



# 2023 Denali Borough Community Health Needs Assessment

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## Executive Summary

The Denali Borough is a rural area in Alaska with a year-round population of approximately 1,600 residents. Despite limited health resources, the Borough has better or equal health outcomes than the state of Alaska, owing to community connectedness, high rates of employment, low rates of poverty, high per-capita income, and high rates of healthy behaviors. Between July 2022 and August 2022, the Denali Borough Community Development Director collaborated with a master's in public health student at the University of Pennsylvania to conduct a Borough wide Community Health Needs Assessment (CHNA). The purpose of the CHNA was to determine the greatest health priorities for the Borough, assess current resources, and identify how resources could be best used to promote health.

The process for conducting the CHNA included focus groups with different sectors of the Denali Borough community, including healthcare providers, employees, government organizations, and community leaders. A Community Health Opinion Survey, available to any adult resident of the Denali Borough, was distributed online and in-person. Between focus groups and surveys, approximately 360 community members provided their views on healthcare access, health concerns, needed resources, health education, and quality of life within the Borough.

The top health priorities for the Borough are: 1) Access to care, 2) mental health and alcohol/substance use, 3) housing, 4) nutrition, 5) physical activity and indoor recreation 6) road safety and transportation, and 7) chronic diseases. Other needs of lesser priority include sexual health services and education, emergency and disaster preparedness, accident and injury prevention, and improved childcare options.

Populations of special interest include low-income populations, seasonal workers, older adults, and children and youth. Low-income populations and seasonal workers can face greater barriers to accessing care because they have limited transportation options, are more likely to live in substandard housing, and are less likely to have health insurance. Older adults are more susceptible to social isolation and have higher rates of chronic conditions. Health priorities for youth and children include access to periodic health assessments, sexual health education, and mental health services and education.

Strengths and resources of the Borough include high levels of community support and connectedness, healthcare staff who are dedicated to their community, and a large volunteer network. These can be harnessed to improve the health of the Borough and address health priorities, especially among populations with health disparities.

## Introduction

### Purpose

The goal of this Community Health Needs Assessment (CHNA) was to identify health priorities for the Denali Borough, determine which resources are needed to address these priorities, and assess the strengths of the Borough. The CHNA aimed to identify needed social determinants of health for the Borough, which are nonmedical factors, such as healthcare access, education,

housing, transportation, access to food, and economic stability, that affect health outcomes.<sup>1</sup> The CHNA also aims to identify common health challenges and health outcomes, including prevalence of medical conditions and causes of mortality, and compare these to state outcomes. The process aimed to identify existing and needed healthcare and non-healthcare resources which can be best used to address health priorities. Furthermore, it aims to highlight positive health outcomes and associated resources, to model how to effectively utilize existing resources to improve health. The Denali Borough does not have a local health department, therefore, this CHNA will be used to advocate for funding from the Alaska Department of Health and other grantors to address health priorities. Local funds may be used to address social determinants of health which have been identified as needs among community members. Additionally, the CHNA may be used to determine which needs to prioritize when allocating funding and applying to grant funding.

## Collaborators

The CHNA process began in June 2022, when Teresa Floberg, Community Development Director of the Denali Borough, partnered with Deena Kopyto, a Master of Public Health student researcher at the University of Pennsylvania, to conduct a borough wide CHNA. The researcher met with key community stakeholders in the Denali Borough Assembly, including Mayor Clay Walker. Stakeholders were involved in planning data collection efforts, including designing surveys and focus groups, for which data collection occurred between July 2022 and January 2023. Faculty from the Master of Public Health Program within the Perelman School of Medicine at the University of Pennsylvania provided guidance on data collection and methods. Public Health Nurses from the Alaska Division of Public Health for the “Frontier” region, which includes Fairbanks and the surrounding area, were consulted as key stakeholders in planning the CHNA. Stakeholders agreed to use mixed-methods data analysis to identify common health challenges, health resources, and health priorities for the Denali Borough.

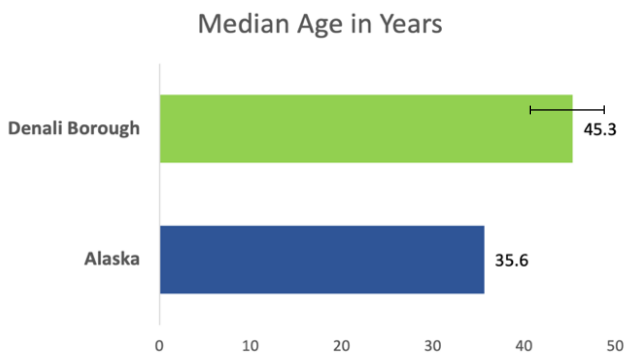
The CHNA process included qualitative focus groups with a total of 41 medical practitioners, non-profit and community leaders, seasonal workers, the Denali Borough School Board, the Denali Borough Assembly, and National Park Service rangers. A Community Health Opinion Survey was developed by the research team and reviewed by members of the Denali Borough medical community before distribution. 357 adult residents of the Denali Borough responded to the survey in paper or online form.

## Background

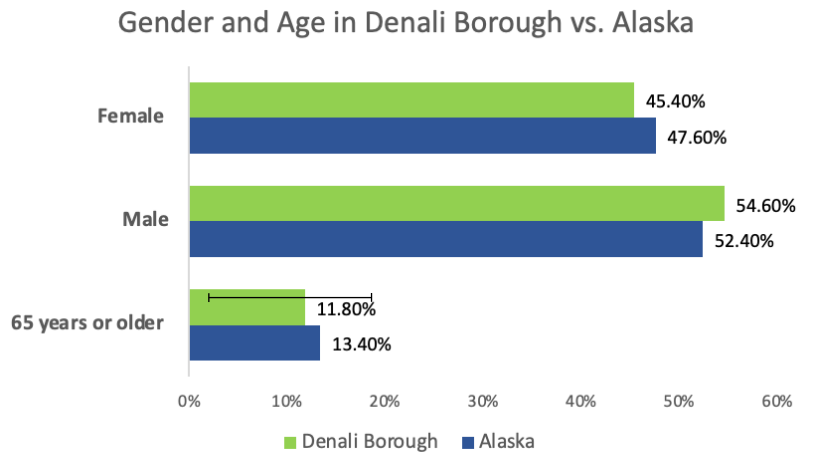
### Demographic Profile

The Denali Borough is a rural area in Alaska with approximately 1,619 year-round residents, not including seasonal employees.<sup>2</sup> The land mass of the Borough is approximately 12,637 square miles and population density is less than 2 persons per 10 square miles. The Borough is considered remote; however, it has a grocery store, one mental health clinic, and four medical clinics. The mean age of Denali Borough residents is 45.3 years, approximately 10 years older than the median age across Alaska. 76% of residents are White, 6% are Native American or Alaska Native, and 10.5% speak a language other than English at home.<sup>2</sup> The median yearly household income in the Borough equal or greater than that of Alaska, and the poverty rate may be lower

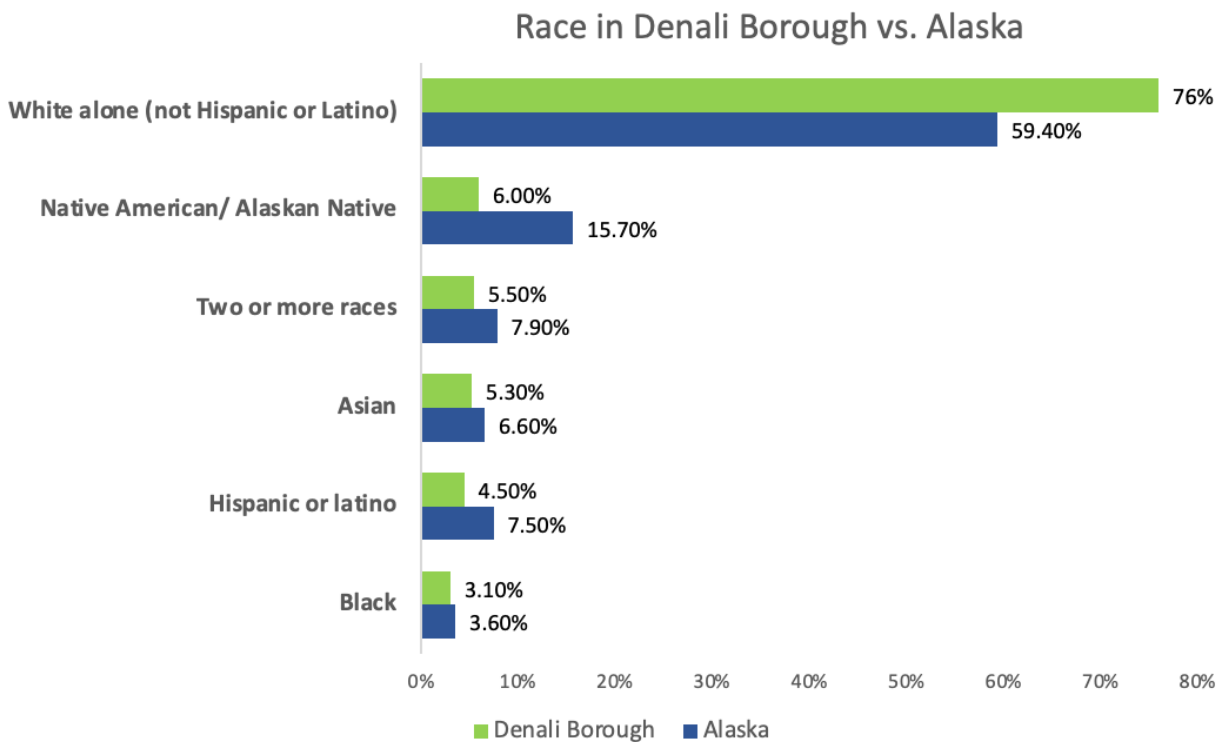
or higher than the state average, as accurate estimates are not available.<sup>2,3</sup> The Borough has a higher employment rate than Alaska and a greater percentage of adults with a bachelor’s degree, although these statistics have high margins of error. Rate of substandard housing in the Borough are comparable to the state, at 36%, although the percentage of renters who are cost-burdened is lower. 14.5% of households are food-insecure and 4.71% of households do not have access to a motor vehicle.<sup>4</sup> The median commute time to work in the Borough is 15.7 minutes, and 59.6% of residents walk to work, although this percentage may not be accurate.<sup>2,4</sup> Demographic information of the Denali Borough is compared to Alaska below, along with margins of error.<sup>2-4</sup>



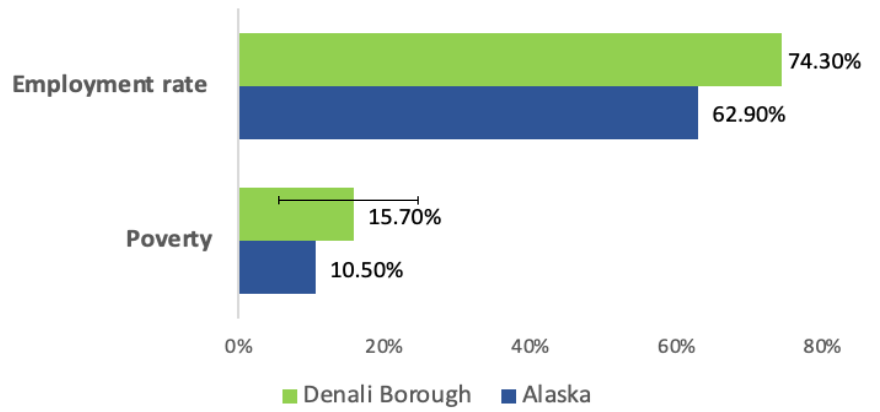
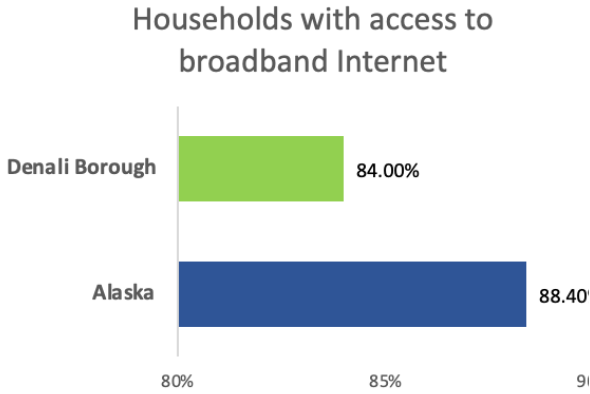
Margin of error: ± 3.8 years



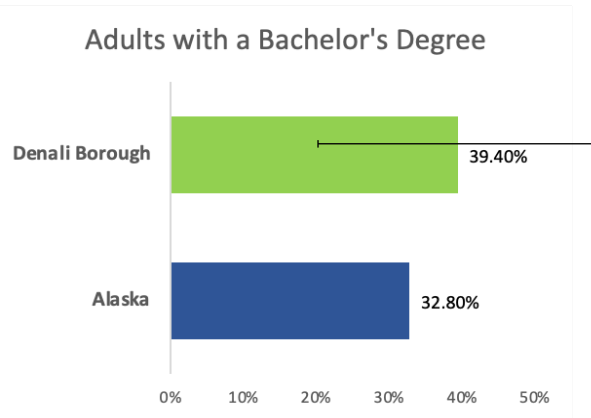
Margin of error for 65 years or older: 8.2%



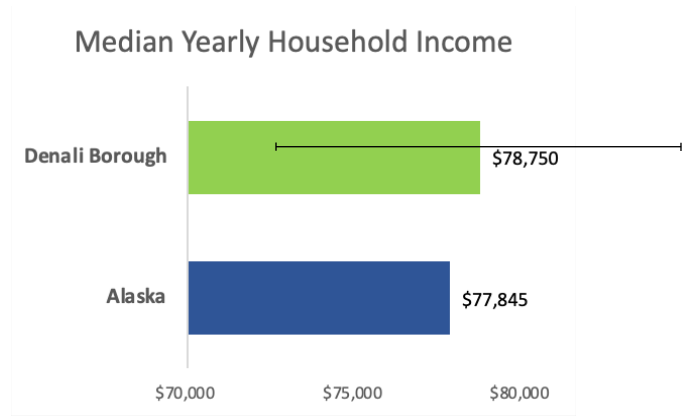
### Employment and Poverty in Denali Borough vs. Alaska



Margin of error for employment rate:  $\pm 18.2\%$ . Margin of error for poverty:  $10.3\%$

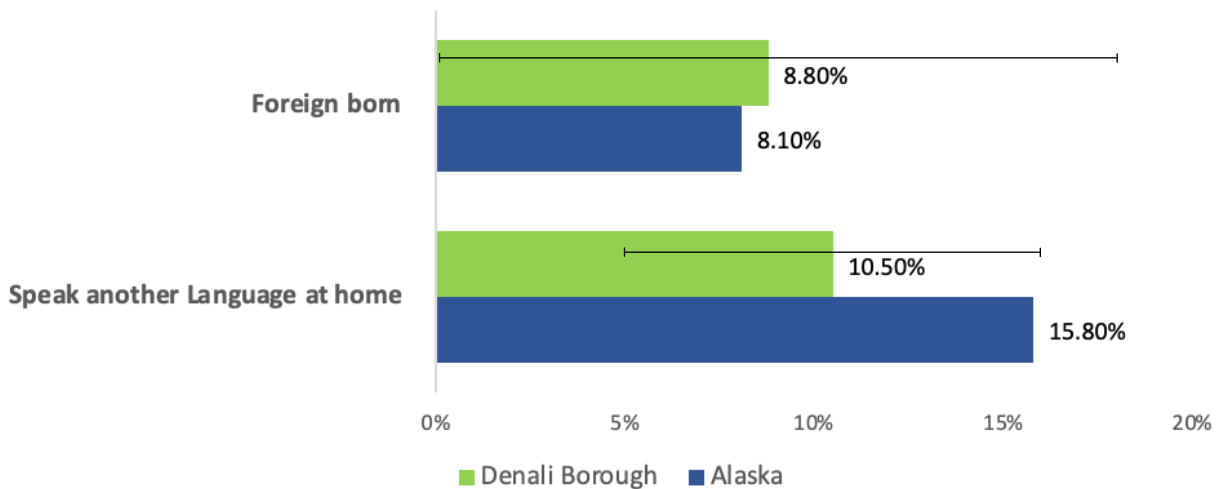


Margin of error:  $\pm 19.1\%$

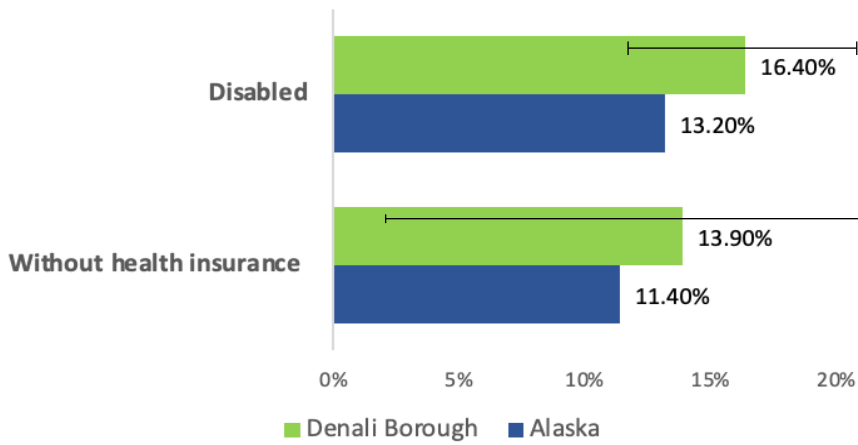


Margin of error:  $\pm \$6,681$

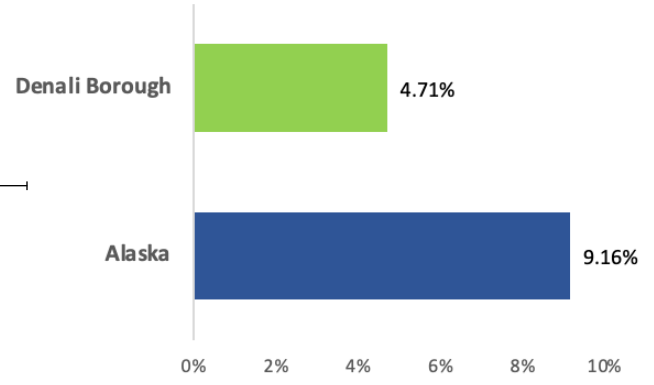
### Language spoken and Foreign born population in Denali Borough vs. Alaska



