Appendix B
References and Data Sources

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Published Journal Articles, Books, and Academic Presentations


Chimonas, M.R., and B.D. Gessner: Airborne particulate matter from primarily geologic, non-industrial sources at levels below national Ambient Air Quality Standards is associated with outpatient visits for


Rarig, A.: Personal communication—dependency ratios.


Additional Data Sources (annotated)


2010 NSB Economic Profile and Census Report, North Slope Borough Department of Planning and Community Services (referred to in report as the 2010 NSB Census)

The 2010 NSB Census is the fourth in a series of local household surveys undertaken by the NSB to enumerate the local population for each community and examine topics such as employment, subsistence participation, income, housing characteristics, Iñupiaq language proficiency, and residents’ attitudes on a variety of topics. Previous censuses were conducted in 1992, 1998, and 2003, although the instrument and survey design have been modified somewhat over that period.

The 2010 census, funded and coordinated by the North Slope Borough, was contracted out to Circumpolar Research Associates (CRA), who developed the instrument, selected and trained the census enumerators (primarily graduate students), entered the data, and are currently completing the data analysis, using the SPSS software program. This year, a new health module was added to the questionnaire upon request by the NSB Health Department, as part of the Baseline Community Health Analysis project. The Health Department’s contractor for this project, Dr. McAninch, collaborated with CRA and the Borough to develop the health module and analyze and write up the health sections for the 2010 Census report and for inclusion in this Baseline Community Health Analysis report.

After mapping all the occupied structures in each community, the 2010 NSB Census-takers conducted face-to-face interviews, attempting to reach every household in each NSB community. Sampling proportions ranged from 65% in Barrow (i.e., 943 households interviewed of a total of 1,449) to nearly 90% in some of the smaller communities. The total number of households surveyed, the estimated number of households in the community, and the total number of persons for which data, including health data, were collected is shown. The total estimated households for each community were determined by analyzing utility (primarily electricity) hookup data provided by the Borough. Standard error’s of the proportion range from 1.9% to 7.5%, depending on the community. For the NSB as a whole, with 1,604 households interviewed of total of 2,271, the standard error is 1.4%. Household heads participating in the census were 48% male and 52% female. Household heads participating in the census were 69% Iñupiat, 19% Caucasian, and 12% of other ethnic groups.

<table>
<thead>
<tr>
<th>Community</th>
<th>Household Head sample size (Number of households participating in survey)</th>
<th>Total estimated number of households in community</th>
<th>Total number of persons on which health data were collected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anaktuvuk Pass</td>
<td>80</td>
<td>102</td>
<td>288</td>
</tr>
<tr>
<td>Atqasuk</td>
<td>61</td>
<td>68</td>
<td>231</td>
</tr>
<tr>
<td>Barrow</td>
<td>943</td>
<td>1449</td>
<td>3122</td>
</tr>
<tr>
<td>Kaktovik</td>
<td>68</td>
<td>83</td>
<td>234</td>
</tr>
<tr>
<td>Nuiqsut</td>
<td>103</td>
<td>125</td>
<td>375</td>
</tr>
<tr>
<td>Point Hope</td>
<td>165</td>
<td>209</td>
<td>636</td>
</tr>
<tr>
<td>Point Lay</td>
<td>50</td>
<td>69</td>
<td>185</td>
</tr>
<tr>
<td>Wainwright</td>
<td>134</td>
<td>166</td>
<td>464</td>
</tr>
<tr>
<td>North Slope Borough</td>
<td>1604</td>
<td>2271</td>
<td>5535</td>
</tr>
</tbody>
</table>

For each household, an attempt was made to interview the adult who identified himself or herself as the “household head,” a household member who was available and likely to have the greatest familiarity with household economics, health of household members, level of subsistence participation, etc. The respondents, or household heads were asked all the questions as they pertained to themselves and then a smaller subset of questions as they pertained to all other household members, acting as a proxy. With the addition of the new health section, the census team also
included an “informed consent,” to be signed by all survey respondents and census enumerators, outlining the voluntary basis of participation, the right to refuse to answer any questions, the sensitive nature of some of the questions, and any possible risks or harms associated with participation, such as emotional distress. Participants were also informed that neither their names nor any other identifying information would be attached to any of their responses when results were released.


