Practitioners	1	241	1 : 241
JUNEAU	Physician Services	237	3,104	1 : 13
	Therapy Services	16	3,104	1 : 194
	Audiologists	3	3,104	1 : 1035
	Home Health Providers	3	3,104	1 : 1035
	Lab Services	3	3,104	1 : 1035
	Mental Health Services	10	3,104	1 : 310
	Inpatient Services	1	3,104	1 : 3104
	Outpatient Services	1	3,104	1 : 3104
	IHS Clinic	1	3,104	1 : 3104
	Nurse Practitioners	7	3,104	1 : 443
	Vision Provider	10	3,104	1 : 310
	Dental Provider	24	3,104	1 : 129
	KAKE	IHS Clinic	1	139
KASILOF	Therapy Services	1	219	1 : 219
KENAI	Physician Services	19	1,958	1 : 103

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
	Therapy Services	12	1,958	1 : 163
	Mental Health Services	3	1,958	1 : 653
	Nurse Practitioners	1	1,958	1 : 1958
	Vision Provider	3	1,958	1 : 653
	Dental Provider	7	1,958	1 : 280
KETCHIKAN	Physician Services	108	2,013	1 : 19
	Therapy Services	7	2,013	1 : 288
	Home Health Providers	1	2,013	1 : 2013
	Mental Health Services	5	2,013	1 : 403
	Inpatient Services	1	2,013	1 : 2013
	Outpatient Services	1	2,013	1 : 2013
	IHS Hospital	1	2,013	1 : 2013
	IHS Clinic	2	2,013	1 : 1007
	Nurse Practitioners	2	2,013	1 : 1007
	Vision Provider	3	2,013	1 : 671
	Dental Provider	9	2,013	1 : 224
KING COVE	Nurse Practitioners	6	88	1 : 15
KLAWOCK	IHS Clinic	1	130	1 : 130
	Dental Provider	3	130	1 : 43
KODIAK	Physician Services	145	1,425	1 : 10
	Therapy Services	12	1,425	1 : 119
	Audiologists	2	1,425	1 : 713
	Home Health Providers	2	1,425	1 : 713
	Mental Health Services	3	1,425	1 : 475
	Inpatient Services	1	1,425	1 : 1425
	Outpatient Services	1	1,425	1 : 1425
	IHS Clinic	1	1,425	1 : 1425
	Nurse Practitioners	4	1,425	1 : 356
	Vision Provider	2	1,425	1 : 713
	Dental Provider	16	1,425	1 : 89
KOTLIK	Dental Provider	1	322	1 : 322
KOTZEBUE	Physician Services	12	416	1 : 35
	Mental Health Services	1	416	1 : 416
	IHS Hospital	1	416	1 : 416
	Vision Provider	1	416	1 : 416
	Dental Provider	14	416	1 : 30
KOYUK	Dental Provider	2	119	1 : 60
MCGRATH	Physician Services	1	83	1 : 83
	Mental Health Services	1	83	1 : 83
	IHS Clinic	1	83	1 : 83
	Dental Provider	1	83	1 : 83
METLAKATLA	Physician Services	3	431	1 : 144
	IHS Clinic	1	431	1 : 431
	Dental Provider	2	431	1 : 216
MOUNTAIN VILLAGE	Mental Health Services	1	0	1 : 0
NAKNEK	Physician Services	3	51	1 : 17
	Dental Provider	1	51	1 : 51
NENANA	Mental Health Services	1	134	1 : 134
	IHS Clinic	1	134	1 : 134
	Nurse Practitioners	1	134	1 : 134

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
NINILCHIK	IHS Clinic	1	132	1 : 132
NOME	Physician Services	28	554	1 : 20
	Audiologists	1	554	1 : 554
	Home Health Providers	1	554	1 : 554
	Mental Health Services	1	554	1 : 554
	Inpatient Services	1	554	1 : 554
	Outpatient Services	1	554	1 : 554
	Nurse Practitioners	2	554	1 : 277
	Vision Provider	4	554	1 : 139
	Dental Provider	13	554	1 : 43
NORTH PETERS CREEK	Therapy Services	1	0	1 : 0
NORTH POLE	Physician Services	4	1,535	1 : 384
	Therapy Services	6	1,535	1 : 256
	Vision Provider	2	1,535	1 : 768
	Dental Provider	6	1,535	1 : 256
PALMER	Physician Services	99	2,758	1 : 28
	Therapy Services	8	2,758	1 : 345
	Home Health Providers	1	2,758	1 : 2758
	Mental Health Services	3	2,758	1 : 919
	Inpatient Services	1	2,758	1 : 2758
	Outpatient Services	1	2,758	1 : 2758
	Nurse Practitioners	2	2,758	1 : 1379
	Vision Provider	2	2,758	1 : 1379
	Dental Provider	10	2,758	1 : 276
PETERS CREEK	Physician Services	1	0	1 : 0
PETERSBURG	Physician Services	50	357	1 : 7
	Home Health Providers	1	357	1 : 357
	Mental Health Services	2	357	1 : 179
	Inpatient Services	1	357	1 : 357
	Outpatient Services	1	357	1 : 357
	Dental Provider	2	357	1 : 179
SAINT PAUL	IHS Clinic	1	0	1 : 0
SAND POINT	Mental Health Services	2	110	1 : 55
	Nurse Practitioners	8	110	1 : 14
SAVOONGA	Dental Provider	3	266	1 : 89
SCAMMON BAY	Dental Provider	2	260	1 : 130
SELDOVIA	Physician Services	1	44	1 : 44
	Dental Provider	1	44	1 : 44
SEWARD	Physician Services	81	540	1 : 7
	Therapy Services	2	540	1 : 270
	Mental Health Services	1	540	1 : 540
	Inpatient Services	1	540	1 : 540
	Outpatient Services	1	540	1 : 540
	IHS Clinic	1	540	1 : 540
	Nurse Practitioners	5	540	1 : 108
	Dental Provider	3	540	1 : 180
SHAKTOOLIK	Dental Provider	2	67	1 : 34
SHISHMARAF	Dental Provider	1	0	1 : 0
	Dental Provider	2	177	1 : 89
SITKA	Physician Services	75	880	1 : 12

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
	Therapy Services	7	880	1 : 126
	Audiologists	1	880	1 : 880
	Home Health Providers	2	880	1 : 440
	Mental Health Services	4	880	1 : 220
	Inpatient Services	1	880	1 : 880
	Outpatient Services	1	880	1 : 880
	IHS Hospital	1	880	1 : 880
	Nurse Practitioners	1	880	1 : 880
	Vision Provider	1	880	1 : 880
	Dental Provider	9	880	1 : 98
SKAGWAY	Physician Services	2	33	1 : 17
SOLDOTNA	Physician Services	82	1,796	1 : 22
	Therapy Services	11	1,796	1 : 163
	Audiologists	1	1,796	1 : 1796
	Home Health Providers	2	1,796	1 : 898
	Lab Services	2	1,796	1 : 898
	Inpatient Services	1	1,796	1 : 1796
	Outpatient Services	1	1,796	1 : 1796
	Nurse Practitioners	5	1,796	1 : 359
	Vision Provider	3	1,796	1 : 599
	Dental Provider	7	1,796	1 : 257
ST MICHAEL	Dental Provider	1	181	1 : 181
ST PAUL ISLAND	Dental Provider	1	78	1 : 78
STEBBINS	Dental Provider	2	295	1 : 148
STERLING	Vision Provider	1	375	1 : 375
	Dental Provider	1	375	1 : 375
SUTTON	Therapy Services	1	204	1 : 204
TALKEETNA	Physician Services	10	148	1 : 15
	Therapy Services	1	148	1 : 148
	Dental Provider	1	148	1 : 148
TANANA	IHS Clinic	1	64	1 : 64
TELLER	Dental Provider	1	63	1 : 63
THORNE BAY	Physician Services	2	77	1 : 39
TOGIAK	IHS Clinic	1	361	1 : 361
TOK	Physician Services	4	284	1 : 71
	Mental Health Services	1	284	1 : 284
	Nurse Practitioners	5	284	1 : 57
	Dental Provider	1	284	1 : 284
TRAPPER CREEK	Physician Services	1	111	1 : 111
UNALAKLEET	Dental Provider	3	137	1 : 46
UNALASKA	Mental Health Services	1	58	1 : 58
	Dental Provider	1	58	1 : 58
VALDEZ	Physician Services	46	321	1 : 7
	Therapy Services	1	321	1 : 321
	Home Health Providers	2	321	1 : 161
	Mental Health Services	1	321	1 : 321
	Inpatient Services	1	321	1 : 321
	Outpatient Services	1	321	1 : 321
	Nurse Practitioners	2	321	1 : 161
	Dental Provider	3	321	1 : 107
WASILLA	Physician Services	80	5,462	1 : 68