### Percent Disabled and Percent without Health Insurance

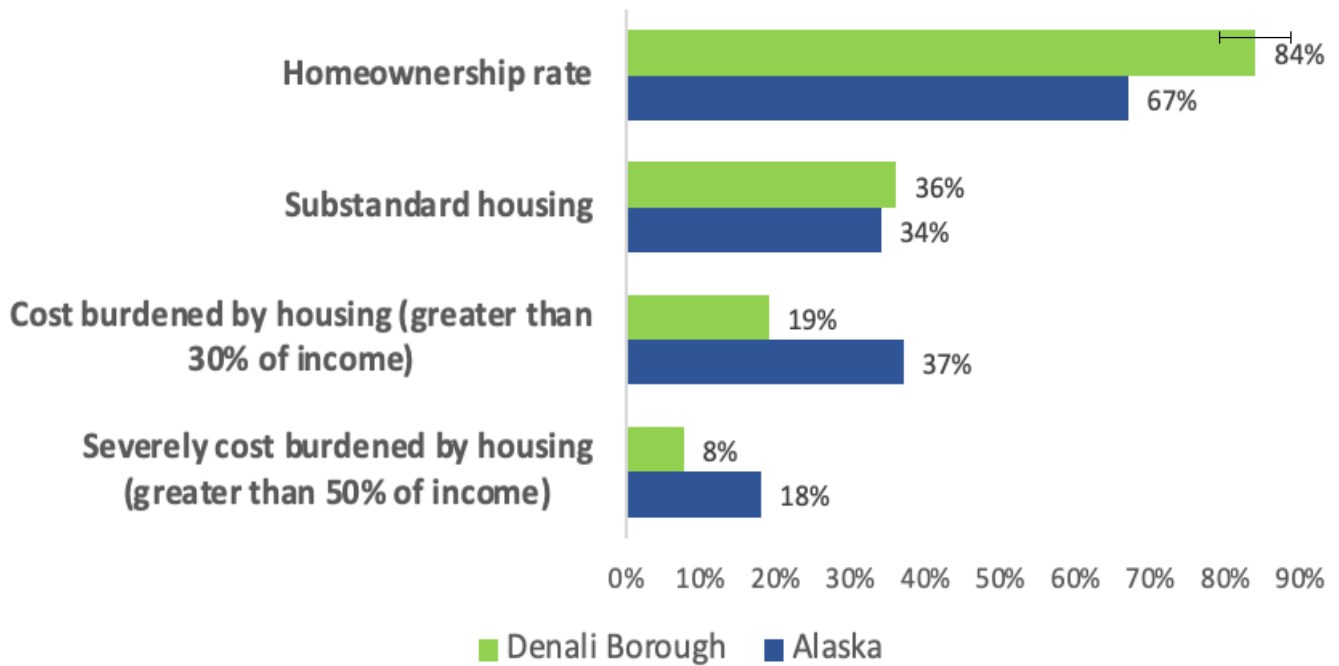


### Households with No Motor Vehicle



Margin of error for disability: ± 4.4%. Margin of error for health insurance: 11.1%

### Housing in Denali Borough vs. Alaska

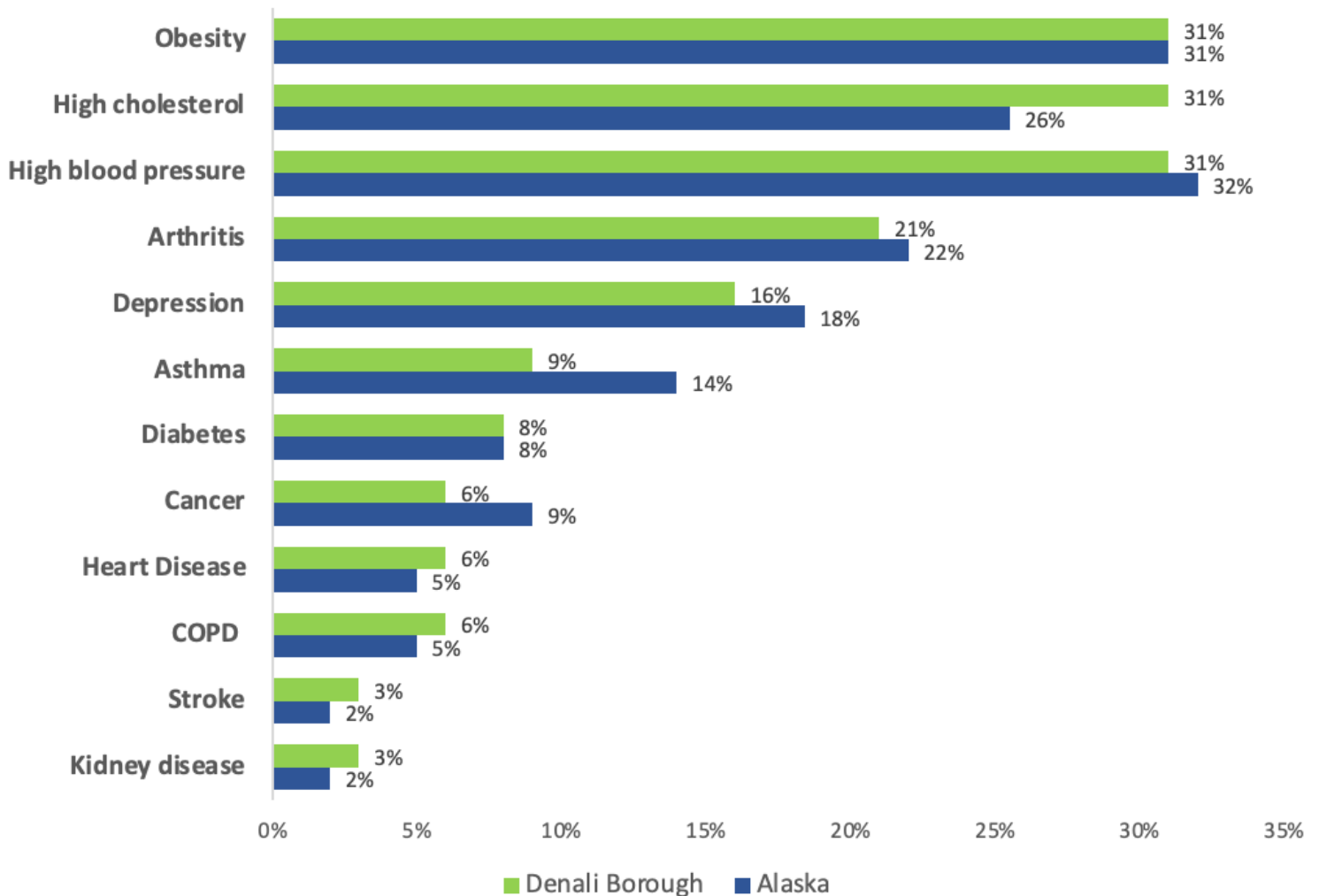


Margin of error for homeownership: ± 5.6%

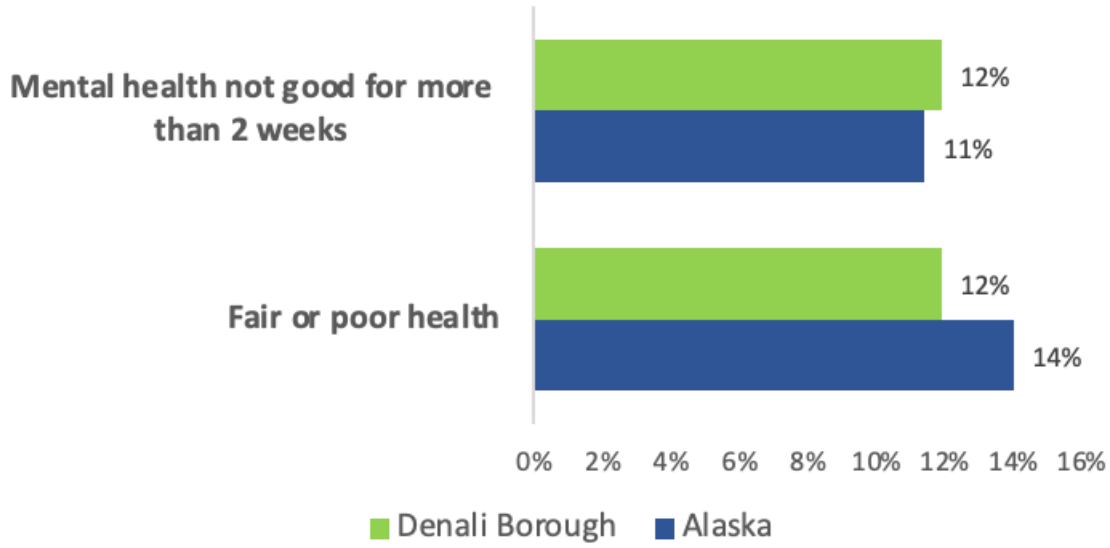
## Health Profile

The Denali Borough has equal or better health outcomes for most indicators of morbidity and mortality when compared to Alaska, based on published data.<sup>5,6</sup> The exception is rates of high cholesterol, which are higher in the Borough compared to Alaska. Rates of healthy and unhealthy behaviors are comparable to state rates, although binge drinking is slightly higher.<sup>5,6</sup> Health behavior and outcomes for the Denali Borough and Alaska are shown below.<sup>5,6</sup> Error lines are not included because margins of error are less than 4%.

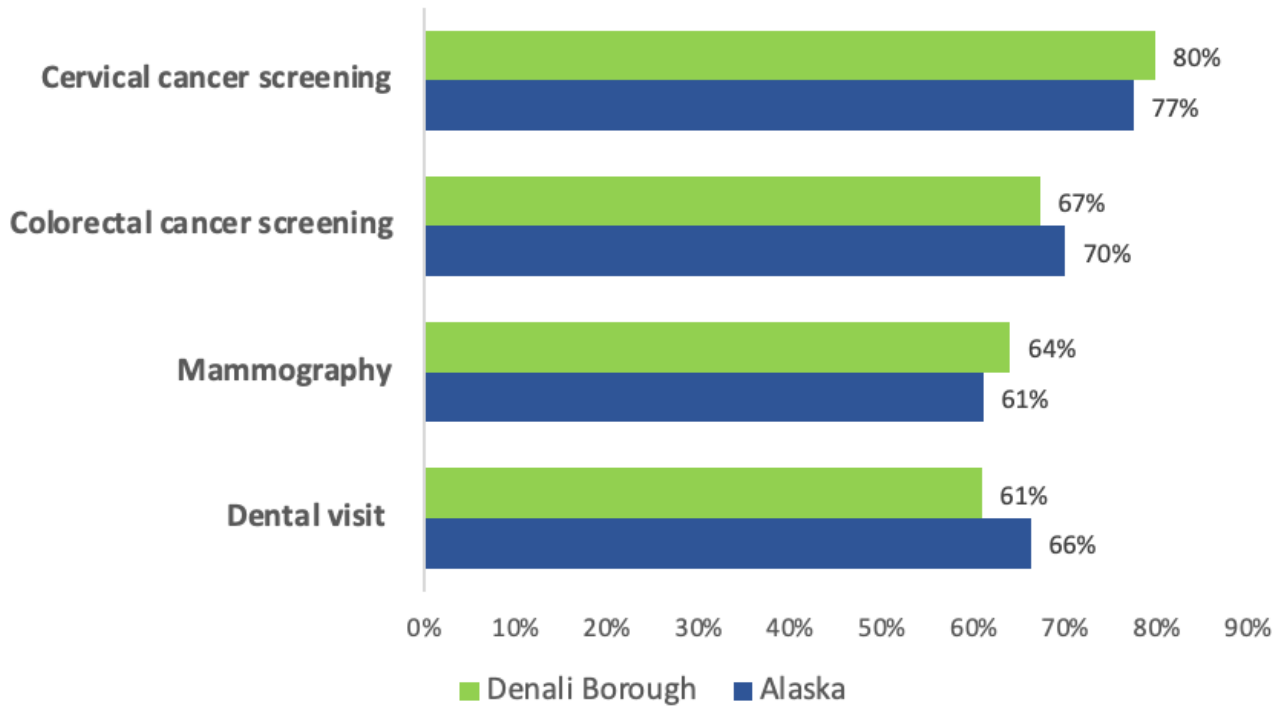
### Disease Prevalence: Adults Reporting Diagnosis Over Lifetime

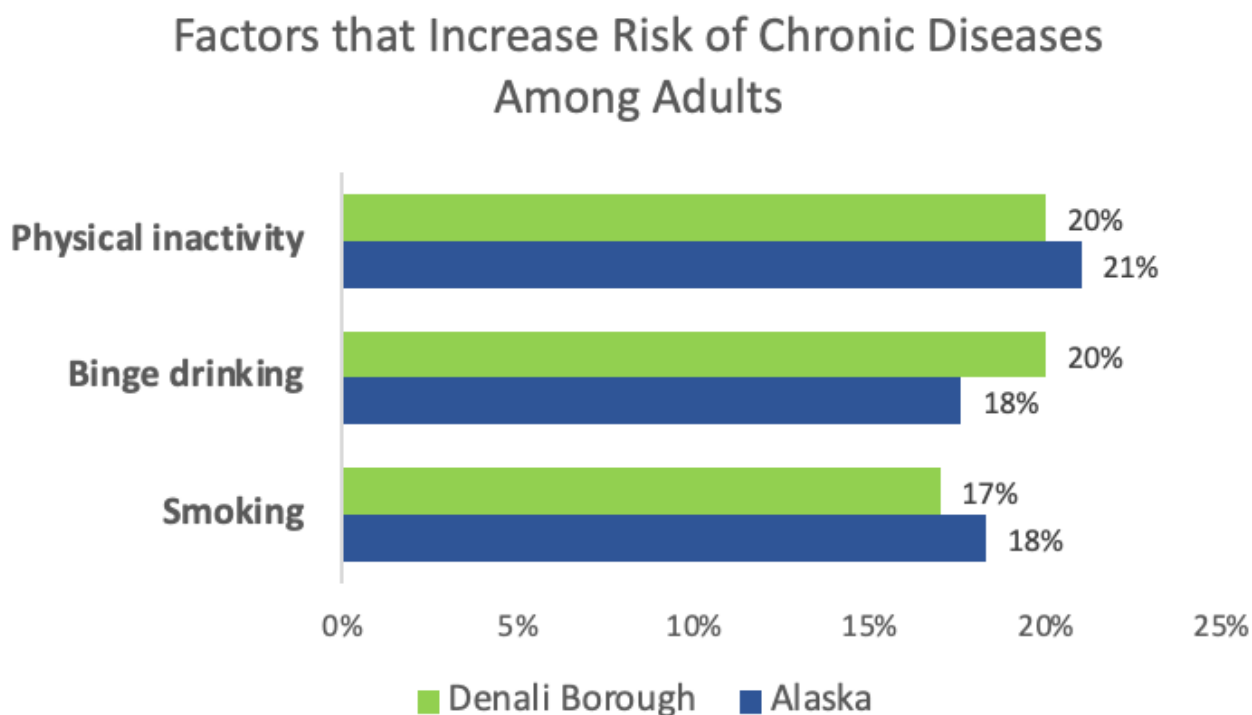


### Overall Health Among Adults



### Adults Meeting Preventative Services Guidelines





#### Previously Identified Needs

The Alaska Division of Public Health released a Primary Care Needs Assessment in 2021 that identified state-wide health needs, vulnerable populations, healthcare disparities, and healthcare workforce issues.<sup>7</sup> The top three health priorities for Alaska were identified as 1) access to care, 2) addressing health disparities for rural and tribal populations in chronic diseases, unintentional injuries, behavioral health, substance use and suicide, and 3) demand for healthcare workforce at all levels. Other identified priorities included Senior and Elder care, as well as housing and poverty. Across Alaska, there is a shortage of healthcare professionals, high turnover and vacancy rates, and many medically underserved areas. Federal and state programs aim to address these issues by promoting recruitment and retention of healthcare professionals. The findings of this CHNA parallel state findings; healthcare priorities in the Denali Borough are similar to those across the state.

In 2022, Foundation Health Partners, a non-profit health system, published a Community Health Needs Assessment for the Fairbanks North Star Borough and the surrounding area.<sup>8</sup> The report largely focused on the needs of Fairbanks, the primary service area, although the secondary service area included the Denali Borough and other Census tracts within the Interior. Health priorities were identified as 1) alcohol use and the need for substance abuse treatment, 2) opportunities to reduce social isolation, 3) elder care, and 4) pediatric behavioral health. Other identified needs included healthcare workforce shortages, housing, year-round physical activity opportunities, reducing smoking, high school graduation rates, health literacy, cost of living, and

childcare. Many of these identified needs are the same as those which were identified for the Denali Borough in this CHNA.

Within the Denali Borough, in 2007, an informal Community Health Needs Assessment was conducted by John Winkleman, a Physician's Assistant, and a leader in the Denali Borough healthcare community. Findings identified widespread dissatisfaction with available healthcare resources and a need for greater access to medical care. In 2018, Agnew::Beck collaborated with the Denali Borough Assembly to publish the Denali Borough Land Use and Economic Development Plan.<sup>9</sup> The process sought input from community members as well as Denali Borough Assembly and staff. Goals were identified as finding a balance between economic development and land protections, supporting sustainable recreation and tourism, expanding housing supply, encouraging clustering of businesses, and effectively using Borough-owned land. Among both reports, concerns about housing and access to care within the Borough paralleled the findings of this CHNA.

## Methods

### Focus Groups

Data collection included 9 qualitative focus groups, each with different sectors of community members: healthcare staff for clinics in the Denali Borough, Railbelt Mental Health staff, non-profit and community organization leaders, public health nurses, Fire and Emergency Medical Services staff, seasonal employees, the Denali Borough School Board, the Denali Borough Assembly, and National Park Service rangers for Denali National Park. The focus group guides were based on the Community Health Assessment Guidebook, published by the North Carolina Division of Public Health.<sup>10</sup> There were two semi-structured focus group guides: one for focus groups with healthcare workers and one for non-healthcare workers. The research team edited the focus group guides to fit the CHNA purpose, and Mayor Clay Walker and members of the Denali Borough medical community reviewed the interview guide. Between July 2022 and October 2022, a total of 41 residents of the Denali Borough participated in focus groups. One key informant interview was conducted in August with a community member who was a leader in the medical field. Focus groups with non-healthcare workers assessed perceptions of medical care, impressions of community health, community resources, barriers to accessing medical care, community strengths, common health challenges, and suggestions for community improvement. Focus groups with healthcare workers assessed the same topics, with additional questions about available medical resources, chronic disease management, preventative care efforts, and health systems administration.

Focus groups were audio recorded and transcribed, then qualitatively coded through an iterative process using ATLAS.ti software. The interviewer, along with one other coder, developed a preliminary codebook inductively with 26 codes. Both coders then revised the codebook to create a second version and coded the same two focus groups to check for interrater reliability. A final codebook was then created based on revisions, which included 25 codes and 31 subcodes. The interviewer then coded all focus groups plus the key informant interview using the updated codebook. A non-exhaustive list of codes included: available medical care, Alaskan culture and

climate, harmful and beneficial health habits, positive social factors, COVID-19 impacts, health concerns, health education, healthcare access barriers, housing, human resources, non-healthcare resources, nutrition, transportation, telehealth, volunteers, and vulnerable populations. Appendix 1 displays themes which emerged from the qualitative coding process.

### Community Health Opinion Survey

A survey was developed by the research team, based on the Community Health Opinion Survey published by the Granville-Vance District Health Department.<sup>11</sup> The research team modified the survey, which was then sent to members of the Denali Borough medical community and Mayor Clay Walker to review and provide comments. The survey was released online through Qualtrics, publicized on the Denali Borough website, and emailed to community organizations. The survey was available online to any adult resident of the Denali Borough between November 26, 2022, until January 31, 2023. Additionally, a paper form of the survey was distributed at a vaccination clinic in the Borough. Paper responses were manually input into Qualtrics for analysis. The survey included seven sections: quality of life, community improvement, public health information, access to care, emergency preparedness, personal health, and demographic information.