The Alaska Bureau of Vital Statistics is responsible for managing vital records in the State of Alaska, including birth, death, fetal death, and divorce and marriage certificate data, as well as reports of adoption. Data used in this report are derived primarily from information included in birth and death certificates records and are updated on a continual basis by ABVS. Upon request, the Research Unit of the ABVS provided data and statistics for the NSB in the areas of mortality, historical leading causes of death, leading causes of premature death, life expectancy, birth statistics, prenatal care, and prenatal risk factors. Other ABVS data, including child mortality and selected maternal and child data were also obtained from ABVS Annual Reports, and additional data available on the main ABVS Data and Statistics website shown above.


The Alaska Cancer Registry (ACR) is a population-based cancer surveillance system and is funded by the Centers for Disease Control and Prevention (CDC). ACR collects data on all newly diagnosed cases of cancer (including benign brain) for the State of Alaska. Age-adjusted cancer mortality data are also available at the above website for the years 1996–2007, generated by the ACR using mortality data provided by the ABVS. Data are suppressed for a given cancer type if there are five or fewer cases (unless there are zero cases). Data tables are provided for diagnosis year, borough, sex, and race.

Alaska Department of Environmental Conservation:
- Division of Air Quality: http://www.dec.state.ak.us/air/index.htm.
- Contaminated Sites Program Database: http://www.dec.state.ak.us/SPAR/CSP/db_search.htm.

Alaska Department of Labor and Workforce Development (AK DOLWD): http://almis.labor.state.ak.us/?PAGEID=67&SUBID=115.

The AK DOLWD website provides state, borough/census area, and village level population, unemployment, and income statistics and links to a number of other economic topics such as cost of living.

Alaska Department of Motor Vehicles: http://www.state.ak.us/dmv/research/curreg07.htm.


This Alaska Department of Health and Social Services program provides borough and census area-specific estimated prevalence and estimated population with diabetes for recent 3-year periods, based on Alaska BRFSS survey data:


Based at the Alaska Native Medical Center, this program (among many other services) collects and annually updates case numbers for diabetes, pre-diabetes, and gestational diabetes among Alaska Natives in all Alaska Native service units, based data entered into the RPMS clinical database in each service area. Specific laboratory result-based criteria are used for case definition and
inclusion in the registry. Diabetes registry data for the Barrow service unit were provided by Meera Narayanan, MS, RD, CDE.


This report contains data for Alaska Natives on a broad spectrum of health topics. It also contains regional profiles for a subset of health indicators.


This report presents data for Alaska Natives statewide on injury deaths and hospitalizations, utilizing data from Alaska Bureau of Vital Statistics and the Alaska Trauma Registry. The report includes a regional injury profile for the Arctic Slope, summarizing data on injuries among Alaska Natives residing in any village within the North Slope Borough.


PRAMS was developed by the Centers for Disease Control and Prevention as part of an initiative to reduce infant mortality and low birth weight. It is an ongoing, population-based surveillance system designed to identify and monitor selected maternal behaviors and experiences that occur before and during a woman’s pregnancy and during the early infancy of her child. The Alaska PRAMS Project was initiated in 1990. Self-administered surveys are mailed to a random sample of mothers (approximately one in six mothers of newborns) who have recently had a live birth, and phone interviews are attempted with those who do not respond to the mailed survey. Much of the data cited in this report has been taken from the Alaska Maternal and Child Health Data Books, published by the Maternal and Child Health Epidemiology unit of the Alaska Department of Health and Social Services and available online as PDF files. The NSB-specific data were provided by Bradford Gessner, M.D., M.P.H., and Kathy Perham-Hester of the Maternal and Child Health epidemiology Unit of the Alaska Division of Public Health. These data were provided in rolling 5-year averages, with between 100 and 200 responses in the NSB available for analysis for each 5-year period.