City	Health Service Provider	Number of Providers	Number of Medicaid Eligibles	Ratio
	Therapy Services	10	5,462	1 : 546
	Audiologists	5	5,462	1 : 1092
	Home Health Providers	1	5,462	1 : 5462
	Mental Health Services	4	5,462	1 : 1366
	Nurse Practitioners	8	5,462	1 : 683
	Vision Provider	6	5,462	1 : 910
	Dental Provider	42	5,462	1 : 130
WHITTIER	Physician Services	1	28	1 : 28
WRANGELL	Physician Services	32	376	1 : 12
	Home Health Providers	1	376	1 : 376
	Mental Health Services	1	376	1 : 376
	Inpatient Services	1	376	1 : 376
	Outpatient Services	1	376	1 : 376
	Vision Provider	1	376	1 : 376
	Dental Provider	2	376	1 : 188
YAKUTAT	Dental Provider	1	80	1 : 80

APPENDIX B: Community Health Aides/ Practitioners List ¹⁹

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
ANCHORAGE SERVICE REGION						
<i>Aleutian/Pribilof Islands Association</i>						
Atka	PO Box 47047	99547	839-2232 / Fax 839-2239	2	Teresa Prokopeuff, CHP	Sylvia Zaachney, CHA
Nikolski	General Delivery	99638	576-2204 / Fax 576-2228	1	Ruth Barraclough, CHA	
St. Paul Island	PO Box 148	99660	546-2310 / Fax 546-2268	3	Jama Rukovishnikoff, CHP	Kari Ann Mercurief, CHA
					Pauline Rukovishnikoff, CHA	
Unalaska	PO Box 1130	99685	581-2742 / Fax 581-2040	2	Irene McGlashan, CHP	Lottie Roll, CHP
<i>Bristol Bay Area Health Corporation</i>						
Iliamna	PO Box 265	99606	571-1383 / Fax 571-1560	2	Louise Anelon, CHP	Renee Newton, CHA
Kokhanok	PO Box 1008	99606	282-2203 / Fax 282-2240	2	Sassa Wassillie, CHP	Martha Neilsen, CHA/ltn
Newhalen	PO Box 227	99606	571-1231 / Fax 571-1551	2	Anna Lamont, CHP	Cecilia Olympic, CHP
Nondalton	PO Box 69	99640	294-2238 / Fax 294-2240	3	Claudine Greene, CHP	Melissa Carltikoff, CHA
					Ron Lofffield, CHP	
Pedro Bay	PO Box 47025	99647	850-2229 / Fax 850-3000	1	Nancy Jensen, CHA	
<i>Chitina Traditional Village Council</i>						
Chitina	PO Box 31	99566	823-2213 / Fax 823-2257	2	Sarah Nelson	Charlie Ketcham
<i>Chugachmiut</i>						
Chenega Bay	PO Box 8029	99562	573-5129 / Fax 573-5148	2	Joyce Kompkoff, CHP	Andy McLaughlin, CHA

¹⁹ Provided by the Alaska Native Medical Center

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Nanwalek	PO Box 8023	99603	281-2251 / Fax 281-2244	3	Vince Evans, CHP	Roberta Sjoblom, CHA
					Ephim Moonin, CHP	
Port Graham	PO Box 5530	99603	284-2241 / Fax 284-2277	3	Darlene Anahonak, CHP	Agnus Miller, CHA
					Elenore McMullen, CHP	
Tatitlek	PO Box 172	99677	325-2235 / Fax 325-2350	2	Herman Geffe, Sr., CHP	June Totemoff, CHP
Copper River Native Association						
Cantwell	PO Box 56	99729	768-2122 / Fax 768-2150	1	Veronica Nicholas, CHP	
Copper Center	Box 1	99573	822-3541 / Fax 822-3085	2	Alice Hand, CHP	Gretchen Rothfuss, CHA
Gakona/Gulkana	PO Box 253	99586	822-3646 / Fax 822-5795	1	Ann Kosbruk, CHA	
Eastern Aleutian Tribes						
Akutan	PO Box 113	99553	698-2208 / Fax 698-2280	1	Vacant	
Cold Bay	PO Box 65	99571	532-2000 / Fax 532-2001	1	Vacant	
False Pass	PO Box 49	99583	548-2241 / Fax 548-2247	2	Sandra Perry, CHA	Nicole Hoblet, CHA
King Cove	PO Box 9	99612	497-2311 / Fax 497-2310	2.5	Linda Mack, CHA	Irene Newman, CHA
					Jenny Kenezuroff, CHP	
Nelson Lagoon	General Delivery	99571	989-2202 / Fax 989-2245	2	Cynthia Hartman, CHP	Leslie Carver, CHA
Sand Point	PO Box 172	99661	383-3151 / Fax 383-5688	3	Ingrid Carlson, CHP	Karen Sue Hill, CHA
					Terry Murphy, CHA	
Karluk Tribal Council						
Karluk	PO Box 22	99608	241-2212 / Fax 241-2208	2	Mary Reft, CHA	Sarah Wasellie, CHA
Kodiak Area Native Association						
Akhiok	PO Box 5009	99615	836-2230 / Fax 836-2224	1	Linda Amodo, CHA	
Kodiak	3449 E. Rezanof Dr.	99615	800-478-5721 / Fax 486-9898	0		
Larsen Bay	PO Box 127	99624	847-2208 / Fax 847-2264	2	Judene Brenteson, CHP	Valen Norell, CHA
Old Harbor	PO Box 72	99643	286-2205 / Fax 286-2255	2	Bruce Green, CHA	Vacant