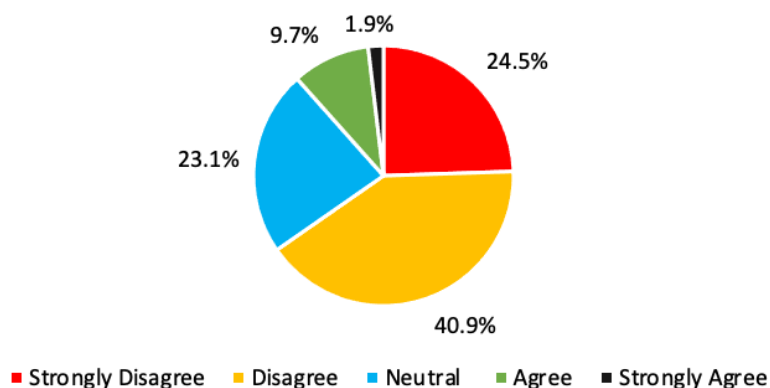
Survey results were extracted from Qualtrics. Descriptive statistics were employed to describe overall quality of life, resources needed, community challenges, access to health information, barriers to healthcare access, prevalence of chronic diseases, overall mental and physical health status, sedentary behavior, smoking prevalence, emergency preparedness, and demographic information in Denali Borough. Chi-square and Fischer's exact tests were used as appropriate to compare quality of life and access to care measures by demographic variables. Statistical significance was defined as  $p < 0.05$ , and all analyses were performed utilizing STATA/IC 16.0 (StataCorp LLC, College Station, TX).

There were 357 total responses to the Denali Borough Community Health Survey. Responses were included in analysis if the respondent finished most of the survey and indicated that they lived in Denali Borough. There were 40 responses excluded, 30 of which were less than 53% complete and 10 of which were not filled out by Denali Borough residents. The final sample size was 317 responses. Incomplete survey responses were included in the analysis. Percentages were calculated based on the total number of responses to an individual question, not the total number of survey respondents (317). This sample size is greater than the minimum required for a 95% confidence interval (311 out of 1,619).

Demographic variables and health status of the survey respondents are shown in Appendix 2. A majority of respondents (97%) identified as White, non-Hispanic. More than half of respondents had a bachelor's degree or higher (41% bachelor's degree, 26% graduate or professional degree). About half of respondents (59%) resided in the zip code 99743, which includes Healy and much of the Parks highway north of it.

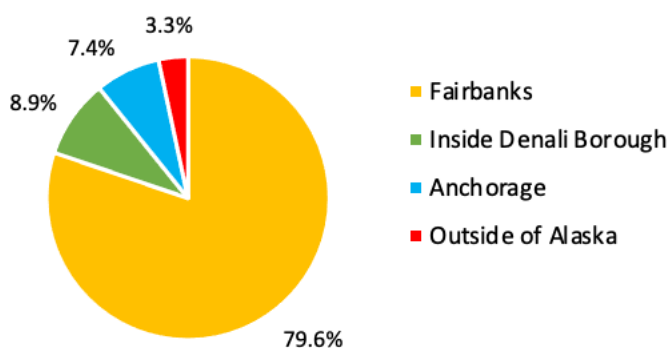
Access to medical services, including primary care, specialty care, mental health care, dental care, and physical therapy, is limited due to remoteness and lack of available services within the Denali Borough. Only 12% of survey respondents agreed or strongly agreed with the statement “There is good healthcare within the Denali Borough” and 65% of respondents disagreed or strongly disagreed (Appendix 3).

Adults' feelings towards "There is good healthcare in the Denali Borough"

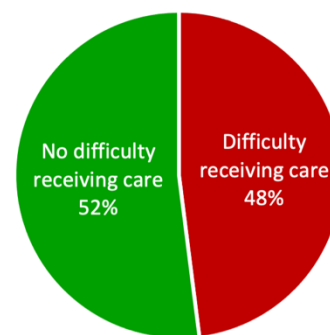


Due to difficulty obtaining medical care within the Borough, 80% of respondents receive the majority of their healthcare in Fairbanks, while only 9% do so in the Denali Borough (Appendix 4). 47% of respondents had difficulty obtaining necessary medical care within the past year, with the most common reasons being inability to schedule an appointment, long commute times, and long wait time, respectively (Appendix 5). Respondents were asked to select all that applied.

Where adults in the Denali Borough receive healthcare

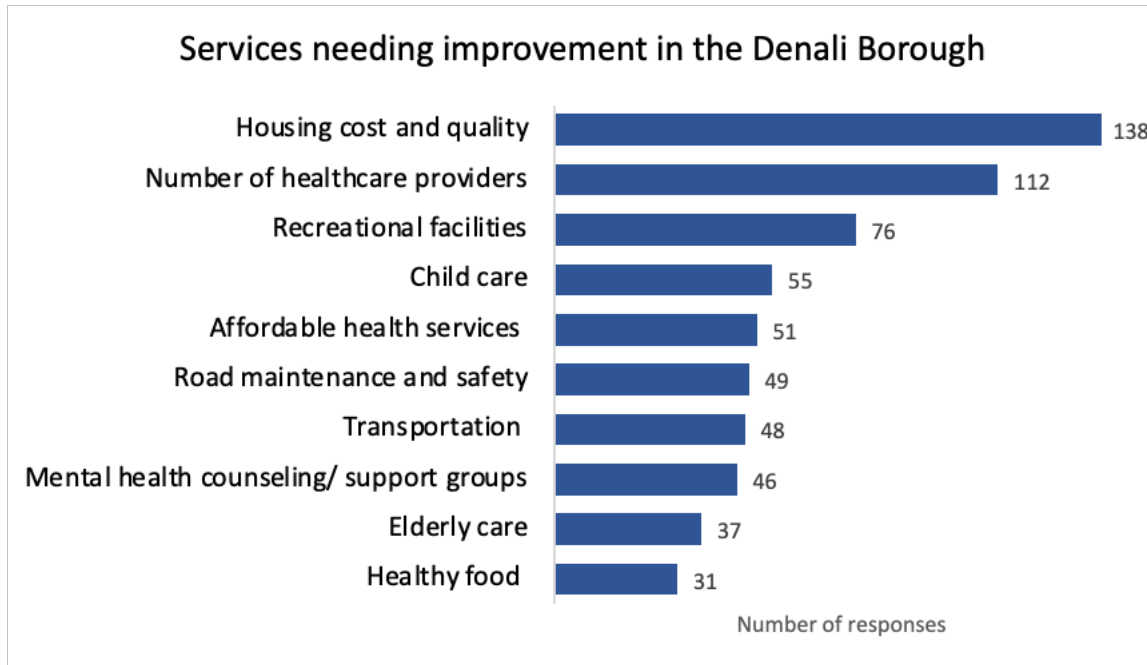


Almost half of adults in the Denali Borough report difficulty getting medical care

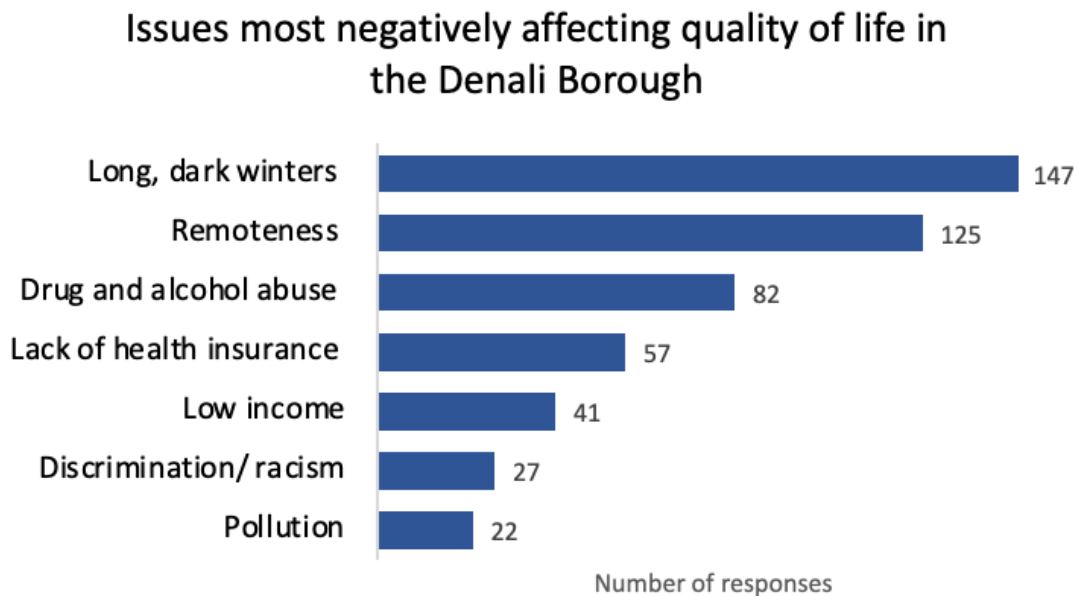


Among respondents who had difficulty obtaining medical services, general practitioners were the most common, followed by dentists and pharmacy/ prescriptions. The most common specialists' individuals had trouble obtaining care from were dermatologists and mental health providers (Appendix 6). Respondents were asked to select all services they had difficulty obtaining care from.

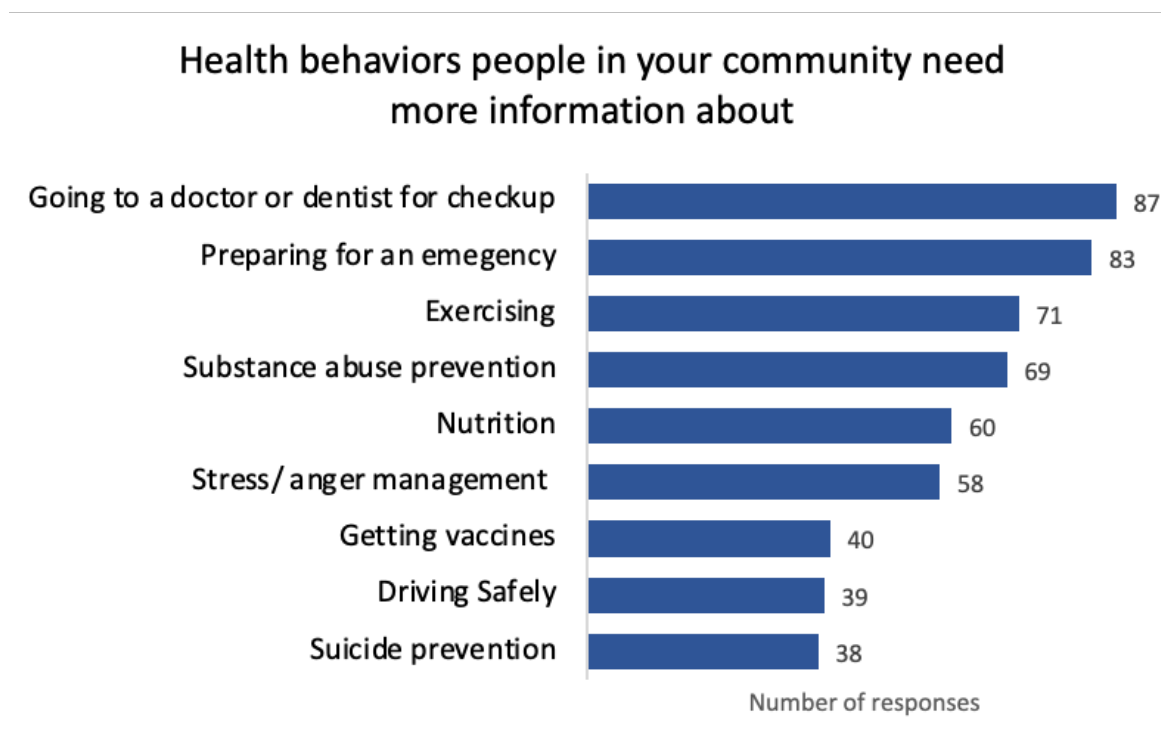
When asked to select three services needing the most improvement within the Borough, housing was the most common, followed by number of healthcare providers, then recreational facilities (Appendix 7).



When asked about top three issues negatively affecting quality of life, the most common responses were long, cold, dark winters; remoteness; drug and alcohol abuse; and lack of or inadequate health insurance (Appendix 8)



Respondents were asked which three health behaviors their communities needed more information about. The top three responses were going to a dentist or doctor for check-ups; preventive care and screenings; preparing for an emergency or disaster; and fitness (Appendix 9).



Among respondents with children, parents identified mental health issues and suicide prevention, nutrition, and sexual health as the top three topics children in the Denali Borough need more information about (Appendix 10). Parents were asked to select their top three concerns. When asked where people get most of their health information, the top answers were the internet and their primary care provider, including both local and those located in Fairbanks, and their friends and family.

Inferential statistics found that residents living in zip codes 99743, which includes Healy, and 99760, were significantly more likely to agree or strongly agree that Denali Borough is a good place to raise children, compared to all other zip codes. Respondents in the 65 and older age group were significantly more likely to agree or strongly agree that Denali Borough is a good place to grow old and that there is plenty of economic opportunity compared to those in the 18-24 and 25-64 age group. Respondents in the 25–64-year-old age group were significantly less likely to agree or strongly agree that Denali Borough has good health care compared to those in the 18-24 and 65 and older age groups. Furthermore, those in the 65 and older age group were significantly less likely to have had trouble receiving the care needed in the past 12 months compared to those between the ages of 18-64. This may be a result of older populations having higher rates of insurance due to Medicare coverage, although the sample did not show significant differences in insurance coverage by age. It also may be due to older adults in poor health leaving the Borough to live closer to medical services.

Despite difficulties accessing healthcare, the Denali Borough remains generally healthy, especially when compared to the state of Alaska and the US as a whole. 83% of survey respondents said they participate in at least 30 minutes of physical activity every week, which is slightly higher than the state of Alaska and is similar to published rates for the Borough.<sup>5,6</sup> Among

those who did not engage in physical activity, reasons listed for not doing so include lack of facility needed to exercise nearby, cold weather, lack of motivation and time, and mobility issues. Rates of physical inactivity among survey responses are the same as CDC estimates for the Denali Borough. The Denali Borough had similar or lower rates of chronic disease such as obesity, heart disease, and diabetes compared to Alaska overall; survey results in Appendix 2 are similar to published data.<sup>5,6</sup> Strong social support and cohesion promotes better health among communities, and we can see this effect in the Denali Borough as well. 66% of survey respondents agreed or strongly agreed that there was plenty of social support within the Denali Borough.

We may be underestimating the true burden of healthcare access barriers in the survey, because our sample was not completely representative of the Denali Borough. The survey respondents were of higher income, more White, more educated, and had higher levels of health insurance than the Denali Borough overall.<sup>2</sup> Only 7% of survey respondents use tobacco, which is lower than the published estimate for the Denali Borough (17%).<sup>6</sup> A non-representative sample can impact survey results by lowering rates of diseases, increasing rates of healthy behaviors, and overlooking populations which face the greatest health disparities. Survey results should be interpreted as undercounting the barriers which low-income and Alaska Native populations face when accessing medical care, due to underrepresentation of these populations in the survey sample.

## Denali Borough Health Priorities

Synthesis of focus group, interview, and survey data revealed that the top three health priorities for the Denali Borough are 1) access to care, 2) mental health and alcohol/ substance use, and 3) housing. Other priority health needs include nutrition; physical activity and indoor recreation; road safety and transportation; and care for chronic conditions. Lesser priority needs include sexual health, emergency preparedness, accident prevention, and childcare services. There is a need for health education to address mental health, substance and alcohol abuse, nutrition, physical activity, safe driving, chronic care management, and sexual health.

### Access to Care

Access to care is the greatest health priority for the Denali Borough, with contributing factors including remote location, low population density, and a shortage of healthcare providers. Across focus groups and surveys, community members most often brought up access to medical care, including primary care, specialty care, mental health care, urgent care, dental care, and emergency care, as the top health concern in the Borough.

One barrier to accessing care is a shortage of health professionals within the Borough. There are no doctors within the Borough, and health clinics rely on mid-level providers to operate, including physician assistants and nurses with supervising physicians in Fairbanks. Among the clinics operating within the Borough, one is only open in the summer, and the only Federally Qualified Health Center for primary care has one mid-level provider. Subsequently, not all low-income patients can get an appointment at the Federally Qualified Health Center. Within the survey, number of healthcare providers ranked second among services needing most improvement in

the Borough, and the top reason for difficulty accessing care was not being able to get an appointment. Focus group participants reported that they were told that local clinics were not accepting new patients. Consequently, many community members report driving to Fairbanks to seek medical care, and 80% of survey respondents receive most of their medical care in Fairbanks.

As one healthcare provider stated in a focus group, “I think, the challenges that we face, along with other healthcare entities is staffing. We've had, just over the past few years, had a lot of vacancies and so that's been a barrier”. Healthcare staffing shortages are common across Alaska as well.<sup>7</sup> Community members expressed that even after driving two hours to Fairbanks, long wait times continue to be a barrier. Long wait times were the third most cited reason among survey respondents for barriers to care. One focus group member stated: “Fairbanks is losing doctors pretty rapidly...a lot of doctors that I've been seeing before are all just walking up and going somewhere else...there's only one dermatologist in all of Fairbanks right now and a huge waitlist”. The problem is compounded by the remoteness of the Borough: “the resources, even though they were far away, now they're getting even farther away, and you have to plan in months in advance to see any of these people”. Residents report driving to Anchorage, especially for specialty care which may not be available in Fairbanks. Additionally, primary care and dental care were the most commonly reported services that survey respondents had difficulty accessing.

One community member expressed: “I still think there's definitely a need for year-round care. There's still a lot of people going to Fairbanks for year-round care.” Long commute times were the second most cited reason for difficulty accessing care among survey respondents. Traveling to Fairbanks or further for medical care is associated with additional challenges which prevent residents from accessing services. In the winter months, road conditions prevent residents from traveling long distances: “the remoteness and the winter weather would be another big thing. I've canceled the appointments in the middle of winter because it was just not safe to drive, and then it's another six months of waiting”. Transportation, especially among low-income residents, further compounds this issue, as they may lack access to a vehicle or funds for fuel.

The time-consuming nature of traveling for medical services is another barrier to seeking care. One community member described: “I know how hard the clinics try, but they also have limited hours, and waiting to get in is hard. So if they were able to better supported and had more options... people put things off for nine months because they don't want to drive to Fairbanks. Or they take off 3 days and then all the kids do all their doctor, all their dentistry and everything else. They get used to missing school once one a quarter, and everyone goes and gets all the doctoring done. Because it's hard to get up and back in the same day.” People may be unable to find time to travel for medical care, due to work or childcare obligations.