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Ouzinkie	PO Box 149	99644	680-2265 / Fax 680-2292	2	Melodi Chichenoff, CHA	Love Panamarloff, CHA
Port Lions	PO Box 12	99550	454-2275 / Fax 454-2526	3	Ann Squartsoff, CHP Sarah Nelson, CHA	Kari Nelson, CHA
Mt. Sanford Tribal Consortium						
Chistochina	PO Box 241	99586	822-3280 / Fax 822-3944	1	Marilee Hamilton, CHP	
Mentasta Lake	PO Box 600	99780	291-2320 / Fax 291-2308	2	Carolyn "Nora" David, CHP	Sandy John, CHA
Native Village of Tyonek						
Tyonek	PO Box 82068	99682	583-2461 / Fax 583-2155	2	Walter Starkloff, CHP	Angie Constantine, CHA
Ninllchik Traditional Council						
Ninllchik	PO Box 39368	99639	567-3970 / Fax 567-3902	2	Helena Bock, CHP	Colette Ohm, CHA
St. George Island						
St. George Island	PO Box 934	99591	859-2254 / Fax 859-2252	1	Julie Meredith, CHP	
Tanana Chiefs Conference Inc.						
McGrath	PO Box 10	99627	524-3299 / Fax 524-3805	1	Vacant	
Nikolai	PO Box 9164	99691	293-2328 / Fax 293-2330	1.5	Ann Alexia, CHP	Vacant
Takotna	PO Box 111	99675	298-2214 / Fax 298-2014	2	Mary Marcoe, CHP Fred Capsul, CHA	Nell Huffman, CHA
ANNETTE ISLAND SERVICE REGION						
Metlakatia Indian Community						
Metlakatia	PO Box 439	99926	886-4741 / Fax 886-4788	4	Sandy King, CHP Jody Leisholmn, CHA	Gloria Booth, CHA Pam Leask, CHA
BARROW SERVICE REGION						

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
North Slope Borough Health & Social Services Agency						
Anaktuvuk Pass	PO Box 21049	99721	661-3914 / Fax 661-3916	2	Cora Nay, CHA	Donna Hugo, CHA
Atqasuk	PO Box 91103	99791	633-6711 / Fax 633-6916	2	Ethel Olive Nungasak, CHA	Vacant
Barrow	PO Box 69	99723	852-0260x0366/Fax 852-0268	3	Jhy-sian "Ani" Wee, CHA	Stephanie Thomas
					Janet Grimm, CHA	
Kaktovik	PO Box 86	99747	640-6413 / Fax 640-6916	3	Glenda Lord, CHP	Sandi Ahlers, CHA
					Mary Margaret Brower, CHP	
Nuiqsut	PO Box 247	99789	480-6720 / Fax 480-6728	2	Annabelle Coleman, CHA	Olivia Cabinboy
Point Hope	PO Box 49	99766	368-2234 / Fax 368-2569	3	Dorothy Koenig, CHP	Darlene Lane, CHP
					Ethel Booshu, CHP	
Point Lay	PO Box 7	99759	833-2526 / Fax 833-2916	2	Vacant	Vacant
Walnwright	PO Box 90	99782	763-2714 / Fax 763-2416	3	Stella Anasogak, CHP	Sandra Ahmaogak, CHA
					Tim Morgan, CHP	
BRISTOL BAY AREA SERVICE REGION						
Bristol Bay Area Health Corporation						
Aleknagik	North PO Box 73	99555	North 842-5512/Fax 842-2134	2	North	South
	South PO Box 147		South 842-2185/Fax 842-1260		Margie Aloyslus, CHP	Berna Andrews, CHP
Chignik Bay	PO Box 90	99564	749-2282 / Fax 749-2411	2	Sally Hill, CHP	Jeanette Carlson, CHP/ltn
					Alana Anderson, CHP	
Chignik Lagoon	PO Box 25	99565	840-2218 / Fax 840-2263	2	Sue Anderson, CHP	Rhonda Gregario, CHP
Chignik Lake	PO Box 2236	99548	845-2236 / Fax 845-2223	2	Nana Kalmakoff, CHP	Eddie Slaton, CHP
Clarks Point	PO Box 49	99569	236-1232 / Fax 236-1406	1	Imogene Gardiner, CHP	
Egegik	PO Box 114	99579	233-2229 / Fax 233-2328	2	Joyce Elvenjem, CHP	Victoria Agnes, CHA
Ekwok	PO Box 11	99580	464-3322 / Fax 464-3362	2	Carol Nicoll, CHP	Rhonda Hurley, CHP
Goodnews Bay	General Delivery	99589	967-8128 / Fax 967-8928	3	Sally Martin, CHP	Lydia Schouten, CHP
Igiugig	PO Box 4030	99613	533-3207 / Fax 533-3225	2	Delores Askoak, CHP	Renae Zachar, CHA
Ivanof Bay	PO Box KIB	99695	669-2213 / Fax 669-2214	2	Lori Kalmakoff, CHA	
King Salmon	PO Box 357	99613	246-3322 / Fax 246-3691	2	Ruthann Angansan, CHP	Martha Johnson, CHP

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Koliganek	PO Box 5060	99576	596-3431 / Fax 596-3491	2	Anna Marie Merlino, CHP Charlie Kapotak, CHP/Itn	Sophia Noden, CHA/T
Levelock	PO Box 49	99625	287-3011 / Fax 287-3035	2	Angelina Chukwak, CHP	Vacant
Manokotak	PO Box 129	99628	289-1077 / Fax 289-2015	3	Jeweline Ayojiak, CHP Sally Nukwak, CHA	Hillary Toyukak, CHA
Naknek	PO Box 192	99633	246-4214 / Fax 246-3761	3	Jeryl Ann Morrison II, CHP Sheri L. Wassillie, CHP	Stephanie Rush, CHA
New Stuyahok	PO Box 109	99636	693-3131 / Fax 693-3293	4	Gloria Hanson, CHP Sohie Anna Gust, CHA	Delores Walcott, CHA Sophie Wonhola, CHA
Perryville	PO Box 78	99648	853-2202 / Fax 853-2260	2	Elizabeth Kosbruk, CHP	Tisha O'Domin, CHA
Pilot Point	PO Box 416	99649	797-2212 / Fax 797-2227	2	Sue Evanoff, CHP M. Caroline Finney, CHP	Douglas Finney, CHA
Platinum	General Delivery	99651	/ Fax 979-8314	2		
Port Heiden	General Delivery	99549	837-2208 / Fax 837-2277	2	Elaine Holm, CHP	Billie Jo Christensen, CHA
South Naknek	PO Box 70049	99670	246-6546 / Fax 246-3693	2	Eva Nielsen-King, CHP	Alice Hogden, CHA
Togiak	PO Box 70	99678	493-5511 / Fax 493-5311	4	Carolyn Carlos, CHP Dorothy Greenley, CHP/Itn	LaVern Katchatag, CHA Shirley Wassillie, CHP
Twin Hills	PO Box TWA	99678	525-4326 / Fax 525-4325	1	Anecia Active, CHA	
INTERIOR SERVICE REGION						
Council Athabascan Tribal Governments						
Artic Village	PO Box 30	99722	587-5229 / Fax 587-5239	2.5	Jean Tritt, CHA	Vacant
Beaver	PO Box 24030	99724	628-6228 / Fax 628-6228	1.5	Cindy Wiehl, CHA	Vacant
Birch Creek	PO Box KBC	99740	221-2537	1	Carolyn Bigjoe	Vacant
	Via Ft. Yukon					
Chalkyitsik	PO Box 42	99788	848-8215 / Fax 848-8696	2	Marilyn Alexander, CHA	Amanda Salmon
Circle	PO Box 109	99733	773-7425 / Fax 773-7425	2	Ruth Crow, CHA	Peggy Carroll, CHA
Fort Yukon	PO Box 309	99740	662-2460 / Fax 662-2709	2	Adlai Alexander, CHP	Debbie Mcarty, CHP
Venetie	PO Box 70	99781	849-8712 / Fax 849-8915	2.5	Mildred Hansen, CHA Gina Rustad, CHA	Vacant

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Tanana Tribal Council						
Tanana	PO Box 150	99777	366-7222 / Fax 366-7249	2	Helena Carlo, CHA	Curtis Sommer, CHP
Tanana Chiefs Conference Inc.						
Alatna	PO Box 49	99720	968-2314 / Fax 968-2305	1	Clara Sam, CHP	
Allakaket	PO Box 10	99720	968-2248 / Fax 968-2214	2	Elsie Bergman, CHP	Gladys Bergman, CHA
Dot Lake	PO Box 2273	99737	882-2737 / Fax 882-2774	2.5	Annie John, CHP	Vacant
					Michelle Miller, CHA	
Eagle	PO Box 134	99738	547-2243 / Fax 547-2287	2	Bruce Atkinson, CHP	Yvonne Howard, CHA
Evansville	PO Box 26107	99726	692-5035 / Fax 692-5035	1.5	Susan Hanshew, CHA	Vacant
Fairbanks	1867 Airport Way,	99701	(1-800-478-6682 x3401)	7	Helen Attla, CHP/ltn	Mary Darry, CHA/ltn
	Suite 155		452-8251 x3400 / Fax 459-3986		Lawrence Boone, CHP/ltn	Alberta Vent, CHP/ltn
					Darlene Bifelt-Parrish, CHP	Nolita Madros, CHP
					M. Lisa Isaac, CHA	
Galena	PO Box 77	99741	656-1366 / Fax 656-1525	1	Hattle Peter, CHP	
Healy Lake	PO Box 60300	99706	876-5036 / Fax 876-5013	1.5	JoAnn Polston, CHA	Vacant
	Via Fairbanks					
Hughes	PO Box 45049	99745	889-2211 / Fax 889-2231	1.5	Vacant	Vacant
Huslia	PO Box 90	99746	829-2204 / Fax 829-2203	3	Paula Bifelt, CHP	Margie Ambrose, CHA
					Lisa Bifelt, CHA	
Kaltag	PO Box 148	99748	534-2209 / Fax 534-2216	3	Henry Nickoll, CHA	Susie Nickoll, CHA
					Dora Nickoll, CHA	
Koyukuk	PO Box 30	99754	927-2221 / Fax 927-2221	2	Vacant	Vacant
Manley Hot Springs	PO Box 83	99756	672-3333 / Fax 672-3333	1.5	Vacant	Vacant
Minto	PO Box 77	99758	798-7412 / Fax 798-7413	2.5	Agnes Silas, CHA	Vacant
					Vacant	
Nenana	PO Box 160	99760	832-5247 / Fax 832-5585	2	Judith Holbert, CHP	Janice Suckling, CHP
Northway	PO Box 517	99764	778-2283 / Fax 778-2237	2	Sylvia Pitka, CHP	Adeline Gallen, CHP
Nulato	PO Box 65010	99765	898-2209 / Fax 898-2304	3	Sharon Agnes, CHP	Kimberly George,

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
						CHA
					Martina Ekada, CHP	
Rampart	PO Box 67049	99767	358-3129 / Fax 358-3139	1.5	Vacant	Vacant
Ruby	PO Box 74	99768	468-4433 / Fax 468-4411	2.5	Edna Peters, CHA	Florence Inlow, CHA
					Esther McCarty, CHA	
Stevens Village	PO Box 74030	99774	478-7215 / Fax 478-7216	1.5	Rosemary Wiehl, CHP	Vacant
Tanacross	PO Box 76050	99776	883-4131 / Fax 883-3372	2	Diane Titus, CHA	Vacant
Tetlin	PO Box TTL	99779	324-2151 / Fax 324-2131	2	Kathleen Mark, CHP	Natalie Sam, CHP
KOTZEBUE SERVICE REGION						
<i>Maniilaq Association</i>						
Ambler	PO Box 110	99786	445-2129 / Fax 442-7022	3	Emily Douglas, CHP	Nellie Sheldon
					Gladys Downey, CHA	Ila Griepentrog
Buckland	PO Box 9	99727	949-2122 / Fax 442-7072	4	Janice Lee, CHP	Eva Dorothy Lee, CHA
					Amy Carter, CHP	Anita Ballot, CHA
Deering	PO Box 23	99736	363-2137 / Fax 442-7062	2	Brenda Karmun, CHP	Sheila Gregg, CHP
Kiana	PO Box 130	99749	475-2199 / Fax 442-7052	3.5	Dolly Smith, CHP	Diana Clark, CHA
					Rosa Atoruk, CHA	Vacant
Kivalina	PO Box 8	99750	645-2141 / Fax 442-7092	3	Isabelle Booth, CHP	Henrietta Adam, CHA
					Myra Adams, CHP	
Kobuk	PO Box 3	99751	948-2218 / Fax 442-7012	2	Beatrice Barr, CHA	Vacant
Noatak	PO Box 90	99761	485-2162 / Fax 442-7042	3	Esther Barger, CHP	Lucy Shy
					Cheryl Graves, CHP	Della Pungalik
Noorvik	PO Box 189	99763	636-2103 / Fax 442-7002	4	Sally Harvey, CHP	Rosaline Sampson, CHA
					Colleen Hoffman, CHA	Cynthia Coffin, CHA
					Annie Sheldon, CHP	
Selawik	PO Box 180	99770	484-2199 / Fax 442-7082	4.5	Elsie Dexter, CHP	Krystal Ballot, CHA
					Florence Mitchell, CHP	Amelia Ballot
					Ramona Sheldon, CHP	
Shungnak	PO Box 80	99773	437-2138 / Fax 442-7032	3	Rosie Barr, CHP	Charlene Tickett
					Lottie Tickett, CHP	

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
MT. EDGE CUMBE SERVICE REGION						
<i>Hoonah Indian Association</i>						
Hoonah	PO Box 103	99829	945-3235 / Fax 945-3239	3	Carlie Brown, CHP	Wilford Wolf Jr., CHA
					Lily Hughes, CHA	
<i>Southeast Alaska Regional Health Corporation</i>						
Angoon	PO Box 27	99820	788-3633 / Fax 788-3180	4	Jessie Jim, CHP	Lena Woods, CHP
					Gail Tharpe-Lucero, CHP	Daphne Demmert, CHP
Hydaburg	PO Box 333	99922	285-3462 / Fax 285-3464	3	Julia Wissiup, CHP	Greg Dilts, CHP
					Anna Frisby, CHP	
Kake	PO Box 605	99830	785-3333 / Fax 785-3136	4	Marcia Aceveda, CHP	Edna Charley, CHP
					Billie Alsup, CHP	Paul Reese, CHP
Klawock	PO Box 69	99925	755-4800 / Fax 755-4804	4	Candace Dobbins, CHP	J. George Nickerson CHP
					Ida Rudick, CHP	Syliva Montero, CHP
Klukwan via Haines	PO Box 690	99827	767-5592 / Fax 767-5599	0.5	Jan Hotze, CHP	
Pelican	PO Box 101	99832	735-2250 / Fax 735-2550	1	Harry Wasserman, CHP	
<i>Yakutat</i>						
Yakutat	PO Box 112	99689	784-3275 / Fax 784-3263	2	Barbara Johnson, CHP	Karen White, CHA
<i>Native Village of Diomede</i>						
Little Diomede	PO Box 7059	99762	686-3311 / Fax 686-2181	2	Martha Klyouktuk, CHA	Becky Kunayak, CHA
NORTON SOUND SERVICE REGION						
<i>Norton Sound Health Corporation</i>						
Brevig Mission	PO Box 85058	99785	642-4311 / Fax 642-2216	2	Helen Olanna, CHP	Adrian Barr
					Leonard Adams, CHP	
Elim	PO Box 69	99739	890-3311 / Fax 890-2280	2.5	Evelyn Keith, CHP	Lillian Amaktoolik, CHA