The shortage of healthcare providers contributes to a lack of after-hours care, which is a need within the Borough. A provider noted: “The need for after-hours urgent care is very high in this community... it's in the evening there's not options here, and you have to go to town... we know that it's always after six that accidents happen”. Subsequently, if an injury occurs after-hours, community members must rely on EMS services, even if the injury could be treated by urgent

care providers. “If a clinic is not open after hours, EMS is taking that on. With an ambulance out of service, that leaves one ambulance crew in the borough for a true emergency. Or, you know, say the first was an emergency, so there's that's a trickle down of not having after hours in the community”. This is a burden for emergency medical services and may prevent true medical emergencies from receiving timely care if there is no ambulance available.

Emergency services remain limited, especially in the wintertime, in part due to lack of funding for paid, full time staff. Reliance on volunteers means that emergency medical services may not always have enough staff to respond to an emergency. Communication challenges compound this issue, as emergency calls are answered by a call center in Fairbanks. The lack of addresses in the Borough, and the lack of knowledge about Denali Borough geography by dispatch staff in Fairbanks, can make it difficult for emergency services to know where to go when responding to a call.

The staffing shortage contributes to the lack of a pharmacy in the Borough, which hinders access to prescription and non-prescription medications. Pharmacy services and prescription medications were the third most listed type of medical service that survey respondents faced difficulty accessing. According to one focus group member: “We had a pharmacy here for a very brief time. But when those employees quit, there were no qualified replacement employees. And so he ran away”. Although prescription medications can be delivered by mail, not everyone in the Borough has access to a PO box.

Public health (PH) nurses, who are employed by the state of Alaska, are based in Fairbanks and provide some preventative services across the Borough. However, in recent years, their services has become more limited, and many community members were not aware that PH nurses still provide services within the Borough. The sentiment expressed by a healthcare worker: “public health nurses used to come through, I've not known about that recently. I think they got funding dropped somewhat. We used to get checked in on and they would know everyone's family and their names because they've worked here a long time, that's gone away in the last decade or so”.

Costs associated with traveling long distances to care, insurance not covering health services, or not having insurance, present additional barrier to accessing care. Lack of health insurance, or inadequate insurance, was the fifth most cited issue by survey respondents which negatively affects quality of life in the Borough. Low-income residents, people who are unemployed, and seasonal workers are less likely to have health insurance. This may contribute to longer travel times to care, as these populations may not be able to get an appointment at the one Federally Qualified Health Center in the Borough, which provides care to uninsured patients. One community member stated: “a barrier here, as well as anywhere else I've lived, is the cost. So you have a lot of folks up here who, are you really gonna drive all the way to Fairbanks and find a primary care provider when costs are so incredibly high?” Residents report not wanting to seek medical care locally, due to high expenses, but not wanting to travel to Fairbanks due to long travel times.

As one seasonal worker stated: “without having health insurance, if I bust my knee, I’ll just sit at home with a bag of ice until I can...walk on it. So I think that’s just kind of a push away from going to see the care.” Uninsured people are reluctant to seek preventative care, due to high costs. This compounds health issues, as medical problems which were originally minor become medical emergencies. One community member described: “why would I do that [go to the clinic], unless it was really bad and then at that point, they’re getting ambulance ride, and we all know how expensive that is. And then you go to a hospital. There’s not an incentive to check out things while it’s not a problem here because it costs so much just to do that. And then that becomes this incredible bill once you actually do have a problem”. Limited services at local clinics cause scenarios in which patients pay high costs for care locally, only to be told to seek care outside the Borough, since they cannot be treated locally. This dissuades patients from seeking medical care within the Borough. One community member stated: “I personally have never gone there [the clinic], but I’ve had friends who had emergencies and got there and the bill was over \$1000 just to check something out and being [told] to go to Fairbanks. So there was this mentality of just to talk to someone here is so expensive.” This contributes to an overall mentality of: “I don’t go to the doctor unless I absolutely have to”.

Even among community members who have insurance, many cannot afford services due to high costs or inadequate insurance coverage. For many, insurance does not cover the costs of mental health care, dental care, or prescription medications. As one healthcare provider stated, “the biggest thing I see is Medicaid not covering prescriptions. So even with a prior authorization a lot of times there are certain things that Medicaid still won’t cover, even if it means that the difference between a patient being well controlled and them not being well controlled”. Although seasonal workers may be enrolled in Medicaid, they cannot use their insurance out of state. Among local residents who are enrolled in Medicaid, some cannot get an appointment with providers who accept their insurance. Healthcare providers in the Borough report wanting to accept Medicaid patients, but not having the necessary funding for associated administrative costs, as well as legal limitations on clinics which are not owned by physicians.

Limited services within local clinics are caused by lack of funding, lack of physicians, shortage of medical equipment, and legal limitations on mid-level providers. This contributes to patients needing to seek care in Fairbanks or further away. Healthcare providers report barriers when acquiring needed equipment: “the whole grant writing process could just be so just labor intensive. And I just wish for equipment that we need, whether it’s emergency apparatus or training, I just wish it was a little bit easier to acquire things of the department needs”. Mid-level providers report feeling frustrated for not being able to provide the level of care needed, due to legal limitations and lack of funding.

Overall, access to care in the Borough is a prevailing issue, which is fueled by a shortage of healthcare providers, long distances to care, limited available services, lack of medical equipment, absence of a pharmacy, lack of adequate medical insurance, and high costs for medical care. These barriers reflect those which are common across the state of Alaska, as well as rural areas across the US. Federal, state, and local policies are needed to ensure more equitable access to care, especially for populations who suffer from greater health disparities.

## Mental Health and Alcohol/ Substance Use

The second greatest health priority for the Denali Borough is reducing substance and alcohol use; improving access to mental health services; destigmatizing mental health conditions; providing education for mental health, alcohol and substance use; and creating support groups for mental health, substance and alcohol use. Across Alaska, poor mental health and suicide are significant public health crises, with suicide being the 7<sup>th</sup> leading cause of death across the state.<sup>12</sup> Alcohol consumption was the third greatest risk factor contributing to death in Alaska.<sup>13</sup> Survey responses cited drug and alcohol abuse as the third most common issue negatively affecting quality of life in the Borough. Among specialty services that respondents faced difficulty receiving, mental health services were often cited.

25% of survey respondents indicated they were diagnosed with depression or anxiety, and 21% reported feeling persistently worried or sad in the past 30 days. The published estimate for the rate of depression in the Denali Borough is 16%, and binge drinking rates are estimated at 20%.<sup>6</sup> Long and dark winters can be a contributor to poor mental health, contributing to social isolation, reduced physical activity, and seasonal affective disorder. This is a problem across the state of Alaska: “I think as a nurse working at Alaska you definitely hear from people that...seasonal affective disorder has an impact on activity level for sure.” This sentiment was echoed by community members as well: “the wintertime makes everything drastically, both mentally, and physically harder. And, wellness goes down, and that's not something that Borough is specifically can change. It's where we're located”. Cold and dark weather can contribute to people staying indoors and consuming more alcohol: “the beer, the alcohol for sure...there's some people who can go down dark holes...mental health wise and addiction wise, especially in the winter times”.

Community members face barriers to accessing mental health services, as there is only one mental health clinic serving the Borough: “when it comes to mental health and things like that, there's just not many options here”. Long-wait times for mental health services are another barrier to receiving care: “wait times are very long, so I don't think that the access is particularly good. We have very limited provider access... it's that single provider, one day a week can be hard to actually get in as a new patient”. Telemedicine is a potential solution to this problem; however, patients may be reluctant to use telehealth for mental health services due to privacy concerns or poor Internet connection. Lack of insurance can pose another barrier to affordable mental health care. Furthermore, insurance may not cover the cost of mental health treatment, as summarized by one health provider: “not every insurance pays for mental health or substance use. Many have a cap on--it's actually lower than what Medicaid will pay for. But it's still very frustrating to say, 'OK, you have 10 hours for the calendar year for therapy, good luck’”.

Stigma surrounding mental illness and mental health care may be a deterrent from seeking care for some community members. As one healthcare provider described: “there are people who very much do not want to be seen locally. They're concerned as people seeing their car outside of a mental health addictions building and what people might say”. Patients report feeling stigmatized for seeking mental health or addiction treatment: “no one wants to see your car parked there, because then they think whatever, and they don't want the judgment”.

Social isolation and loneliness are contributors to poor mental health, and a shortage of community spaces to congregate indoors can pose challenges for people who may be experiencing social isolation. As expressed by one community member: “we need a counselor...[for] lonely people here that don’t have anyone to talk to. So maybe just someone on staff that you could go and talk to.” Support groups for mental health and addiction were expressed as a need by community members, both to improve health outcomes and provide social support. Support groups can also reduce stigma towards mental illnesses and addiction, by allowing people to talk about mental health conditions openly. One healthcare provider stated: “people could benefit from having group conversations...make it 10 more nutritional groups, make it 10 more AA groups. We don't have as many in this area of that kind of self-help group. There are some, they work very hard. But if there are more of them, people would have more options for other supports.”

There is a need for health education surrounding mental health, substance use, and alcohol use disorder. Substance abuse prevention was the fourth most common health behavior for which survey respondents felt their community needed more information about, and stress/ anger management was the sixth most common. Mental health and suicide prevention was the most listed topic that parents felt their children needed more information about. Mental health education, as well as drug and alcohol prevention, occurs in schools, and a Narcan training was held for community members. For adults, however, opportunities are limited to a few self-help groups which provide support for alcohol use disorder.

### Housing

Housing is a key social determinant of health, as substandard housing, high rent burden, and difficulty finding affordable housing can contribute to poor physical and mental health outcomes. Affordable and improved housing was the most commonly cited service needing improvement in the Denali Borough among survey respondents. The need for improved housing options was identified in previous assessments of the Denali Borough.<sup>9</sup> An estimated 34% of Borough residents live in substandard housing, which is defined as “lacking complete plumbing facilities, lacking complete kitchen facilities, with more than 1 occupant per room, and housing cost burden among renters and owners”.<sup>4</sup> 19% of Borough residents are cost burdened by housing, spending more than 30% of income on housing, and 8% are severely cost burdened, spending more than 50%.<sup>4</sup> While these rates are lower than average for Alaska, they point to a need for adequate and affordable housing, especially among low-income populations.

Alaskan culture is one of self-reliance, with many community members moving to the Borough for the opportunity to live “off the grid”. However, this style of living comes with challenges, especially among low-income populations. Lack of publicly available water supply within the Borough means that people who cannot afford to install a well or cannot afford upkeep of a well live without running water. One community member stated: “I think and even more basic, just access to water and showers and laundry...can be a challenge.” Water is an essential health resource, without which, people cannot maintain proper hygiene and must continually worry about obtaining water, contributing to poor physical and mental health. There is a need for a

publicly available water source, which community organizations aim to fill. However, they report feeling overwhelmed by demand and regulations for public wells, as illustrated by the quote: “it shouldn’t be this hard...just to let somebody have water”.

One contributor to limited housing supply is the tourism industry and the rise of short-term rentals, which are not strictly regulated by state or local regulations. While state regulations require the licensure of short-term rentals, there are no local restrictions on the number of short-term rentals. Community members describe how “the vacation home rental industry has taken over [and] there's a conflict between healthy tourism industry and the available housing. In the wintertime, there is maybe more housing available for families, maybe better quality than some of the houses that families are living in, but they're kind of targeted towards the nightly rental business”. While there is not necessarily a lack of housing, short-term rentals can prevent residents from being able to rent a home. This can pose a challenge even for people who can afford adequate housing: “they have the money, but a lot of times before they even can think about it, they’ve been snapped up and turned into vacation rentals, airbnbs, where somebody will have now, like, 10 houses”. In addition to supply limitations, low-income residents face additional hurdles to finding housing that is affordable.

### Nutrition

Improving diet quality through greater access to healthy, affordable food and nutrition education is a health priority within the Denali Borough. There is only one grocery store within the Denali Borough, and few other convenience stores and gas stations. Although the Borough is not considered a food desert according to the USDA,<sup>14</sup> it is considered a low food access area. Travel and cost challenges are magnified among low-income populations. Community members signified interest in greater educational opportunities to learn about nutrition and healthy eating.

Community members expressed appreciation for the recent addition of a grocery store in the Borough, noting a significant improvement in access to health food: “Three Bears was huge though when they came in with the food supply...it was pretty dire here. You had to go to Fairbanks. So we basically went once a month to get fruits and vegetables”. Additionally, there are a few farmer’s markets and community-supported agriculture organizations. While people who live near Healy are not required to travel long distances to obtain groceries, some residents must drive over an hour. Most residents in the Borough have access to a motor vehicle, but for the 5% residents who do not, transportation to grocery stores poses an additional barrier.<sup>4</sup> Different neighborhoods within the Borough have drastically different access to healthy food, based on proximity to the grocery store: “having the proper amount of access is just a big barrier, especially in our rural communities...Healy has three bears, a grocery store, which is absolutely fantastic. However, Cantwell and Anderson do not. In fact, neither of those have even a convenience store, besides a gas station”. Poor road conditions in the wintertime add an additional barrier for transportation.

Residents felt that high cost of food and poor quality of produce dissuaded them from purchasing fruits and vegetables. This can contribute to poor diet quality, reduce the likelihood of consuming recommended amounts of fruit and vegetable, and increase the consumption of processed food.

There is no school lunch program within the Borough; however, non-profit organizations provide lunches and snacks at school for children who do not bring lunch.

Among children, youth, and adults, there is a need for nutrition education, to encourage healthy eating, learn how to improve diet quality, and share cooking and hunting skills. Eating well and nutrition was the fifth most common health behavior for which survey respondents felt their community needed more information about. For parents and guardians, nutrition was the second most common topic which they felt their children needed more information about. While there is some nutrition education in schools, opportunities are limited. Programs in which public health nurses came to schools to provide nutrition education were ceased due to the COVID-19 pandemic. One healthcare provider noted: “the amount of people...is fairly high... who don't understand what kind of proper food to put in your body”. Many community members expressed interest in learning about nutrition and sharing information about hunting and local farming. Community knowledge of hunting was expressed as a strength of the Borough, which should be shared with other community members to promote healthy eating habits. This is highlighted in a quote from a focus group: “there could be a better program for people to learn from each other... some sort of winter learning sessions where you learn about processing meat and canning fish and things. I think [it] would really be a good addition to this area because there's so much local knowledge, but I think being able to pass that onto folks who are up here, so they're not, like, ‘Oh, wow, I'm running out of food’. It's so expensive at Three Bears too, majority of people are self-reliant and preserve our food for longer just so we're not having to drive up and get that all time”.

### Physical Activity and Indoor Recreation

Improved opportunities for indoor recreation and physical activity education is a health priority within the Denali Borough especially during the wintertime. Limited access to indoor recreation can negatively impact physical and mental health. Number and quality of recreation facilities was the third most common survey response for services needing improvement in the Denali Borough. Long winters were the top response for issues most negatively affecting quality of life; despite outdoor recreation opportunities, mental health and physical health can decline in the winter season due to sedentary behavior and increased time indoors. Physical inactivity can contribute to obesity, heart disease, high blood pressure, and diabetes.<sup>15</sup> Research has found that obesity and physical inactivity were the greatest risk factors for death in Alaska.<sup>13</sup>

Community members often expressed the need for indoor recreation opportunities in the wintertime, to provide a space for exercise and physical activity education. Although hiking, fishing, and hunting provide physical activity opportunities in warmer months, during winter many people stay indoors and consume less produce: “it's our eating habits, but it's also our sedentary lifestyle in the middle of the winter, I mean it's Netflix and eating”. Many community members continue to stay active outdoors throughout the winter months, and the Alaskan lifestyle, including chopping firewood and home maintenance, necessitates some level of physical activity. Nonetheless, lack of facility to exercise and cold weather were often cited by survey respondents as reasons for not exercising within the past week. This sentiment was

evident in focus groups as well: “community access to physical fitness facilities is extremely limited. And, essentially, it’s the school when you’re allowed in there”.

A community recreation center can provide opportunities for socialization and reduce social isolation, in turn, improving mental health. As one community member noted: “the rec center has been an idea that’s kicked around. I think lack of indoor recreation space...[negatively impacts] mental health, physical activity especially during the winter. It's cold, dark”. Indoor recreation activities for teenagers are also needed, to provide opportunities to engage in activities which do not involve alcohol or drug use. Indoor community spaces can be used to for health education and other community-based events: “there's very limited options for people to connect. Like being able to go to a gym or being able to have group meetings, there's not a lot of that. And so I think it'd be really cool to actually see some of those things being implemented so we can have different options for people going through stuff, be able to connect better with other people and be able to learn about a healthy lifestyle”. Community spaces can be used to hold mental health self-help groups, nutrition education, physical activity education, and childcare events. These can promote community health by promoting healthy behaviors and improving community connectedness.

Community partnerships and volunteer efforts provide some opportunities for indoor recreation, through the use of schools, churches, and the Tri-Valley Community Center. However, space is limited, which can result in inconsistent events. While community volunteers exhibit significant dedication to their community, limited funding and demands on volunteer time can threaten the sustainability of volunteer-run events.

Lastly, community members expressed interest in greater educational opportunities to learn about fitness, both for adults and children. Exercise was the third most common health behavior for which survey respondents felt their community needed more information about. Students receive some education regarding physical activity in high school and take physical education classes. However, public health nursing partnerships with schools to provide physical activity education ceased during the COVID-19 pandemic. Adult education for physical activity is more limited than that for children. Fitness classes in a community space, in conjunction with physical activity education, can promote healthy behaviors and reduce chronic diseases.

### Road Safety and Transportation

Improving road conditions; reducing vehicle accidents, injuries, and deaths; promoting safe driving; and improving access to transportation is a health priority for the Denali Borough. Poor road conditions are a problem across the state of Alaska, which ranked the third worst state in the US for highway conditions.<sup>16</sup> The remote location of the Denali Borough causes challenges when responding to vehicle accidents and prevents crash victims from obtaining timely treatment. Road maintenance and safety, as well as transportation options, were commonly selected by survey respondents as services that needed the most improvement in the Borough.

Although data for the Denali Borough are not available, death rates from fatal vehicle accidents for the state of Alaska are lower than the national average.<sup>17</sup> While vehicular deaths are not a

significant public health concern in the Borough, reckless driving can still contribute to accidents and injuries. Survey respondents indicated that driving safely was a behavior they felt community members and their children needed more information about. Education to encourage safe driving occurs in high schools; however, opportunities for adults are lacking.

Poor road conditions can contribute to accidents and injuries, and lack of sidewalks can create hazards for pedestrians, who often walk in ditches along the side of the road. However, much of these conditions are caused by snow and ice during the winter. Community members reported winter road conditions to be a barrier to accessing medical care, healthy food, and emergency care. Remoteness of the Borough and winter driving conditions can cause delays for emergency medical services, which can prevent people from accessing timely medical care. Poor winter weather and wildfire smoke can delay medevac flights, which already carry high risks, as flying in Alaska has a mortality rate 5 times higher than the national average.<sup>18</sup>

Transportation is a critical social determinant of health, which affects ability to access healthy food, medical care, employment opportunities, and recreational activities. Given the remote nature and low population density of the Borough, public transportation options are limited. This may contribute to drunk driving, as people feel that they have no other options. Public transportation is a need among people without a vehicle, who have difficulty accessing healthcare and healthy food. Volunteer or paid community members aim to fill the need for public transportation by providing transportation for people without a vehicle: “there was a whole trip planning of who's going to Fairbanks' and what is needed... I could easily never go to Fairbanks and just rely on other people”. Employers of seasonal workers occasionally provide transportation to Fairbanks or Healy, and the tourism industry provides some shuttles around the Borough.