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
					Jeanne Jemewouk, CHA	Arlene Saccheus, CHP
Gambell	PO Box 190	99742	985-5012 / Fax 985-5085	3	Bonnie Armstrong, CHA	Sharon Campbell, CHA
					Veronica James, CHA	Julie Ann Anderson, CHA
					Susie Boolowon, CHA	
Golovin	PO Box 62039	99762	779-3311 / Fax 779-2239	2.5	Irene Aukongak, CHP	Rodney Lewis, CHA
					Maria Dexter, CHA	Crystal Fagerstrom, CHA
Koyuk	PO Box 70	99753	963-3311 / Fax 963-3610	2	Norma Kavairlook, CHP	Katherine Thiemeyer, CHP
					Georgianne Anasogak, CHP	
Nome (NSHC)	PO Box 966	99762	443-3403 / Fax 443-3610	0		
St. Michael	PO Box 94	99659	923-3311 / Fax 923-2287	2.5	Virginia Shipton, CHP	Paul Myomick, CHA
					Diane Acoman, CHP	Vacant
Savoonga	PO Box 151	99769	984-6513 / Fax 984-6068	2.5	Wanda Okoomealingok, CHP	Rosemary Akeya, CHA
					Elsie Pelowok, CHP	Millie Kingeekuk, CHA
Shaktoolik	PO Box 9	99771	955-3311 / Fax 955-2342	2	Diane Paniptchuk, CHP	Sophia Saveuilk, CHA
					Shyrel Taylor, CHA	
Shishmaref	PO Box 133	99772	649-2127 / Fax 649-3311	4.5	Sheryl Nayokpuk, CHP	Judy Eningowuk, CHP
					Amella Kuzuguk, CHP	Florence Kuzuguk, CHA
					Melissa Ningealook, CHP	
Stebbins	PO Box 50	99671	934-3311 / Fax 934-3312	3	Anthony Niksik, CHP	Mary Jane Mercullef, CHP
					Geraldine Niksik, CHA/Itn	Jolene Thrasher, CHP
Teller	PO Box 545	99778	642-3311 / Fax 642-2046	2.5	Ann Atwood, CHA	Mildred Keelick, CHA
					Melanie Wasky, CHA	
Unalakleet	PO Box 189	99684	624-3535 / Fax 624-3692	5	Ella Aglbinik, CHP	Sharon Johnson, CHP
					Arlene Soxie, CHP	Rose Towarak, CHP
					Linda Towarak, CHP	

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Wales	PO Box 530	99783	664-3311 / Fax 664-2135	2.5	Linda Ongtowasruk, CHA	Veronica Oxereok, CHA
					Jackie Crisci, CHA	
White Mountain	PO Box 29	99784	638-3311 / Fax 638-2007	1.5	Kriscilla Buck, CHP	Carol Ashenfelter, CHA
					Willa Ashenfelter, CHP	
YUKON-KUSKOKWIM DELTA SERVICE REGION						
<i>Akiachak Native Community</i>						
Akiachak	General Delivery	99551	825-4011 / Fax 825-4173	4	Ickley Charles, CHP	Clara George, CHA
					Moses Frederick, CHP	Agnes Williams, CHA
<i>Native Village of Kwinhagak</i>						
Quinhagak	PO Box 150	99655	/ Fax 556-8340	5.5	Martha Bavilla, CHP	Pauline Beebe, CHA
					Marie Smith, CHP	Fannie Hernandez, CHA
					Carol Church, CHA	Grace Friendly, CHP
<i>Yukon-Kuskokwim Health Corporation</i>						
Akiak	PO Box 216	99552	765-7125 / Fax 785-7856	3	Dorothy Andrews, CHP	Mary Phillip, CHP
					Sarah Jasper, CHP	Hannah Gilla, CHA
Alakanuk	PO Box 167	99554	238-3210 / Fax 238-3706	4	Ida Duny, CHP	Brenda Bob, CHA
					Paula Ayunerak, CHA	Bernadette Hanson, CHA
					Marlene Ayunerak, CHA	
Aniak	PO Box 269	99557	675-4556 / Fax 675-4560	4	Jarraine Underwood, CHP	Anthony Brown, CHA
					Helen Kvamme, CHP	Jackie Wassilie
Anvik	PO Box 89	99558	663-6334 / Fax 663-6326	2.5	Melody Deacon, CHP	Shannon Chase, CHA
					Christy Ticknor, CHA	
Atmautiuk	PO Box 6588	99559	553-5114 / Fax 553-5412	2	Irene Beaver, CHP	Bertina Pavilla, CHA
Bethel	PO Box 528	99559	800-478-4471/Fax 543-6143	5	Olivia Horn-Moses, CHP	Balassa Larson, CHP
					Elena Nelson-Rothschild,	Martha Attie, CHP

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
					CHP	
					Julia Street, CHP	
Chefornak	PO Box 49	99561	867-8919 / Fax 867-8717	3	Cecilia Burnett, CHP	Pauline Wasill, CHP
					Martha Lewis-Yohak, CHP	
Chevak	PO Box 212	99563	858-7029 / Fax 858-7027	6	Stella Lake, CHP	Dorothy Tuluk, CHP
					Rose Kanrilak, CHP	Susie Tall-Friday, CHP
					Maria Boyscout, CHP	Ruth Imgalrea, CHP
Chauthbaluk	General Delivery	99557	467-4114 / Fax 467-4317	3	Sophie Sakar, CHP	Olga Borowski, CHA
					Sinka Sakar, CHP	
Crooked Creek	PO Box 49	99575	432-2222 / Fax 432-2221	3	Marie Inman, CHP	Lorraine Parent, CHP
					Helen Macar, CHP	
Eek	PO Box 69	99578	536-5314 / Fax 536-5732	3.5	Carlie Beebe, CHP	Katy Miller, CHP
					Elena Friendly, CHA	Verna Henry, CHA
Emmonak	PO Box 125	99581	949-1428 / Fax 949-1511	4	Norma Shorty, CHP	Judy Redfox, CHA
					Lucy Hootch, CHA	Brenda Hoover, CHA
Grayling	General Delivery	99590	453-5119 / Fax 453-5119	2	Mary Deacon, CHP	Dora Peter, CHA
					Eric Nicholi, CHP	
Holy Cross	PO Box 95	99602	476-7174 / Fax 476-7193	2.5	Carolyn Campbell, CHA	Phyllis Gregory, CHA
					Arlene Turner, CHA	
Hooper Bay	PO Box 49	99604	758-4711 / Fax 758-4065	4	Victor Bell, CHP	Rose Long
					Linda Matchian, CHP	Lena Joe
					Roberta Tinker, CHA	
Kaiskag	PO Box 9	99607	471-2276 / Fax 471-2283	2	David Dorris, CHP	Earlene Wise, CHP
Kasigluk	PO Box 99	99609	477-6211 / Fax 477-6120	4	Anna Tinker, CHP	Balasia Tinker, CHP
					Irene Demientieff, CHP	Kathleen Brink, CHA
Kipnuk	PO Box 183	99614	896-5334 / Fax 896-5537	3	Shirley Fox, CHA	Samual Carl, CHA
					Martha Attie, CHP	
Kongiganak	PO Box 5089	99559	557-5127 / Fax 557-5620	3	Evelyn Andrew, CHP	Pauline Igkurak, CHA
					Elizabeth Phillip, CHA	
Kotlik	PO Box 20035	99620	899-4511 / Fax 899-4414	4	Barbara Uisok, CHP	Betty Waska, CHA
					Adela Okitkun, CHP	Lavina Tony, CHA

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Kwethluk	PO Box 69	99621	757-6627 / Fax 757-6626	7	Anna David, CHP	Martha Olick, CHP
					Elena Egoak, CHP	Martha Constantine, CHA
					Larissa Speln, CHP	Michelle Olick, CHA
					Elena Alexie, CHP	Isaac Rivers, CHA
Kwigillingok	PO Box 69	99622	588-8813 / Fax 588-8526	4	Christine Andrew, CHA	Julianna Lake
					Elizabeth Evon, CHP	Leondard Manchuak
Lime Village	General Delivery	99627	526-5113 / Fax 526-5116	2	Rose Alexie, CHA	Richard Breckheimer, CHP
					Marie Graham, CHA	
Lower Kaiskag	PO Box 97	99626	471-2294 / Fax 471-2258	3	Agnes Kameroff, CHP	Renee Nook, CHA
					Natasia Evan, CHA	
Marshall	PO Box10	99585	679-6226 / Fax 679-6659	2	Elizabeth Fitka, CHP	Ida Alexie-Boliver, CHP
Mekoryuk	PO Box 7	99630	827-8145 / Fax 827-8351	2	Sally Whitman, CHP	Harriet Shavings, CHP
Mountain Village	PO Box 32207	99632	591-2620 / Fax 591-2576	7	Inez Brown, CHP	Beth Alexie, CHP
					Debra Johnson, CHP	Alvina Goetez, CHA
					Martha Chiklak, CHP	Jack Polty, CHA
					Gloria George, CHP	Charlene Wild, CHA
Napakiak	PO Box 70	99634	589-2711 / Fax 589-2614	3	Gertrude Evan, CHP	Peter Nelson, CHP
					Julia Jimmy, CHP	
Napaskiak	PO Box 6044	99559	737-7329 / Fax 737-7435	3.5	Alexandra Larson, CHP	Rebecca Paul, CHA
					Nellie Husa, CHP	Janet Clark, CHA
Newtok	General Delivery	99559	237-2111 / Fax 237-2715	3	Natalia Tommy, CHA	Simeon Fairbanks, Jr.
					Sally Kilongak, CHP	
Nightmute	PO Box 90011	99690	647-6312 / Fax 647-6945	2	Martha Angus, CHP	Rosemarie Tulik, CHA
Nunapitchuk	PO Box 50	99641	527-5329 / Fax 527-5872	3	Julie Twitchell, CHP	Alice Alexie, CHA
					Eliza Berlin, CHA	Tom Andrew St., CHP
Oscarville	PO Box 6149	99559	737-7231 / Fax 737-7075	1.5	Marie Jacob, CHP	Janet Clark, CHA
Pilot Station	PO Box 5089	99650	549-3127 / Fax 549-3738	4	Regina Paul, CHP	Beverly Tinker, CHA
					Molly Francis, CHA	Bertha Harry, CHA

Village	Address	Zip	Phone / Fax	#FTE	Health Aides	
Pitka's Point	PO Box 229	99658	438-2546 / Fax 438-2317	1	Martha Waskey, CHA	
Red Devil	General Delivery	99656	447-3243 / Fax 447-3244	1	Lillian Kinegak, CHA	
Russian Mission	PO Box 58	99657	584-5611 / Fax 584-5830	3	Olga Wigley, CHP Mae Housler, CHP	Sheila Minoch, CHP
St. Mary's	PO Box 310	99658	438-2105 / Fax 438-2049	4.5	Joseph Afcan, CHP Joann Long, CHP Paul Thompson, CHP	Emily Pauken, CHP Molly Westdahl, CHA Dorena Pauken, CHP
Scammon Bay	PO Box 150	99662	558-5511 / Fax 558-5822	2.5	Gemma Akerelea, CHP Norma Tunutmoak, CHP	Betty George, CHP
Shageluk	PO Box 54	99665	473-8231 / Fax 473-8213	1.5	Flossie Semone, CHP	Betty Howard, CHP
Sheldon Point	General Delivery	99666	498-4228 / Fax 498-4844	1	Angela Afcan, CHA	
Sleetmute	PO Box 43	99668	449-4222 / Fax 449-4219	2	Jenny Zaukar, CHP Gladys Frederick, CHA	Natalie Zaukar-Pepperling, CHA
Stony River	PO Box SRV	99557	537-3228 / Fax 537-3227	2	Chris Golden, CHP	Vacant
Toksook Bay	PO Box 37028	99637	427-7810 / Fax 427-7380	4.5	Anna John, CHP Simeon Moses, CHP Henry Friday, CHP	Myra Sipary, CHA Anna Lincoln, CHA
Tuluksak	PO Box 194	99679	695-6991 / Fax 695-6627	3	Agatha Fly, CHA Margaret Andrew, CHA	Josephine Gregory, CHA
Tuntutuliak	General Delivery	99680	256-6829 / Fax 256-2129	3	Helen Pavilla, CHP Yako Wassilie, CHA	Margaret Pavila, CHA
Tununak	PO Box 102	99681	652-6829 / Fax 652-6512	3	Bertha Ohman, CHP Alma Kanrilak, CHA	Denise Hooper, CHA

APPENDIX C: Tribal Units (by IHS Service Unit)

The following tribes are served by IHS in Alaska:

Annette Island Service Unit

Metlakatla Indian Community
(Annette Island Reserve)

Anchorage Service Unit

Afognak
Akhiok
Akutan
Alexander Creek
Anton Larsen, Inc.
Ayakulik
Belkofsky (Belkofski)
Bells Flats
Cantwell
Caswell Native Association
Chanega Native Village
Chene ga
Chickaloon
Chistochina
Chitina
Copper Center
Eklutna
English Bay
Eyak
False Pass
Gakona
Gulkana
Iliamna
Kaguyak
Karluk
Kenai Native Assoc., Inc.
Kenaitze Indian Tribe
King Cove
Knik
Kokhanok
Larsen Bay
Leisnol, Inc.
Lime Village
Litnik
Mentasta Lake
Montana Creek

Native Village of Karluk
Native Village of Atka
Natives of Kodiak
Nelson Lagoon
Newhalen
Nikolski Native Village
Ninilchik Native Assoc.
Oakunashka Corp.(Unalaska)
Old Harbor
Ouzinkie
Port Graham
Port Lions
Salamatof Native Assoc.
Sand Point
Seldovia
St. Paul
St. George
Tatitlek
Tazlina
Tyonek Native Village Natives, Inc.
Uganik Natives, Inc.
Unalaska
Uyak Natives, Inc.