### Chronic Diseases

Chronic diseases are defined as long term health conditions, and include obesity, heart disease, stroke, cancer, diabetes, and asthma.<sup>5</sup> These conditions are largely preventable and are strongly influenced by social determinants of health and health behaviors, including nutrition, physical activity, alcohol consumption, transportation, access to medical care, and housing. A health priority for the Denali Borough is reducing rates of chronic diseases, improving chronic care coordination, reducing risk factors for chronic diseases, and promoting healthy behaviors. Addressing the first six priorities on this list will reduce rates of chronic disease and promote care of chronic diseases, subsequently improving overall health within the Borough.

Rates of chronic diseases within the Borough are lower or equal to those in the state of Alaska.<sup>5,6</sup> This sentiment is echoed by one health provider: “it's just a clipping of the rest of US...they suffer from some of the same things... we still have high rates of obesity, heart disease and diabetes in this community like anywhere else”. Physical inactivity and poor diet quality can increase risk of obesity, which is estimated to affect 31% of Denali Borough residents. These risk factors have been addressed in the above identified health priorities.

The main risk factor for chronic diseases which has not been addressed in the above priorities is smoking. An estimated 17% of Denali Borough residents are smokers, which is lower than the average for Alaska, but higher than the national average of 12%.<sup>19</sup> Smoking is the second greatest risk factor which contributes to death in Alaska.<sup>13</sup> Health providers in the Borough screen patients for smoking and other risk factors, and smoking cessation treatment is available at mental health treatment centers. Providers also refer patients to the National Quitline and provide patients with education to promote healthy behaviors. Partnerships between mental health providers and schools deliver educational programs for students which provide prevention strategies and inform about the harms of smoking. Educational opportunities to prevent smoking and promote smoking cessation for adults remain limited outside of medical settings.

Limited access to medical care is another contributor to chronic health conditions, by reducing preventative screenings and preventative care. Within the Borough, 39% to 20% of residents do not meet recommended guidelines for dental visits, cervical cancer screenings, mammography, and colorectal cancer screenings. The top response among respondents for health behaviors the community needs more information about was going to a doctor or dentist for check-ups, preventative care, or screenings. While access to care issues cannot be resolved by education alone, there is a need for increased education about the importance of preventative care and screenings.

Barriers to accessing to medical care can contribute to difficulty managing chronic conditions. People with chronic conditions may struggle to access medications, since there is no pharmacy within the Borough. Although local clinics provide chronic care management, often in coordination with physicians outside the Borough, limited services and lack of medical equipment pose challenges. This is illustrated by a quote from a community member: “another thing that’s almost basic for a lot of people is dialysis machines...they have to go up three times a week in the winter, 200-mile trip there and back. Even for the wealthiest person that gets expensive, and a lot of people just move up to Fairbanks because of it. So they can’t even be where they want to live because of the lack of resources in this area”. Other providers and community members cited instances of residents traveling regularly to Fairbanks for chronic disease care, which adds costs to already expensive medical treatments. Community members report that of older adults and people with chronic conditions leave the borough due to lack of treatment options: “our health care services are so limited, that as as you age, you have to leave if you need continuing care--you just leave”. Barriers to accessing continuing treatment for chronic conditions can exacerbate the effects of chronic diseases, worsen symptoms, and increase mortality. Low-income populations are especially vulnerable due to high costs of travel and medical care.

Community members expressed a need for support groups and education for chronic disease management and prevention. Support groups for people living with chronic conditions can provide social support for patients, improve disease outcomes, and reduce medical costs.<sup>20</sup> This sentiment was expressed by a medical provider: “there's large groups of certain chronic diseases...getting care in Fairbanks but if there's maybe some community groups that everybody is kind of same boat...I think there's always a need for that”.

### Other Community Needs

Community needs of lesser priority include sexual health, emergency preparedness, accident prevention, and childcare services. While these needs were expressed by focus group members and survey respondents, they were less commonly discussed and are less severe than the previously listed priorities.

Community members report a need for greater access to healthcare for sexually transmitted infections (STIs) and increased sexual health education, especially for children and youth (including up to age 24). Health providers report seeing increased rates of STIs within the Borough, especially among youth and seasonal employees. Students receive sexual health education in schools, although there are concerns about whether the curriculum is sufficient. There is limited access to sexual health education for adults, although public health nurses have partnered with employers to provide sexual health education for seasonal employees in the past. This was discontinued because of the COVID-19 pandemic; however, there are plans to revive the program within the next year. Additionally, seasonal employees report financial barriers to receiving STI testing, due to lack of health insurance or local clinics not accepting out-of-state insurance.

Preparing for an emergency or disaster was the second most common topic for which survey respondents felt community members needed more information about. 65% of respondents owned a basic emergency supply kit, and 72% of respondents would leave their homes if an evacuation was ordered. A significant proportion of the Borough is not prepared for an emergency, yet there is interest in learning more about emergency preparedness. Wildfires are a common occurrence within the Borough for which people should be prepared for. Education, as well as distribution of emergency supplies for people who cannot afford them, is a need within the Borough.

Accident and injury prevention is a need among tourists, seasonal workers, younger populations, mine workers, and people who are active outdoors. As one community member expressed: "Alaska in general, it's a dangerous place. And if you look at that, even we have a relatively young cemetery here". In addition to vehicle injuries, other forms of accidents can involve drowning, falls, and physical trauma. Alaska has the second highest death rate among US states for accidents,<sup>21</sup> and accidents are the fourth leading cause of death in Alaska, although this includes drug overdose deaths.<sup>12</sup> Lifestyle factors associated with living in the Borough, including hunting; hiking; operating machinery for home maintenance; and riding ATVs or snowmachines can cause accidental injuries. Although the mine in the Borough has strict safety protocols, accidents can occasionally occur. Alcohol intoxication is associated with a greater risk of injury from falling, especially among seasonal workers and Denali National Park visitors. Accidents can also result in traumatic brain injuries, which can cause or worsen mental health conditions. Seasonal employees report not undergoing safety training for jobs which require physical labor, despite company and legal policies requiring it. Preventable accidents and injuries can place a strain on already limited emergency medical services. Improved education can increase rates of safe recreation and reduce costs associated with emergency care.

Childcare options ranked fourth among services needing the most improvement in the Denali Borough among survey respondents. A shortage of activities for children and youth, as well as few preschools and daycare centers, were noted by survey respondents as issues which negatively affect quality of life in the Borough. Low population density and a small population of school age-children cause challenges for sustaining child and youth services. Community members suggested holding more events for families with children at a community center as a potential remedy to this problem.

## Populations of Special Interest

Populations across Alaska for which health disparities exist include low-income populations, Alaska Natives, and rural communities.<sup>7</sup> These populations experience higher rates of morbidity and mortality; reduced access to medical care; and greater exposure to risk factors, such as smoking, pollution, and alcohol consumption.<sup>22</sup> Although Alaska Natives experience health disparities, they make up approximately 6% of the Borough population, and were not sufficiently represented in the survey or focus group sample. This CHNA cannot adequately describe the needs of Alaska Native populations in the Borough or specific barriers they face when accessing healthcare. Among populations included in the sample, low-income residents and seasonal employees face greater barriers to accessing care. Older adults are more at a higher risk of experiencing social isolation and having chronic conditions. Specific priorities for children and youth include mental health, sexual health, and substance use prevention.

### Low-income Populations

Community members who are of low socioeconomic status face greater barriers when accessing healthcare, healthy food, housing, mental health and substance use treatment, and care for chronic diseases. Although remoteness affects all residents of the Borough, poverty causes greater challenges, as low-income residents cannot afford associated transportation costs for long distances to services. Rates of poverty for the state of Alaska are between 10.5% and 16%,<sup>3,5</sup> but accurate rates for the Denali Borough are not available. The US Census Bureau estimates the poverty rate of the Borough to be 15.7%, but the rate may be between 5.4% and 26%.<sup>2</sup> The rate of people without health insurance is estimated at 13.9%, although it may be between 2.8% and 25%.<sup>2</sup> It is difficult to accurately quantify how many Borough residents face greater health disparities due to poverty status.

Poverty rates vary in communities across the Borough: “there's a very big difference in who has access to what. [The Borough] has a very high per capita income. If it's not the highest in the state, it's the second highest. Compared to [Healy], Anderson, and Cantwell is often in the mid to low range”. The Borough has one of the highest per-capita income rates in the state. While poverty is not a pervasive issue in the Borough, for low-income residents: “there are equal amounts of depression, anxiety, and PTSD. However, lack of funds makes it harder to get places, to have money, to get your pharmacy medication, to have gas money, to have food money, and so while I have the exact same number of people who come in for substance use, other barriers get in their way if they don't have the income to help them bridge [that gap]”. Low-income populations face greater barriers when accessing healthcare, as they are less likely to have health

insurance and more likely to have inadequate health insurance. High costs of medical care prevent low-income residents from accessing care and deter the use of preventative services and health screenings. People without insurance may need to travel further distances to reach a medical provider that provides services to uninsured people. The problem is worse for low-income populations without access to a vehicle, who face transportation challenges when accessing care.

Low-income populations are more likely to live in substandard housing, contributing to health disparities. Some people move to the Borough without realizing the demand for self-sufficiency and cannot afford to install water or roads. As highlighted in a focus group: “they find some 20-acre lot outside of town...but they don’t realize there may not be a road or if there is, it’s really more of a trail. They haven’t put in power. They don’t understand they have to put in a well...So then you have these people moving in that maybe don’t have a lot of money to begin with and then find themselves in this situation where they have no power, no water, no access”. Poor roads to homes make it harder to access medical care: “they live in substandard housing, which means they live off of substandard roads, which means the ability to even get out to think about accessing healthcare is almost...” The mental strain of living in substandard housing leads to a demand on energy which inhibits people from seeking preventative care, while contributing to poor mental and physical health. Additionally, emergency services may not be able to access homes with poor roads, making wait times longer when timeliness is critical.

Despite a grocery store within the Borough, healthy food remains inaccessible to low-income residents due to high costs. As one community member noted: “food access is definitely an issue within our clients...the amount of people who need food assistance, I think is fairly high, as well as the amount of people who...honestly just can’t afford it. Healthy food is expensive”. Gasoline prices add to already high food costs, and lack of a vehicle can present additional barriers. Community organizations, such as non-profit organizations and religious institutions, aim to fill this gap by providing free food to low-income families. While they provide tremendous assistance to families who struggle to afford food, organizations face challenges in providing consistent services due to funding limitations. Grant cycles mean that organizations which provide food often do not have sustainable funding, and programs can be paused if funding runs out.

High rates of employment and high per-capita income may mask the challenges that low-income and unemployed or underemployed community members face. One community member pointed out that “there is a significant subset of our population that does not have those [employment and community engagement]. And then they’re experiencing a significant challenge. I think in a community that we can sometimes forget or not be as aware of that population as we might otherwise would, because we don’t see that... It’s more easy for us to see the robust employment for people that have the resources go to Fairbanks routinely, and we forget about those who are partially employed, under employed, unemployed in the community...challenges they might have to accessing everything from health providers to food”.

## Seasonal Employees

Seasonal employees within the Denali Borough, although not considered residents by the Census Bureau, comprise a large portion of the summer population and may live in the Borough for half the year. Many are considered low-income and face the same challenges as low-income residents. Additionally, they face challenges unique to their employment status. As described by one focus group member: “I’m sure there’s pressure [on] seasonal workers who are here...housed by their employers to not step out of line because, their housing and their livelihood depends on it. Right? And they're up here in Alaska and they have to make enough money for the plane to get home”. Seasonal employees face fewer workers protections and do not have paid sick leave. Subsequently, many report not having time to seek medical treatment, or not wanting to take time off work due to fear of retaliation by their employer. This exacerbates access issues for low-income residents and seasonal workers, who may be unable to miss work to travel long distances for medical care. Employees report feeling guilty for missing work, even when employers allow them to take sick leave, because coworkers must pick up their shifts.

Multiple factors are associated with barriers to care for seasonal employees, including transportation, high costs, and insurance status. Seasonal employees are less likely to have health insurance since it is not provided by employment, and one employee estimated that most employees are uninsured, although reliable estimates are not available. Those who have Medicaid from another state, cannot access insurance coverage in Alaska. High costs of medical care for uninsured people can deter them from seeking primary care and exacerbate minor issues. One community member described: “we’ve got all these seasonal workers, many without health insurance. They're not gonna go check out... little injuries...right? Because the cost is so incredibly high here”. These small injuries can turn into medical emergencies, leading to higher costs for the individual and the community, and burdening emergency services. An absence of a pharmacy within the Borough is another challenge for seasonal workers, who are less likely to have access to a PO box or a vehicle.

Transportation is a need among low-income populations and people without a vehicle, many of whom are seasonal employees. Lack of transportation among seasonal employees can further contribute to barriers accessing medical care and healthy food. One community member noted: “many of them [seasonal workers] and some locals shockingly don’t have transportation. So even having access to get to a local clinic or a clinic somewhere else can be really challenging when there’s no public transportation and they don’t have the means or maybe they do have a car, but they don’t have the money to get it running or gas in it”. Employers occasionally help their seasonal employees access medical care by providing transportation, and employees help each other by carpooling to Fairbanks.

Emergency services staff describe treating patients who could have been treated by urgent care providers, yet were seen by emergency services because they did not have access to a vehicle. One provider explained that “a lot of our seasonal staff comes without vehicles and so, they can't get to healthcare even more so because they're relying on other people for rides. And so, emergencies happen...I feel like both of them, if they had access to a vehicle, could have had their partner or someone drive them to wherever they were going because they were minor injuries

and mostly just needed to get somewhere that could provide care...we didn't need to transport the kid in the hospital”.

Substandard housing is a common concern among seasonal employees. One community member stated: “I would say in terms of businesses with employees, that is often a concern in the summertime too with very substandard housing for seasonal employees”. However, developing seasonal housing for employees can in conflict with reducing housing shortages for year-round residents and promoting sustainable development. Another concern voiced by seasonal employees was lack of access to healthy food and poor quality of employer provided food. Poor quality of food can occasionally cause illnesses. This dissuades employees from eating the recommended amount of produce and contributes to poor diet quality.

### Older Adults

Older adults are more likely to suffer from chronic diseases and poor health outcomes, although they are less likely to be uninsured, due to Medicare. Approximately 12.8% of Borough residents are above the age of 65, but estimates range from 3.6% to 20%.<sup>2</sup> The need for specialty care and chronic care coordination is greater among older community members. The associated cost of traveling often to seek medical care, as well as actual costs of medical care, can contribute to poor management of chronic diseases. These costs can dissuade residents from staying in the Borough as they age.

Denali Borough community members expressed concern for lack of elder care options and activities for older adults, which can contribute to social isolation. One community member expressed: “in my opinion, our most vulnerable population are older single individuals, which we have a lot of. They have a harder time getting out into the community, finding groups that will support them. And so I think that sometimes we can find a lot of mental health issues and physical health issues within that population, especially in...the winter”. Older adults across the US are at greater risk of loneliness, with one quarter of adults aged 65 or older considered socially isolated.<sup>23</sup> Social isolation contributes to poor physical and mental health outcomes, including an increased risk of dementia, premature death, heart disease, and depression.<sup>23</sup> Improved indoor recreation opportunities and community events for older adults can provide social support for this population.

### Children and Youth

Specific health priorities for children and youth include access to periodic health assessments, mental health education and services, and sexual health education. Although children receive sexual health and mental health education in schools, parents and health providers report a need for greater knowledge of these topics among children.

The shortage of public health nurses poses a challenge for children, who in the past, received well-child checkups and vaccines from public health nurses at school. This service was discontinued, since the Alaska Division of Public Health believed that children could receive these services at local clinics. However, many parents report being unable to get an appointment at

local clinics, and instead, driving their children to Fairbanks. As stated by one community member, “it is really hard living here without access to healthcare full time. I know when I was raising kids, we had health nurses that came out and did our well child checks, but that doesn’t happen anymore regularly. So, I know my grandkids are going out to Fairbanks for the pediatrician”. COVID-19 is often cited as a reason for the discontinuation of these services, but there is evidence that services were limited before the COVID-19 pandemic. One community member expressed: “public health in Fairbanks has not had a Healy provider for several years or if the provider is there, they’ve only been on for less than six months before they move on. And so they often have a hard time getting someone down here to do those clinics. So then COVID hit, so we would have those clinics, but ultimately, sometimes they wouldn’t be till November or December, which is not ideal for students coming into school and needing shots”.

Community members report a need for improved mental health education and treatment options for children and youth. The COVID-19 pandemic caused an increase in depression, anxiety, stress, and alcohol use among adolescents globally.<sup>24</sup> Community members report concern for the overall mental health of youth, which may have been negatively impacted by the COVID-19 pandemic. One community member expressed: “what I hear from some parents are continued concerns...about mental health... [which] we heard more about during lockdown portions of the pandemic, but I’ve heard kind of a continuing aspect of that”. There is additional concern about alcohol and drug use among adolescents in the Borough: “I continue to see and have worries and large concerns about the prevalence of the alcohol use and abuse amongst our school population”. Children and youth face the same barriers to accessing mental health treatment as adults, including long wait times, cost, and limited treatment options. There are some mental health services available through the school district for children, although resources are reserved for more severe cases. Mental health and suicide prevention was the most listed topic that parents felt their children needed more information about. Although students receive mental health education during health classes, there is a need for improved education about healthy coping mechanisms and strategies to improve mental health.

Sexual health was the third most listed topic among survey respondents for topics which they felt their children needed more information about. Middle school and high school students receive education about healthy relationships and intimate partner violence through school partnerships with local health providers. Additionally, high school students receive sexual health education through health classes. However, focus group participants expressed that there is a “continued need for aspects, guidance, help on the relationship health...I don’t know that the underlying kind of nature of understanding of healthy relationships has significantly changed”. One provider expressed: “I don’t know if the students truly know enough about what the STD processes are in terms preventing those diseases. I think that...we have a very small town and it’s very easy to feel protected here. And I worry when kids go out into the world...that maybe they just don’t quite know enough yet or didn’t pay attention enough when they were 14 and had help”. Although condoms are legal for purchase at any age in Alaska, and are available for free at health clinics, the closest clinic location is in Fairbanks. Condoms are not distributed in high schools, and children may feel uncomfortable buying them, which can deter use. Nonetheless,

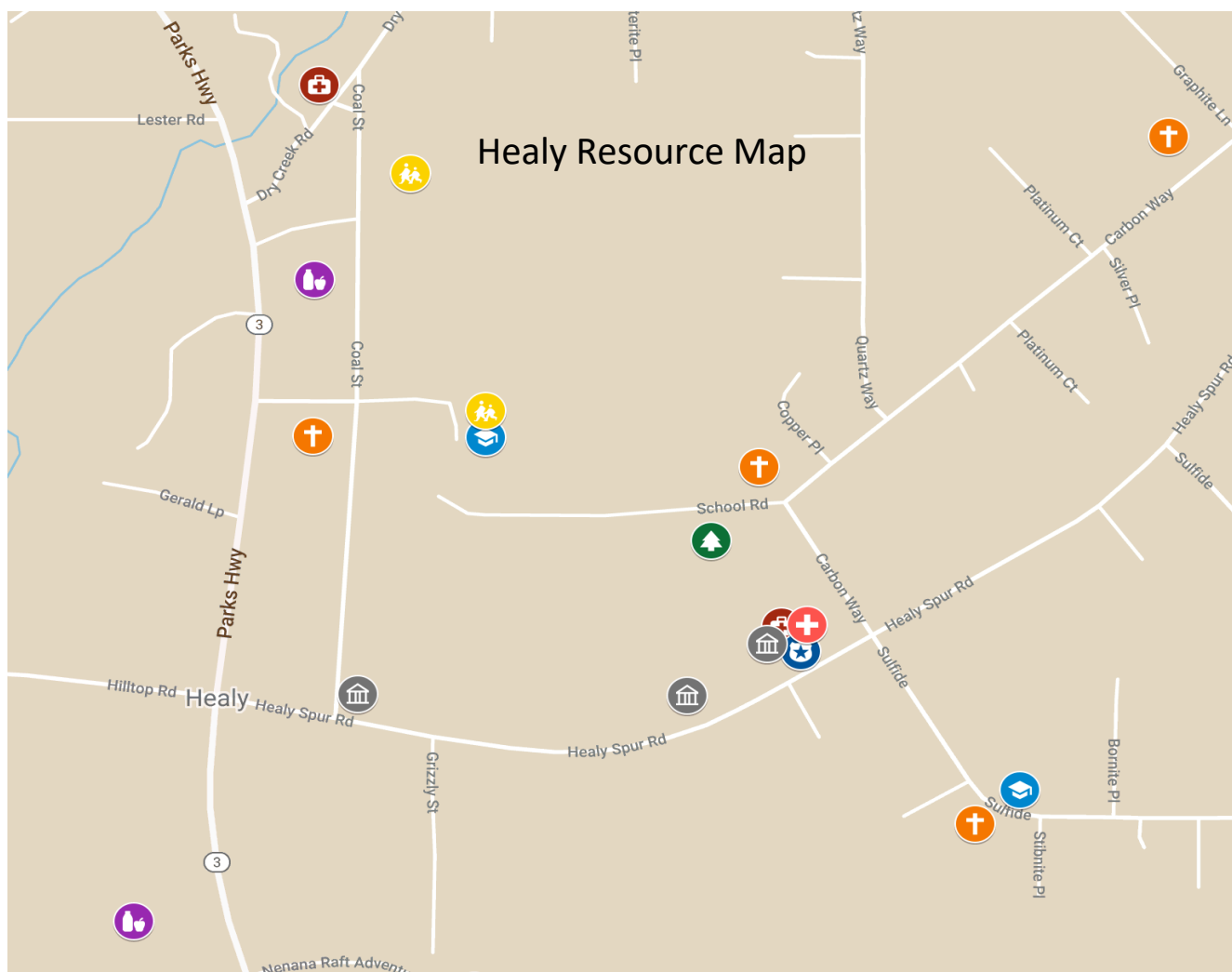
teen pregnancy is not a significant concern in the Borough, and abortion rights remain protected in Alaska.

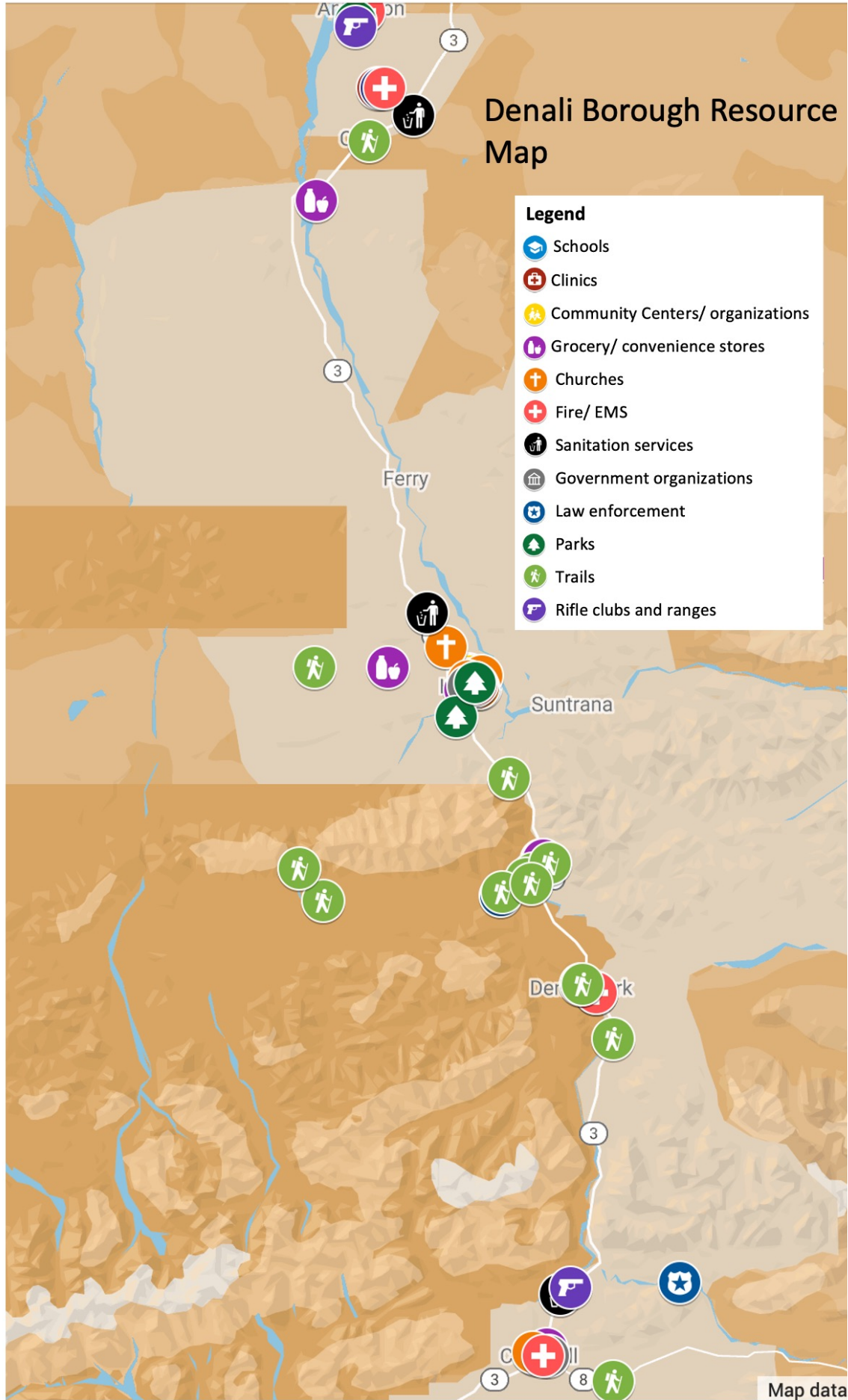
## Denali Borough Resources and Strengths

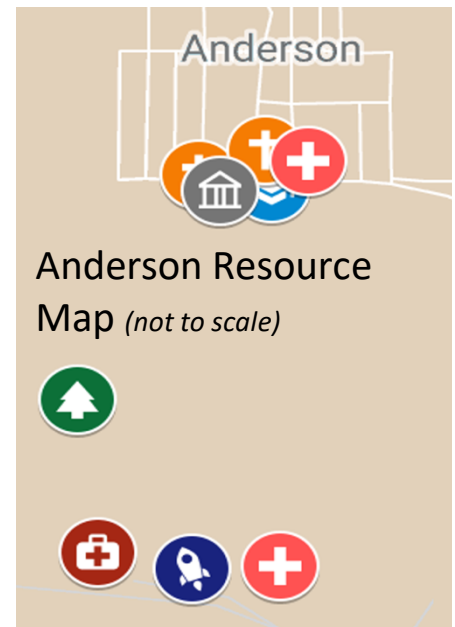
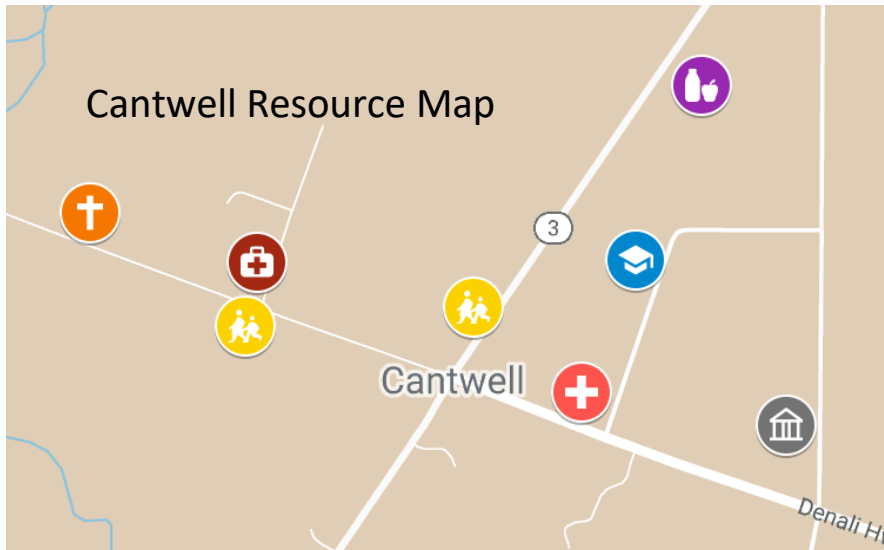
### Available Resources

A map of available resources in the Denali Borough, including healthcare delivery sites, grocery and convenience stores, schools, government organizations, parks and trails, community centers, churches, and emergency medical services, is shown below. The second map depicts resources in the Denali Borough; not all resources are visible on the map due to scale. The first and last two maps depict specific cities and towns within the Borough. A link to an online version of the map is available here.

[https://www.google.com/maps/d/u/0/edit?mid=1n-qqx00UpLZrh9g0WzJiRitn4a\\_0XBE&usp=sharing](https://www.google.com/maps/d/u/0/edit?mid=1n-qqx00UpLZrh9g0WzJiRitn4a_0XBE&usp=sharing)







The following is a list of resources in the Denali Borough, most of which are included in the resource map. Some organizations are not on the map because they do not have addresses.

#### Schools

- Cantwell School and library
- Tri-Valley School and library
- Anderson School and library
- Denali Preschool & Learning

#### Medical clinics and mental health services

- Cantwell Clinic
- Interior Community Health Center
- Canyon Clinic at Denali
- Clear Medical Clinic/ Siddall Medical Services
- Railbelt Mental Health and Addictions (satellite location)

#### Community and non-profit organizations

- Clear Space Force Station
- Tri-Valley Community Center and library
- Tri-Valley Subdivision Homeowners Association
- McKinley Park Community Center
- Native Village of Cantwell Council/ Community Center
- Neighbor to Neighbor
- Play My Way AK
- Spruce Network
- Lions Club
- Kids in Motion

#### Military

- Clear Space Force Station

#### Food options

- Three Bears Healy
- Sled Dog Liquor
- Tesoro Gas Station, Canyon
- Park Mart Store
- Vitus Gas Station
- Farmer's Market
- Denali Organic Growers
- Denali Grown

#### Churches

- Cantwell Bible Church
- In His Shadow Ministries
- Holy Mary of Guadalupe Catholic Church
- Valley Chapel
- Morning Star Baptist Church
- The Church of Jesus Christ of Latter-day Saints
- North Star Baptist Church
- Anderson Community Church

#### Law enforcement

- State Troopers-Healy
- State Troopers
- Denali National Park and Preserve Headquarters

#### Government institutions and services

- Denali Borough Office
- Denali Chamber of Commerce
- Anderson City Hall
- Cantwell DOT Shop
- State DOT Shop: Healy

#### Sanitation services

- Denali Borough Landfill
- Healy Transfer Station
- Cantwell Transfer Station

#### Fire and emergency medical services

- Tri-Valley Volunteer Fire Department
- McKinley Park Fire Hall
- Anderson Fire Department
- Clear Space Force Fire Department
- Cantwell Volunteer Fire Department

#### Parks and playgrounds

- Denali National Park
- Anderson River Park
- Otto Lake Park
- Mountains of Fun playground

#### Trails

- Horseshoe Lake Trail
- Mount Healy Overlook Trail
- Sugarloaf Ridge Trail
- Rock Creek Trail
- McKinley Station Trail
- Triple Lakes Trailhead
- Savage Alpine Trailhead
- Savage River Loop Trailhead
- Oxbow Loop Trail
- Bison Gulch/ Ridge Trail
- Stampede Trail
- Rex Trail
- Wolf Point Trail
- Horse Trail

#### Rifle clubs and ranges

- Anderson City Public Range
- Denali Sportsmen Association Rifle Range

Despite low population density, the Denali Borough includes good educational opportunities for students, many opportunities for outdoor recreation, dedicated non-profit organizations, and available medical services. Education, food access, social support, and employment are social determinants of health which can impact the health of the Borough. The map highlights how different organizations can collaborate to improve health outcomes within the borough and ensure that services are being used to their full potential.

## Social Support

Community members often mentioned community support and social cohesion as strengths of the Borough. Social connectedness has positive health benefits, by encouraging healthy behaviors, reducing social isolation, increasing stress coping skills, and improving physical and mental health outcomes.<sup>25</sup> As one community member described: “the sense of community is more than anything what helps for community wellness...the sense of, we all know we have to get through this together and I think that overall, it's not like a person or a program. It's just everyone in the trenches together realizing that we live so far from Fairbanks or from help that, you're willing to go the extra mile for people you don't know”. Community members cited social connectedness as a reason they enjoy living in the Borough and continue to stay, and 66% of survey respondents agreed or strongly agreed that there is plenty of help for people in times of need.

Social connectedness improves health outcomes within the Borough by reducing social isolation and providing support networks for people in need. Residents feel that they can depend on their neighbors for help, and a large volunteer network assists low-income community members. This is described by one community member: “I think some of the big strengths within the Denali Borough...there seems to be a lot of people who generally want to help and support you, 'cause you're their neighbor, or their schoolteacher, or whatever it may be”. The nature of a small rural community can be a strength for the Borough, as volunteers deliver food to residents who are food insecure, run youth physical activity programs, and organize social events. Organizations, including schools, non-profit organizations, and government often collaborate to assist low-income community members, provide health screenings, and promote physical activity. Volunteers are also essential to staffing fire and emergency medical services. Volunteer organizations are sustained through community donations and grants, which are limited to a certain timeframe. Despite the dedication of volunteers, lack of sustainable funding can be a challenge for volunteer-led organizations, as to volunteers have limited time due to work obligations.

Community members further promote health by helping each other access health services. One community member expressed: “I think there's a lot of people here who are motivated to make this community healthier”. Residents report picking up pharmacy prescriptions for those without a vehicle or driving a friend to a medical appointment. Community members volunteer to lead exercise classes and share knowledge through community events. Volunteers help run health screenings, health education events, and health fairs: “Denali borough, the community engagement has been just incredible, they were able to recruit volunteers easily for their vaccination events and, and I can't help to think a big part of that is, just the Borough's investment in the health of their community members”. Despite limited local government services, many health providers and residents felt supported by the efforts of the Borough to improve community health.

Health providers within the Borough are invested in the health of their community and are perceived by many community members to be a part of the social fabric of the Borough. One provider described: “Your patients are not [just] your patients, they're also your neighbors,

they're your friends.... you can't just look at them as a patient, you have to look at all these other things too. Which is great". Patients report feeling comfortable discussing health behaviors with their doctors and requesting health information. Patients and providers report high levels of trust among patients, although cultural factors unique to Alaska may dissuade people from seeking medical care. Providers are viewed as members of the community who understand the needs of their patients and the specific factors unique to living in the Borough. Medical providers report feeling supported by other members of their medical community, across healthcare organizations.

Although most community members feel support by the Borough, some people remain socially isolated or disconnected from community. This can be caused by social factors, poor mental health, or insufficient community recreation opportunities. One provider described "I think it's very person by person. I know some people who have really good social supports in the Denali Borough area, and I know individuals who have very limited amount of social supports in the Denali Borough area. So I guess it's the people that are able to making the connections, I feel like they have really strong connections, and the ones that do not feel as comfortable making those connections, or whatever reason just don't feel safe to do so". Low-income populations may have more difficulty engaging with community, due to lack of transportation, stress, and health disparities. Older populations are more vulnerable to social isolation as well.

### Healthy Behaviors

Lifestyle factor associated with living in the Borough are associated with lower rates of sedentary behavior and greater physical activity. The vast majority of residents are not sedentary, and the culture of the Borough promotes spending time outdoors through hiking, hunting, and fishing. Living in a remote community can necessitate physical activity through chopping firewood, building and maintaining homes, or installing utilities. Additionally, community members promote nutrition by sharing produce that they grow or meat that they hunt. Healthy behaviors promote community health outcomes by reducing rates of chronic diseases and premature mortality.

### COVID-19 Impacts

Although COVID-19 was the third leading cause of death in Alaska in 2021,<sup>12</sup> health providers and community members report few hospitalizations or deaths resulting from COVID-19 within the Borough. The COVID-19 pandemic influenced the Borough by improving social support for some residents, improving coordination across government and medical organizations, and increasing the use of telehealth. However, the pandemic also caused the disruption of health education programs and services, as limited resources were allocated to COVID-19 response.

For some community members, the COVID-19 pandemic was an opportunity to connect to overcome communal challenges. One health provider noted: "for community cohesion, there was a little bonfire outside the vaccination clinic where...a lot of times it was the first time community members had seen each other or been social at all because of isolation during the pandemic. So that little fire outside was a safe way for people to catch up". However, the COVID-

19 pandemic also increased social isolation for some community members, particularly school-age children and youth.

The pandemic also served as a catalyst for greater collaboration among healthcare entities, government organizations, and non-profit organizations. One provider noted: “there's a lot of medical talent in this community and one thing COVID has done is kind of helped bring us together more, really working together”. Health providers worked with community and government organizations to run vaccine clinics, provide testing, and treat patients. Although there were few cases of COVID-19 requiring hospitalizations or causing fatalities, health providers still treated COVID-19 patients and coordinated testing efforts. The true burden of COVID-19 on healthcare services within the Borough is difficult to estimate.

The COVID-19 pandemic caused a rise in telehealth services nationally and within the Borough, as patients were unable to seek medical care in-person. Federal and state regulations for telehealth were loosened, so that more patients could access telehealth. This improved access to medical care for Borough residents, as patients did not have to travel long distances to visit medical providers. After the pandemic, higher rates of telehealth services for mental and physical health continued, allowing more community members to access primary, specialty, and mental health care. However, the regulatory landscape for telehealth is in flux and future insurance coverage policies for telehealth are unclear.