Barrow Service Unit

Atkasook
Barrow
Kaktovik
Nooiksut
Point Lay
Wainwright

Bristol Bay Service Unit

Aleknagik
Chignik
Chignik Lake
Chignik Lagoon
Clark's Point
Dillingham
Egegik
Ekuk
Ekwok
Goodnews Bay
Igiugig
Ivanof Bay
Kokhanok

Kolignek
Levelock
Manokotak
Naknek
New Stuyahok
Nondalton
Pedro Bay
Perryville
Pilot Point
Platinum
Port Heiden
Portage Creek
South Naknek
Togiak
Twin Hills
Ugashik

Interior Alaska Service Unit

Allakaket
Anaktuvuk Pass
Arctic Village
Beaver
Birch Creek
Canyon Village
Chalkyitsik
Circle
Dot Lake
Eagle
Evansville (Bettles)
Fort Yukon
Galena
Healy Lake
Holy Cross
Hughes
Huslia
Kaltag
Koyukuk
Manley Hot Springs
McGrath
Minto
Nenana
Nikolai
Northway
Nulato
Rampart
Ruby

Stevens Village
Takotna
Tanacross
Tanana
Telida
Tetlin
Venetie Native Village

Kotzebue Service Unit

Ambler
Buckland
Deering
Deering Native Village
Kiana
Kivalina
Kobuk
Kotzebue
Noatak Native Village
Noorvik
Pt. Hope
Selawik
Shungnak

Mt. Edgcumbe Service Unit

Angoon Community Assoc.
Central Council of Tlingit
and Haida Indian Tribes
Chilkat Indian Village of Klukwan
Chilkoot Indian Assoc. of Haines
Craig Community Association
Douglas Indian Association
Goldbelt, Inc. (Juneau)
Hoonah Indian Association
Hydaburg Cooperative Association
Kake, Organized Village of Kake
Kasaan
Ketchikan Indian Corp.
Klawock
Petersburg Indian Association
Saxman, Organized Village of Saxman
Sitka Community Association
Wrangell Cooperative Association
Yak-Tat Kwaan, Inc. (Yakutat)

Norton Sound Service Unit

Brevig Mission

Council
Diomedede Native Village
Elim
Gambell
Golovin
King Island Native Comm.
Koyuk
Mary's Igloo
Nome
Savoonga
Shatktolik
Shishmaref
Solomon
St. Michael
Stebbins
Teller
Unalakleet
Wales
White Mountain

Yukon-Kuskokwim Service Unit

Akiachak
Akiak
Alakanuk
Andreafski
Aniak
Atmautluak
Bethel (Orutsaramuit)
Chaloonawick
Cherfornak
Chevak
Chuathbaluk
Crooked Creek
Eek
Emmonak
Georgetown
Grayling
Hamilton
Holy Cross
Hooper Bay
Kalskag
Kaltag
Kasigluk
Kipnuk
Koniganak
Kotlik

Kwethluk
Kwigillingok
Kwinhagak (Quinhagak)
Lower Kalskag
Marshall
Mekoryuk
Mountain Village
Nakpakiak
Napaimute
Napakiak
Newtok
Nightmute
Nunapitchuk
Ohogamiut
Oscarville
Paimiut
Pilot Station
Pitka's Point
Quinhagak
Red Devil
Ruby
Russian Mission (Yukon)
Russian Mission (Kuskokwim)
St. Mary's (Algaaciq)
Scammon Bay
Shageluk
Sheldon's Point
Sleetmute
Stony River
Toksook Bay
Tuluksak
Tununak
Tuntutuliak
Umkumiut
Upper Kalskag

APPENDIX D: Ratio of Recipients to Providers Based on Most Common Diagnoses

For the most common diagnosed conditions in SFY 1999 (as reflected in Table 1.7 on page 20), the ratio of available providers typically consulted for such diagnoses was examined city-by-city. Table 1.8, below, reflects the findings. The majority of provider types are represented in centralized populations like Anchorage, Fairbanks and Juneau, whereas other areas have notable shortages. Of the 49 cities/regions listed in Table 1.8, thirty do not have inpatient hospital services and 26 do not have outpatient hospital services. Thirty-two cities/regions lack an EPSDT screener to screen and treat infants and toddlers for otitis media. Thirty-seven areas lack a provider to provide mental health services, and seventeen areas lack an osteopath or physician to treat diabetes.

Table 1.8: Ratio of Provider Type to Recipients with Most Common Diagnoses²⁰

City/ Region	Provider Type	Providers	Recipients	Ratio
Anchorage	OPPT-OPST	10	11,629	1 : 1163
	Nurse Midwife	35		1 : 332
	Osteopath Group	1		1 : 11629
	Optometrist	54		1 : 215
	Speech Pathologist	25		1 : 465
	Osteopath Individual	5		1 : 2326
	Occupational Therapist	16		1 : 727
	Psychologist Individual	21		1 : 554
	Portable Radiology Provider	1		1 : 11629
	Home Health Agency	10		1 : 1163
	EPSDT Screeners	1		1 : 11629
	Physician/ Osteopath Group	74		1 : 157
	Audiologist	16		1 : 727
	Day Treatment Facility	3		1 : 3876
	Independent Laboratory	8		1 : 1454
	Outpatient Hospital Services	2		1 : 5815
	Inpatient Hospital Services	2		1 : 5815
	IHS Hospital	1		1 : 11629
	IHS Clinic	4		1 : 2907
	Independent Laboratory	1		1 : 11629
Aniak	IHS Physician Clinic	1	16	1 : 16
Barrow	IHS Outpatient Hospital	1	74	1 : 74
	Audiologist	1		1 : 74
	Speech Pathologist	1		1 : 74
Bethel	Optometrist	1	104	1 : 104
	Physician/Osteopath Group	3		1 : 35
	Audiologist	2		1 : 52
	EPSDT Screeners	1		1 : 104
	IHS Outpatient Hospital	1		1 : 104

²⁰ Based on Medicaid paid claims data for SFY 1999. "Recipients" include those beneficiaries who had at least one paid claim for one of the diagnoses in Table 1.7. These diagnoses were the most common in evaluated claims data. Table 1.8 does not reflect services provided by CHA/Ps.

City/ Region	Provider Type	Providers	Recipients	Ratio
Chugiak	Osteopath Individual	1	199	1 : 199
	Psychologist Individual	1		1 : 199
	OPPT-OPST	1		1 : 199
Clam Gulch	Home Health Agency	1	27	1 : 27
Copper Center	Speech Pathologist	1	39	1 : 39
	Audiologist	1	39	1 : 39
Cordova	Home Health Agency	1	63	1 : 63
	Physician/ Osteopath Group	1		1 : 63
	Inpatient Hospital Services	1		1 : 63
	Outpatient Hospital	1		1 : 63
Dillingham	Audiologist	2	66	1 : 33
	Home Health Agency	1		1 : 66
	Optometrist	2		1 : 33
	Physician/ Osteopath Group	1		1 : 66
	IHS Outpatient Hospital	1		1 : 66
Douglas	Home Health Agency	1	81	1 : 81
Eagle River	OPPT-OPST	1	445	1 : 445
	Optometrist	4		1 : 111
	Nurse Midwife	1		1 : 445
	Occupational Therapist	1		1 : 445
	Audiologist	1		1 : 445
Eagle River	Physician/ Osteopath Group	2		1 : 223
	Speech Pathologist	4		1 : 111
	Osteopath Individual	3		1 : 148
Elmendorf AFB	Inpatient Hospital Services	1	10	1 : 10
	Optometrist	1		1 : 10
Fairbanks	Nurse Midwife	5	2,744	1 : 549
	Speech Pathologist	12		1 : 229
	Home Health Agency	2		1 : 1372
	Occupational Therapist	1		1 : 2744
	Audiologist	4		1 : 686
	Independent Laboratory	3		1 : 915
	Osteopath Individual	1		1 : 2744
	Outpatient Hospital	1		1 : 2744
	Inpatient Hospital Services	1		1 : 2744
	IHS Physician Clinic	1		1 : 2744
	Day Treatment Facility	1		1 : 2744
	Portable Radiology Provider	1		1 : 2744
	Physician/ Osteopath Group	15		1 : 183
	Optometrist	12		1 : 229
	OPPT-OPST	3		1 : 915
	Psychologist Individual	4		1 : 686
	Outpatient Hospital	1		1 : 2744
	Inpatient Hospital Services	1		1 : 2744
Fort Yukon	IHS Physician Clinic	1	74	1 : 74
Glennallen	Optometrist	1	33	1 : 33
	Outpatient Hospital	1		1 : 33
	Inpatient Hospital Services	1		1 : 33
Haines	Physician/ Osteopath Group	1	109	1 : 109
	IHS Physician Clinic	1		1 : 109
Homer	Psychologist Individual	2	445	1 : 223