Health education programs and community-run events were disrupted as a result of the COVID-19 pandemic. Health education events, which were led by public health nurses, were ceased as the state prioritized COVID-19 response, including vaccination and testing. These included physical activity and nutrition education programs for students, as well as sexual health education events for seasonal employees, which have not yet returned. Volunteer-run community programs were disrupted as well, including physical activity and social events.

## Next Steps

Although barriers preventing access to medical care are structurally inherent to Alaska, strengths and resources of the Borough can be leveraged to improve community health, especially for populations with health disparities. Low population density, limited public health funding, lack of a Borough public health department, and a shortage of medical professionals throughout the state of Alaska pose challenges to increasing the availability of medical care within the Borough. State and federal assistance is needed to increase the number of medical providers within the Borough, increase availability of affordable medical services, and reduce long wait times. State policies which were proposed to address these issues in the 2021 Alaska Primary Health Needs Assessment include expanding the National Health Service Corps, the State Loan Repayment Program, J-1 Visa waiver, and the Rural Recruitment and Retention Network.<sup>7</sup> State and federal government can additionally support the health of the Borough by providing grants to support local medical clinics, allowing them to hire more providers, provide after-hours care, expand services, treat uninsured and Medicaid patients, and acquire needed medical equipment.

Strategies to improve the health of the Borough, despite limited health services, can be adapted from other rural areas which have a shortage of healthcare resources. The Borough has a strong economy, high social connectedness, and high rates of healthy behaviors. Social determinants of health contribute to better-than-expected health outcomes among the Borough, despite access to care barriers. These strengths can be harnessed to improve social determinants of health for vulnerable populations, improve opportunities for health education, and expand activities which promote healthy behaviors.

The Denali Borough exhibits many community characteristics similar to those in other rural areas which are considered “Bright Spots” for health outcomes. The Robert Wood Johnson Foundation funds research on “Bright Spots” in Appalachian rural communities, which have better-than-expected health outcomes, despite limited resources.<sup>26</sup> These communities promote health through the following: engagement of community leaders in health initiatives; cross-sector collaboration; resource sharing for transportation, food, and shelter; commitment of local providers to public health; active faith communities, and initiatives to combat substance abuse. All of these are evident in the Borough and contribute to better or equal health outcomes compared to the state of Alaska. Future steps to improve the Borough’s health should make use of Borough strengths and reinforce these factors to improve health, especially among populations experiencing health disparities. For example, volunteer resources could be used to improve access to healthcare, by providing transportation to medical treatment for those without a vehicle. Health councils can foster collaboration between local leaders and citizens to promote health education and preventative care, and foster cross-sector collaboration. The Borough already has a Denali Area Healthcare Workgroup, which functions like a health council to promote collaboration across the healthcare sector and government. This can be expanded to include other community leaders who are invested in the health of their community. Volunteer-run programs to promote health through nutrition education, physical activity, and alcohol and substance use prevention can be expanded at relatively low-cost. Volunteers can also organize support groups for people with chronic conditions, mental health issues, and substance use disorder.

Strong social support and a shared value of health are assets to the Denali Borough community which can foster community action to improve health. Nonetheless, funding limitations and reliance on volunteers can cause challenges for long-term sustainability. Borough funds are used to support community organizations and can be specifically targeted towards community development and health. The Borough should also attempt to obtain external funding sources for community health initiatives, as well as improved health services. Potential funding sources include state and federal agencies, such as the Center for Disease Control and Prevention, Centers for Medicare and Medicaid Services, the Federal Office for rural Health Policy, the Denali Commission, and the Alaska Department of Health. Potential funders also include associations and foundations, such as the National Rural Health Association, the Robert Wood Johnson Foundation, and the Alaska Community Foundation.

The Denali Borough promotes community health through social connectedness, economic opportunities, a culture that promotes health, and a strong volunteer network. These strengths

can be harnessed to ensure equitable health outcomes across populations with health disparities and improve the quality of life for residents within the Borough.

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## Appendix

### Appendix 1: Themes from Qualitative Analysis of Focus Groups

Theme	Findings
Social Determinants of Health	Key social determinants of health in the Denali Borough include: <ul style="list-style-type: none"> <li>• Healthcare access</li> <li>• Housing</li> <li>• Transportation</li> <li>• Socioeconomic status</li> <li>• Employment</li> <li>• Beneficial and harmful health behaviors</li> <li>• Alaskan culture and climate</li> <li>• Access to healthy food</li> </ul>
Social and interpersonal factors	Social and interpersonal factors which affect community health and access to services include: <ul style="list-style-type: none"> <li>• Trust or mistrust in the medical community</li> <li>• Social support</li> <li>• Social isolation</li> <li>• Collaboration</li> <li>• Volunteerism</li> <li>• Available human resources</li> </ul>
Communication	<ul style="list-style-type: none"> <li>• Healthcare workers tend to view availability of medical care more positively than the general population.</li> <li>• Resources may be underutilized due to individuals not knowing about the availability of services.</li> <li>• Communication challenges may hamper healthcare delivery efforts, including emergency care and primary care.</li> </ul>
Access to medical care	Most participants felt that they faced barriers to accessing medical care due to: <ul style="list-style-type: none"> <li>• Lack of medical providers</li> <li>• Difficulty getting to medical care and remoteness</li> <li>• High costs and lack insurance coverage or not having health insurance.</li> </ul>
Remoteness	The remote location of the Denali Borough contributes to challenges for: <ul style="list-style-type: none"> <li>• Accessing medical care</li> </ul>

	<ul style="list-style-type: none"> <li>• Transportation</li> <li>• Accessing healthy food</li> <li>• Accessing indoor recreation</li> </ul> <p>These challenges are compounded for people of low socioeconomic status, who may not have access to a vehicle.</p>
Assets to Community Health	<ul style="list-style-type: none"> <li>• Social support, large volunteer network, and collaboration to promote health across healthcare organizations, community organizations, and government.</li> <li>• Dedicated community leaders involved in promoting health of the Denali Borough.</li> <li>• Stable economy and lower than state rates of poverty.</li> <li>• High rates of high school graduation.</li> </ul>
Alaskan Culture and Climate	<ul style="list-style-type: none"> <li>• Binge drinking, alcoholism, and substance use is common across the state of Alaska. The Borough does not have higher than state rates but is still on par for the state. Long, cold, and dark winters can be a contributor.</li> <li>• Libertarian culture may dissuade people from seeking medical care, until it is an emergency.</li> <li>• Libertarian culture supports less government funding for public health programs.</li> <li>• Small rural community of the Denali Borough promotes social support; however, some people prefer to be left alone.</li> <li>• Contributes to active lifestyle, through hunting, fishing, hiking, and winter sports.</li> <li>• Hunting and fishing can positively impact health by promoting the consumption of unprocessed food.</li> </ul>
Health education	<p>There is a need for health education, as well as support groups for people with chronic diseases and mental health issues. These can occur in school settings for children, and community-based settings for adults. Health education programs in schools were</p>

	<p>disrupted due to the COVID-19 pandemic, many of which did not return. Collaboration is a key feature of health education programs, which often include public health nurses, schools, non-profit organizations, and religious institutions working together. Needed health education topics include:</p> <ul style="list-style-type: none"> <li>• Sexual health</li> <li>• Nutrition</li> <li>• Chronic diseases</li> <li>• Mental health</li> <li>• Alcohol and drug abuse</li> <li>• Smoking cessation</li> <li>• Workplace injury prevention</li> </ul>
<p>Needed community resources</p>	<p>Needed resources for the Denali Borough community were identified as:</p> <ul style="list-style-type: none"> <li>• Greater range of healthcare services</li> <li>• More healthcare providers</li> <li>• Pharmacy within the Denali Borough</li> <li>• Affordable healthcare</li> <li>• Places for indoor recreation, especially during the winter</li> <li>• Safer roads</li> <li>• Transportation</li> <li>• Healthy affordable food and more grocery stores</li> <li>• Paid staff to replace some volunteer positions among non-profit organizations and fire/ EMS services</li> <li>• Sustainable grant funding for non-profit and healthcare organizations</li> </ul>

## Appendix 2: Demographics and Health Status

<b>Variable</b>		<b>N (%)</b>
<b>Age, years (n=266)</b>		
	18-24	5 (1.9)
	25-34	31 (11.7)
	35-44	88 (33.1)
	45-54	49 (18.4)
	55-64	46 (17.3)
	65 and older	47 (17.7)
<b>Gender (n=266)</b>		
	Male	103 (38.7)
	Female	160 (60.2)
	Other	3 (1.1)
<b>Race (n=263)</b>		
	White	256 (97.3)
	Alaska Native	1 (0.4)
	American Indian	5 (1.9)
	Afro-European	1 (0.4)
<b>Ethnicity (n=262)</b>		
	Hispanic or Latino	6 (2.3)
	Non-Hispanic or non-Latino	255 (97.3)
	Not sure	1 (0.4)
<b>Speak a language other than English at home (n=266)</b>		
	Yes	12 (4.5)
	No	254 (95.5)
<b>Other language spoken at home (n=12)</b>		
	Bulgarian	2 (0.6)
	German	3 (0.9)
	Spanish	2 (0.6)
	Did not disclose	5 (1.6)
<b>Marital status (n=269)</b>		
	Never Married/Single	38 (14.1)

	Member of Unmarried Couple	30 (11.2)
	Married	172 (63.9)
	Divorced	16 (6.0)
	Separated	3 (1.1)
	Widowed	10 (3.7)
<b>Highest level of education obtained (n=267)</b>		
	High school, no diploma	1 (0.4)
	High school diploma	25 (9.4)
	Some college, no degree	34 (12.7)
	Associate degree or Vocational training	28 (10.5)
	Bachelor degree	110 (41.2)
	Graduate or professional degree	69 (25.8)
<b>Total household yearly income, USD (n=253)</b>		
	<10,000	2 (0.8)
	10,000-14,999	4 (1.6)
	15,000-19,999	3 (1.2)
	20,000-24,999	9 (3.6)
	25,000-34,999	9 (3.6)
	35,000-49,999	19 (7.5)
	50,000-74,999	39 (15.4)
	75,000-84,999	30 (11.9)
	85,000-99,999	32 (12.7)
	100,000 or more	106 (42.9)
<b>Number of people in household (n=243)</b>		
	1	55 (22.6)
	2	97 (40.0)
	3	32 (13.2)
	4	35 (14.4)
	5	14 (5.8)
	6	6 (2.5)
	7	3 (1.2)
	8	0 (0)

	9	1 (0.4)
<b>Employment status (n=309)</b>		
	Employed full time	141 (45.6)
	Employed part time	25 (8.1)
	Self-employed	34 (11.0)
	Retired	51 (16.5)
	Armed forces	1 (0.3)
	Unemployed for more than 1 year	2 (0.6)
	Unemployed for 1 year or less	5 (1.6)
	Seasonally employed	39 (12.6)
	Unable to work	0 (0)
	Student	0 (0)
	Stay at home parent and/or caretaker	11 (3.6)
<b>Access to internet (n=267)</b>		
	Yes	256 (95.9)
	No	11 (4.1)
<b>Zip Code (n=262)</b>		
	99700	1 (0.4)
	99704	2 (0.8)
	99729	17 (6.5)
	99743	155 (59.2)
	99744	3 (1.2)
	99755	82 (31.3)
	99760	2 (0.8)
<b>Health conditions diagnosed by provider</b>		
	Asthma (n=246)	28 (11.4)
	Depression or anxiety (n=250)	80 (32.0)
	High blood pressure (n=253)	67 (26.5)
	High cholesterol (n=251)	74 (29.5)
	Diabetes (not during pregnancy) (n=241)	12 (5.0)

	Osteoporosis (n=243)	15 (6.2)
	Obesity (n=243)	33 (13.6)
	Heart disease (n=245)	15 (6.1)
	Cancer (n=243)	16 (6.6)
<b>Health behaviors</b>		
	Currently use tobacco (n=266)	19 (7.1)
	Engage in physical activity at least 30 min per week (n=265)	220 (83.0)
	Feeling sad or worried in past 30 days (n=265)	67 (25.3)
<b>Self-reported health status (n=265)</b>		
	Excellent	36 (13.6)
	Very Good	114 (43.0)
	Good	82 (31.0)
	Fair	31 (11.7)
	Poor	1 (0.4)

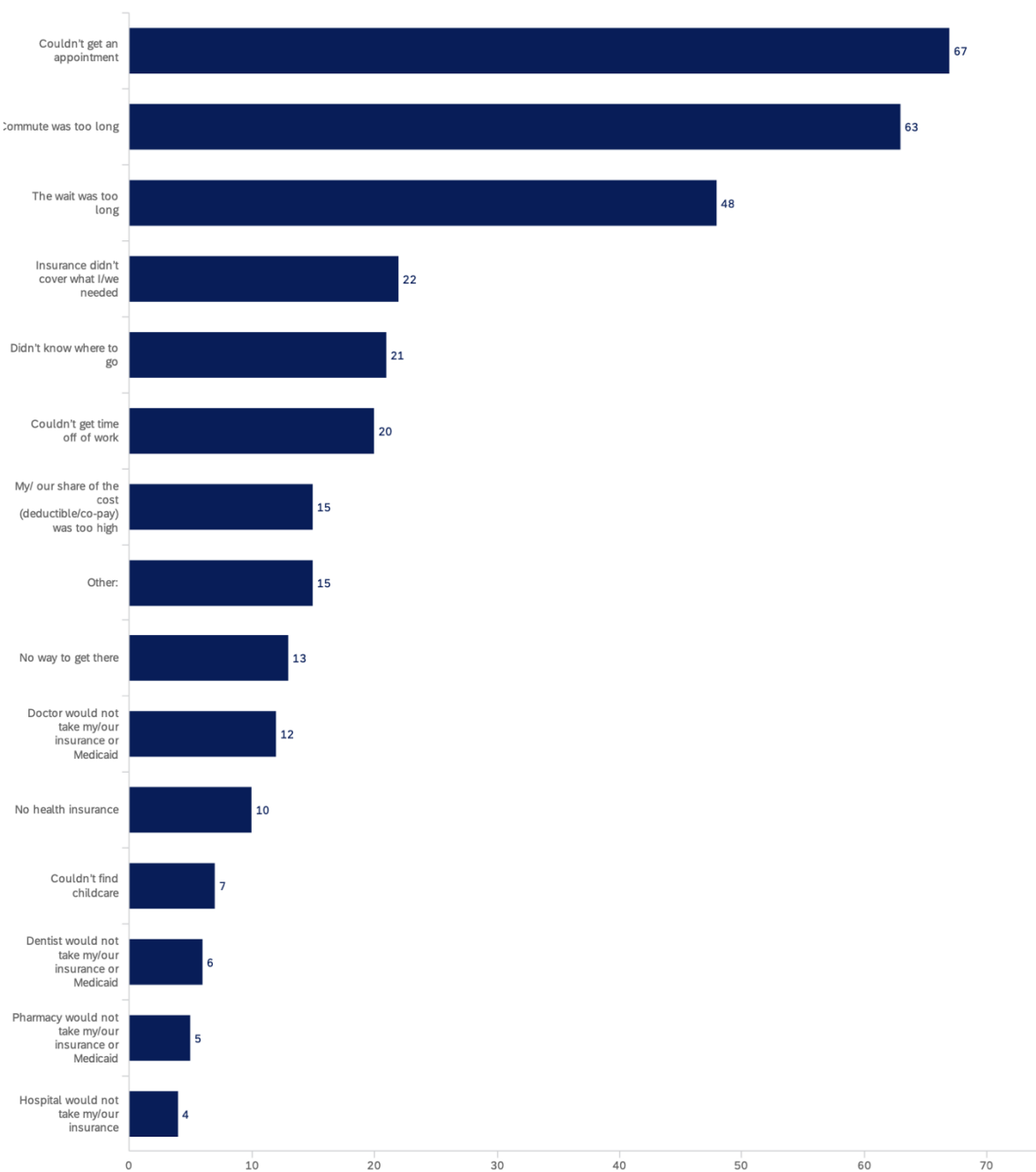
## Appendix 3: Quality of Life

Statement	Strongly Disagree n(%)	Disagree n(%)	Neutral n(%)	Agree n(%)	Strongly Agree n(%)	Total (N)
There is <b>good healthcare</b> in Denali Borough. (n=269)	66 (24.5)	110 (40.9)	62 (23.1)	26 (9.7)	5 (1.9)	269
Denali Borough is a good place to <b>raise children</b> . (n=268)	5 (1.9)	13 (4.9)	86 (32.1)	114 (42.5)	50 (18.7)	268
Denali Borough is a good place to <b>grow old</b> . (n=270)	56 (20.8)	108 (40.0)	56 (20.7)	35 (13.0)	15 (5.6)	270
There is plenty of <b>economic opportunity</b> in Denali Borough. (n=270)	23 (8.5)	71 (26.3)	83 (30.7)	76 (28.2)	17 (6.3)	270
Denali Borough is a <b>safe place</b> to live. (n=270)	1 (0.4)	4 (1.5)	16 (5.9)	129 (47.8)	120 (44.4)	270
There is plenty of <b>help for people during times of need</b> in Denali Borough. (n=270)	5 (1.9)	26 (9.6)	60 (22.2)	131 (48.5)	48 (17.8)	270