City/ Region	Provider Type	Providers	Recipients	Ratio
	Physician/ Osteopath Group	2		1 : 223
	IHS Physician Clinic	1		1 : 445
	Outpatient Hospital	1		1 : 445
	Audiologist	1		1 : 445
	OPPT-OPST	2		1 : 223
	Optometrist	2		1 : 223
	Speech Pathologist	1		1 : 445
	Nurse Midwife	4		1 : 111
	Inpatient Hospital Services	1		1 : 445
	Home Health Agency	1		1 : 445
Hoonah	IHS Physician Clinic	1	33	1 : 33
Juneau	Inpatient Hospital Services	1	1,138	1 : 1138
	Outpatient Hospital	1		1 : 1138
	Speech Pathologist	3		1 : 379
	EPSDT Screeners	1		1 : 1138
	Osteopath Individual	1		1 : 1138
	Optometrist	8		1 : 142
	IHS Physician Clinic	1		1 : 1138
	Physician/ Osteopath Group	10		1 : 114
	OPPT-OPST	3		1 : 379
Juneau	Day Treatment Facility	1		1 : 1138
	Nurse Midwife	4		1 : 285
	Independent Laboratory	3		1 : 379
	Psychologist Individual	4		1 : 285
	Audiologist	2		1 : 569
	Home Health Agency	3		1 : 379
Take	IHS Physician Clinic	1	38	1 : 38
Kasilof	Occupational Therapist	1	52	1 : 52
Kenai	Occupational Therapist	2	789	1 : 395
	OPPT-OPST	4		1 : 197
	Speech Pathologist	3		1 : 263
	Optometrist	2		1 : 395
	Day Treatment Facility	1		1 : 789
	Physician/ Osteopath Group	2		1 : 395
	Osteopath Individual	1		1 : 789
Ketchikan	Nurse Midwife	2	798	1 : 399
	Speech Pathologist	4		1 : 200
	IHS Physician Clinic	2		1 : 399
	OPPT-OPST	1		1 : 798
	Occupational Therapist	1		1 : 798
	Physician/ Osteopath Group	4		1 : 200
	Optometrist	3		1 : 266
	Outpatient Hospital	1		1 : 798
	Inpatient Hospital Services	1		1 : 798
	Psychologist Individual	2		1 : 399
	Home Health Agency	1		1 : 798
Klawock	IHS Physician Clinic	1	41	1 : 41
Kodiak	Day Treatment Facility	1	563	1 : 563
	IHS Physician Clinic	1		1 : 563
	Inpatient Hospital Services	1		1 : 563
	Outpatient Hospital	1		1 : 563

City/ Region	Provider Type	Providers	Recipients	Ratio
	Physician/ Osteopath Group	5		1 : 113
	Occupational Therapist	4		1 : 141
	Home Health Agency	2		1 : 282
	Audiologist	2		1 : 282
	Speech Pathologist	4		1 : 141
	Osteopath Individual	1		1 : 563
	Nurse Midwife	1		1 : 563
	Optometrist	2		1 : 282
Kotzebue	IHS Outpatient Hospital	1	82	1 : 82
	EPSDT Screeners	1		1 : 82
	Optometrist	1		1 : 82
McGrath	IHS Physician Clinic	1	21	1 : 21
Metlaktla	IHS Physician Clinic	1	236	1 : 236
Naknek	Physician/ Osteopath Group	1	4	1 : 4
Nenana	IHS Physician Clinic	1	52	1 : 52
Ninilchik	IHS Physician Clinic	1	46	1 : 46
Nome	EPSDT Screeners	1	146	1 : 146
	Audiologist	1		1 : 146
	Home Health Agency	1		1 : 146
Nome	Optometrist	4		1 : 37
	Outpatient Hospital	1		1 : 146
	Inpatient Hospital Services	1		1 : 146
North Pole	Optometrist	2	617	1 : 309
	Occupational Therapist	1		1 : 617
	OPPT-OPST	2		1 : 309
	Speech Pathologist	1		1 : 617
Palmer	Nurse Midwife	1	1,059	1 : 1059
	Outpatient Hospital	1		1 : 1059
	Inpatient Hospital Services	1		1 : 1059
	Physician/ Osteopath Group	6		1 : 177
	Optometrist	1		1 : 1059
	Home Health Agency	1		1 : 1059
	Occupational Therapist	1		1 : 1059
	OPPT-OPST	2		1 : 530
	Speech Pathologist	2		1 : 530
Petersburg	Outpatient Hospital	1	139	1 : 139
	Inpatient Hospital Services	1		1 : 139
	Home Health Agency	1		1 : 139
	Nurse Midwife	1		1 : 139
Saint Paul	IHS Physician Clinic	1	2	1 : 2
Seward	IHS Physician Clinic	1	199	1 : 199
	Speech Pathologist	1		1 : 199
	Physician/ Osteopath Group	6		1 : 33
	Outpatient Hospital	1		1 : 199
	Inpatient Hospital Services	1		1 : 199
Sitka	Outpatient Hospital	1	254	1 : 254
	Physician/ Osteopath Group	2		1 : 127
	Nurse Midwife	1		1 : 254
	Psychologist Individual	2		1 : 127
	Optometrist	1		1 : 254
	Speech Pathologist	3		1 : 85

City/ Region	Provider Type	Providers	Recipients	Ratio
	IHS Outpatient Hospital	1		1 : 254
	Audiologist	1		1 : 254
	Occupational Therapist	3		1 : 85
	Home Health Agency	2		1 : 127
	Inpatient Hospital Services	1		1 : 254
Skagway	Osteopath Individual	1	15	1 : 15
Soldotna	Optometrist	1	609	1 : 609
	OPPT-OPST	6		1 : 102
	Inpatient Hospital Services	1		1 : 609
	Physician/ Osteopath Group	4		1 : 152
	Outpatient Hospital	1		1 : 609
	Nurse Midwife	6		1 : 102
	Independent Laboratory	2		1 : 305
	Speech Pathologist	1		1 : 609
	Home Health Agency	2		1 : 305
	Occupational Therapist	1		1 : 609
	Audiologist	1		1 : 609
Talkeetna	Occupational Therapist	1	52	1 : 52
Tanana	IHS Physician Clinic	1	28	1 : 28
Togiak	IHS Physician Clinic	1	51	1 : 51
Valdez	Inpatient Hospital Services	1	109	1 : 109
	Home Health Agency	2		1 : 55
	Physician/ Osteopath Group	1		1 : 109
	Outpatient Hospital	1		1 : 109
Wasilla	OPPT-OPST	2	2,069	1 : 1035
	Psychologist Individual	1		1 : 2069
	Optometrist	5		1 : 414
	Day Treatment Facility	1		1 : 2069
	Speech Pathologist	1		1 : 2069
	Nurse Midwife	7		1 : 296
	Occupational Therapist	2		1 : 1035
	Physician/ Osteopath Group	6		1 : 345
	Home Health Agency	1		1 : 2069
	Audiologist	5		1 : 414
Wrangell	Inpatient Hospital Services	1	118	1 : 118
	Outpatient Hospital	1		1 : 118
	Home Health Agency	1		1 : 118