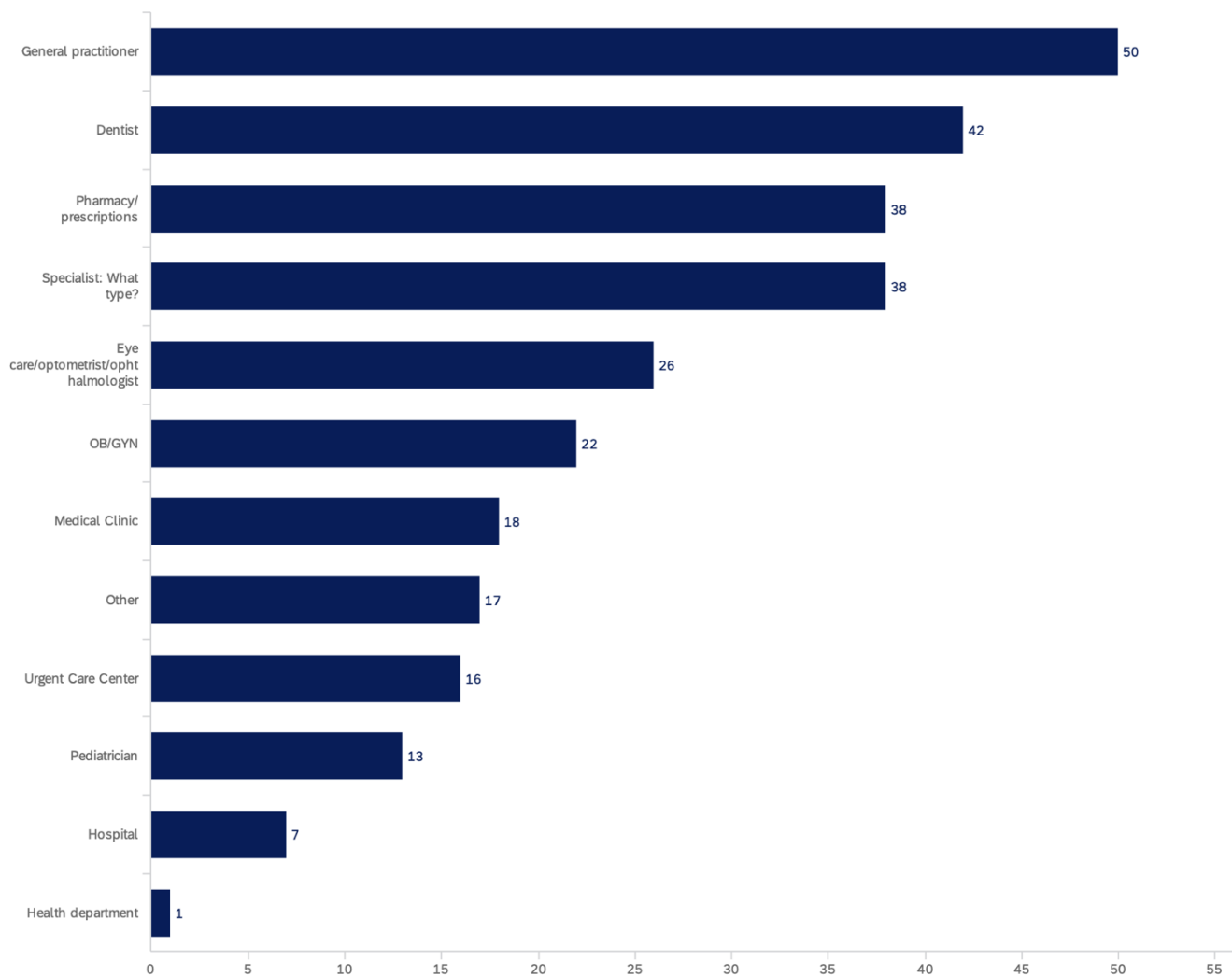
## Appendix 4: Access to Care

<b>Variable</b>		<b>N (%)</b>
<b>Location of most healthcare (n = 270)</b>		
	Inside Denali Borough	24 (8.9)
	Fairbanks	215 (79.6)
	Anchorage	20 (7.4)
	Elsewhere in Alaska	2 (0.7)
	Outside of Alaska	9 (3.33)
<b>Healthcare facility visited when sick (n=263)</b>		
	Doctor's office	97 (36.9)
	Medical clinic	88 (33.5)
	Urgent care	64 (24.3)
	Hospital	2 (0.8)
	Online provider	1 (0.4)
	Holistic doctor	2 (0.8)
	Home treatment	9 (3.4)
<b>Health Insurance (n=270)</b>		
	Yes	255 (94.4)
	No	15 (5.6)
<b>Experience problems obtaining needed care (n=270)</b>		
	Yes	127 (47.0)
	No	140 (51.9)
	Don't know	3 (1.1)

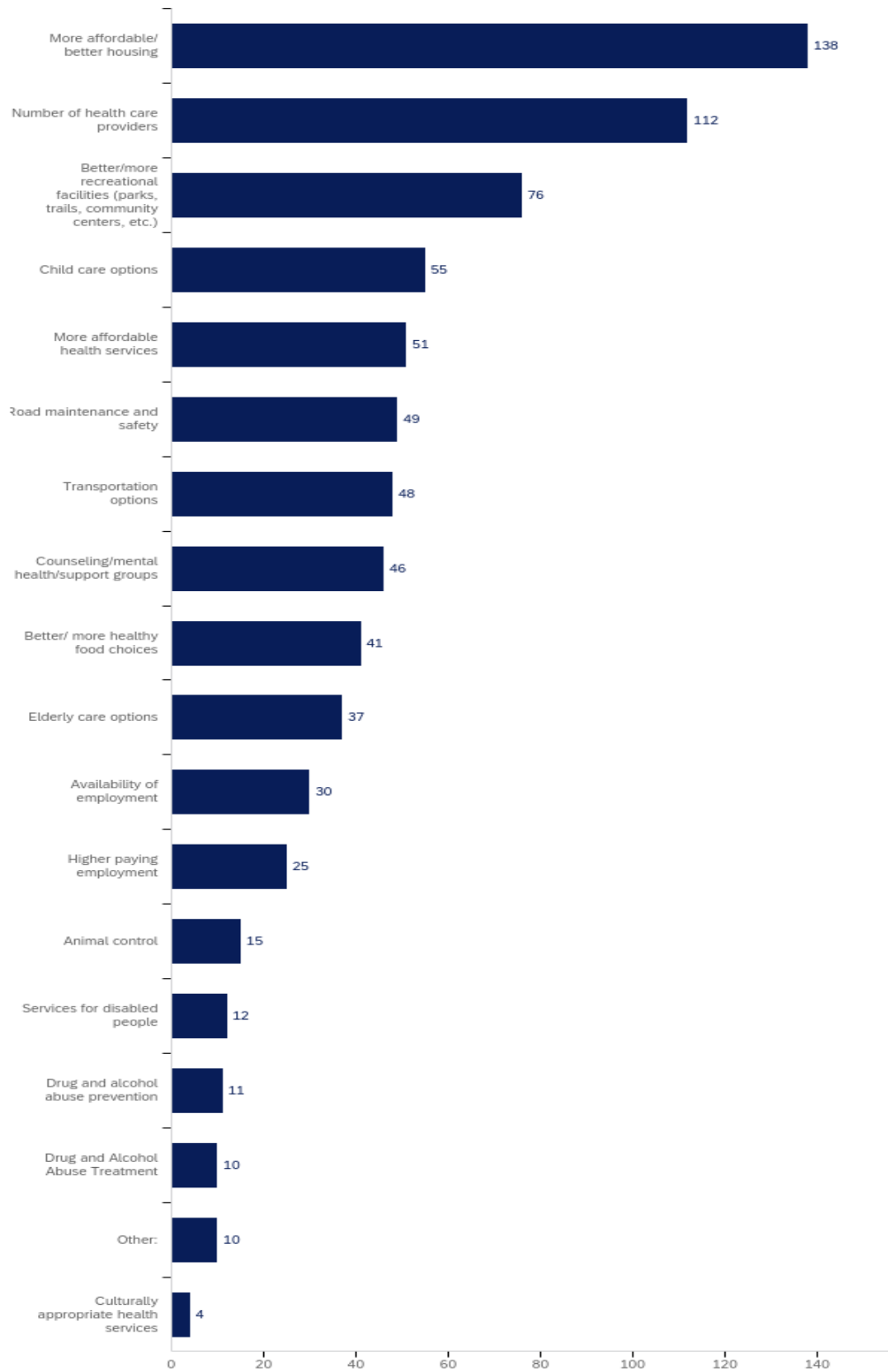
## Appendix 5: Issues Preventing Access to Care



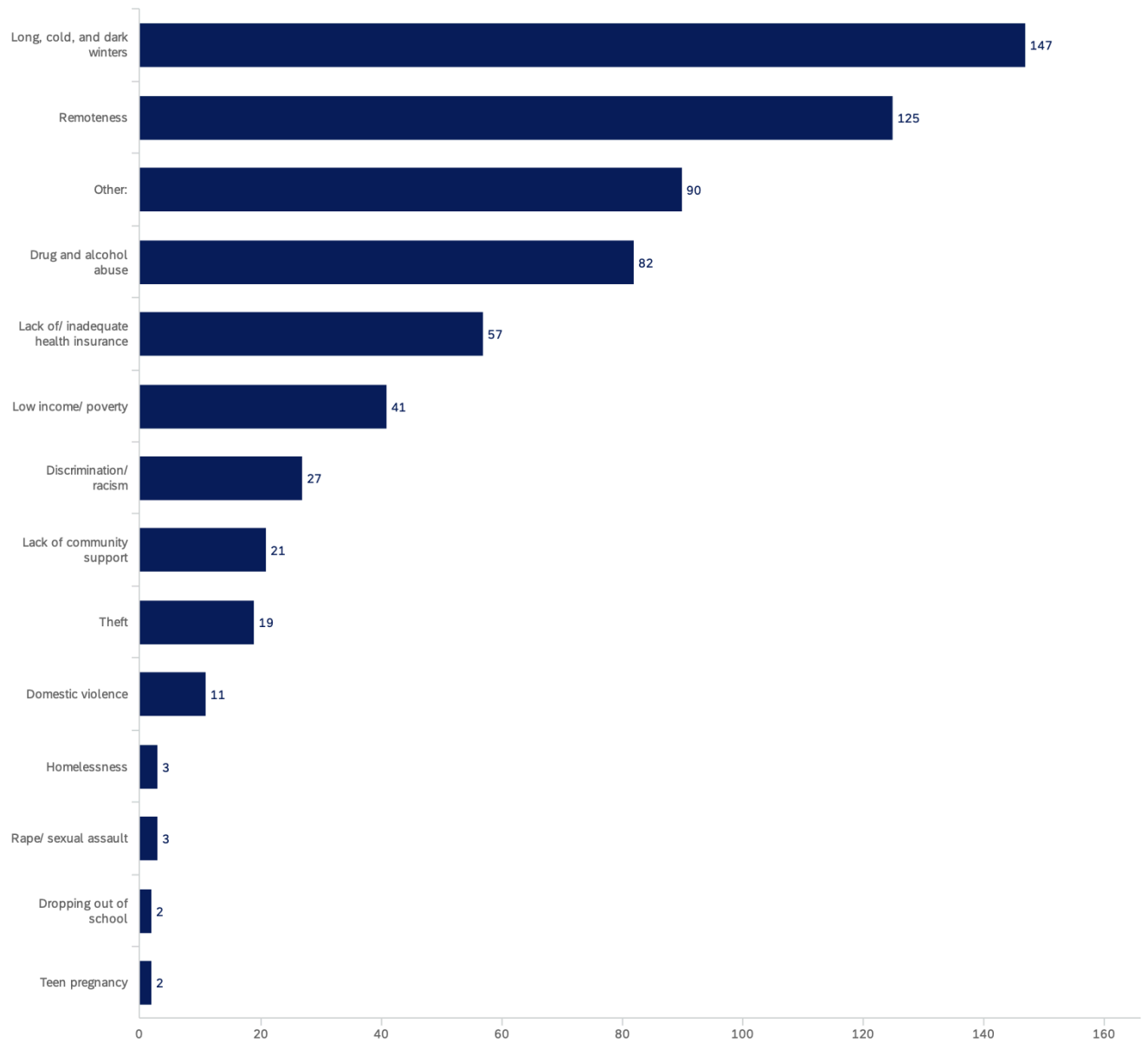
## Appendix 6: Providers and Facilities Respondents Have Trouble Receiving Care From



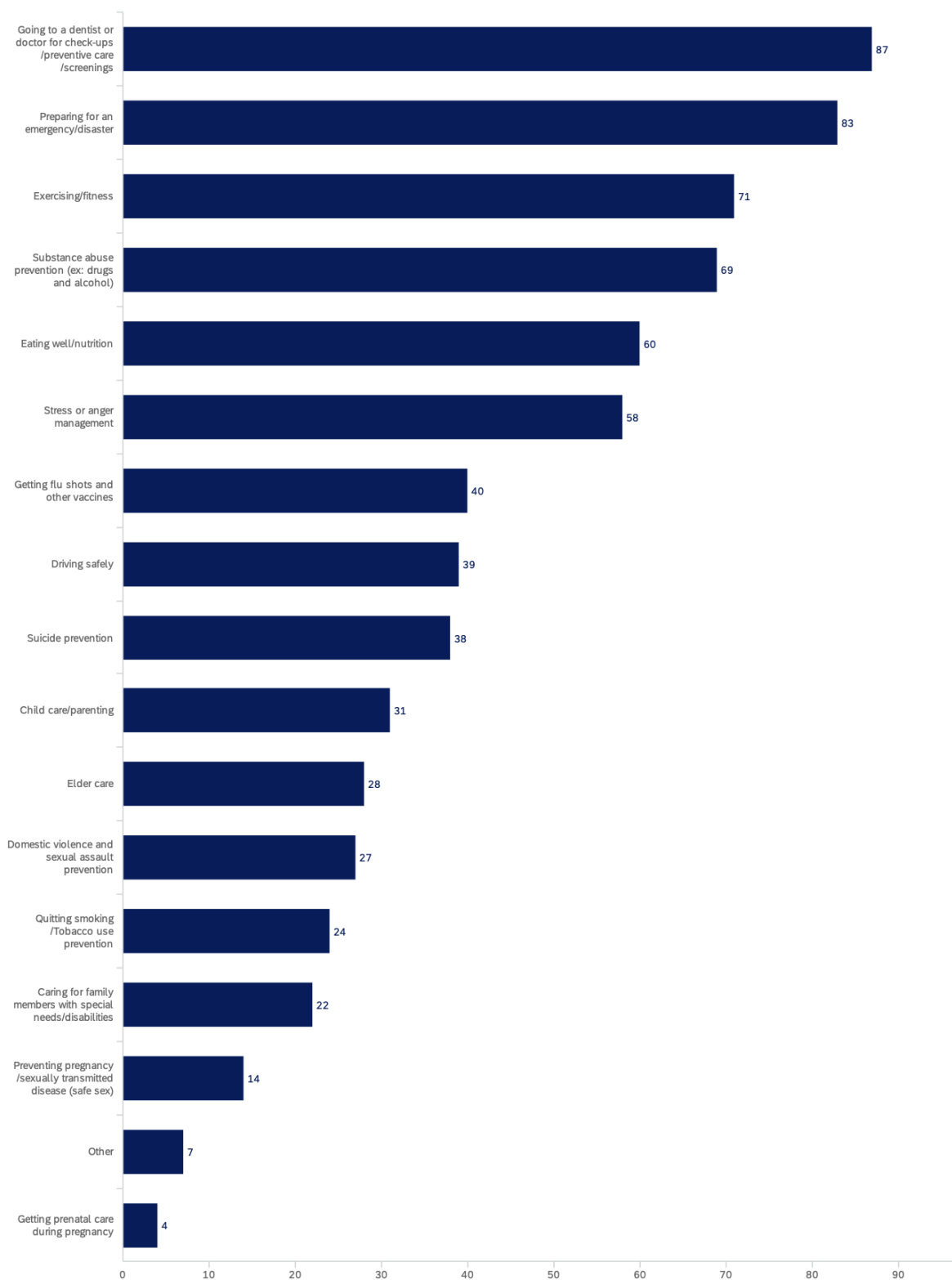
## Appendix 7: Services Needing the Most Improvement in Communities



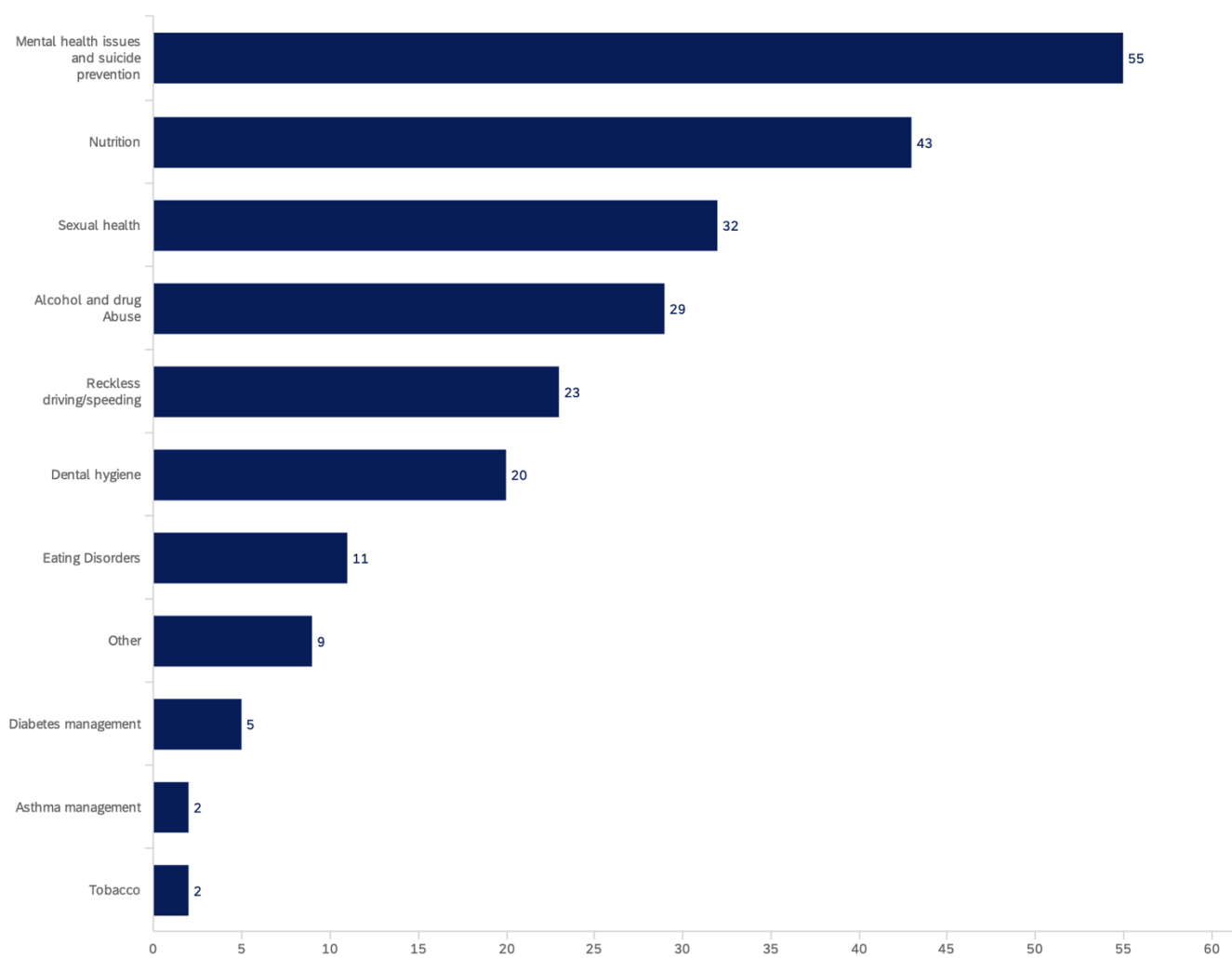
## Appendix 8: Issues Most Negatively Affecting Quality of Life in Denali Borough



## Appendix 9: Health Behaviors Community Members Need More Information About



## Appendix 10: Health Topics Parents Feel their Children Need More Information About



## Appendix 11: Emergency Preparedness

<b>Variable</b>		<b>N (%)</b>
<b>Working smoke and Carbon Monoxide (CO) detectors (n=269)</b>		
	Both smoke and CO detectors	179 (66.5)
	Smoke detectors only	54 (20.1)
	CO detectors only	14 (5.2)
	Neither	18 (6.7)
	Not sure	4 (1.5)
<b>Owns basic emergency supply kit (n=268)</b>		
	Yes	175 (65.3)
	No	89 (33.2)
	Not sure	4 (1.5)
<b>Would leave if mandatory evacuation order issued (n=270)</b>		
	Yes	193 (71.5)
	No	23 (8.5)
	Not sure	54 (20.0)