The Alaska Trauma Registry is an information system that collects data on serious injuries from all of Alaska’s acute care hospitals. Injuries include trauma, poisoning, suffocation, and the effects of reduced temperature. Data are available upon request and were provided in summary form for injury hospitalizations by type of injury, and for traumatic brain injury specifically, occurring in the North Slope region.
Appendix B: References and Data Sources


The Alaska YRBS is part of a national surveillance system developed by the Centers for Disease Control and Prevention. The anonymous survey has been administered to a sample of high school students every other year since 1995 to monitor the prevalence of health risk behaviors among Alaska’s youth. For the first time, in 2009, the survey was administered to students in both traditional and alternative high schools.

NSB School District results are available only for 2005, when 71% of students (327 survey respondents) from NSB traditional public schools (not alternative schools) participated in the survey. Aggregated results from this survey year were provided for this report courtesy of the NSB School District. Statewide representative data are not available for 2005 and so 2007 statewide data are used for reference. The NSB School District recently participated in a second YRBS survey, but results were not yet available at the time of writing.


Arctic Slope Native Association Barrow Dental Clinic: February 22nd–26th Sealant Clinic Report. Prepared by Dr. Kimlea Medlin, provided for this report by Dr. Amanda Gaynor-Ashley, Program Director, March, 2010.

Arctic Slope Native Association Screening for Life Program. Data provided upon request, from Med-IT database.


BRFSS is an ongoing national telephone survey funded by the Centers for Disease Control and Prevention that estimates the prevalence of behavioral risk factors and certain health problems in the general population. Alaska has been administering the survey annually since 1991. Each year, a random sample of approximately 2,500 is drawn in Alaska, with oversampling in rural areas. Every year, the same core module of questions is asked, and additional modules of questions are asked about certain health topics of interest. Therefore, not all questions are asked in all years.

The survey data are adjusted, or weighted, for each region to compensate for the over-representation or under-representation of population subgroups in the survey sample population so that the sample data better reflect the total population of the region sampled. Results are typically
reported accompanied by a 95% confidence interval, indicating the range in which the true value
for the population has a 95% likelihood of lying.

All BRFSS questions have been shown to be at least moderately reliable and valid and the
sampling methodology has been well tested; however, some precautions must be taken in inter-
preting BRFSS data. First, all data are self-reported and do not include any data from health
records, actual measurements, or laboratory testing. All self-reported data may be subject to bias,
misunderstanding, or misrepresentation. Second, the telephone sampling method includes only
land-line phones and, therefore, excludes households without telephones or with only cellular tele-
phones. Households without land-line telephones may be different in various ways from those with
them, and thus, the survey sample may not be representative of the entire population. This problem
has become of growing concern in recent years. Third, the results are not age-adjusted and thus
comparison of different regions or subpopulations can be affected by the different age composi-
tions of the populations.

Census-tract level data for the NSB, were provided upon request by Charles Utermohle, Ph.D.,
from the State of Alaska Department of Health and Social Services, Division of Public Health,
Chronic Disease Prevention and Health Promotion program. NSB data are weighted only accord-
ing to the demographic composition of the “rural” region of Alaska and were not post-stratified to
reflect the NSB population composition specifically. To increase the available sample size at the
borough level, results were combined for 3-year periods. Results were reported only when the
sample for a given question included at least 50 respondents. Because of the small sample sizes at
the borough level, the 95% confidence intervals tend to be wide and estimates fluctuate consider-
ably from year to year.

Some state-level statistics and information were obtained from the 2006, 2007, and 2008
Alaska BRFSS Reports, available on the main Alaska BRFSS website shown above. In addition,
multi-year BRFSS data were utilized in the County Health Rankings, which are also referenced in
this report.

Berner, J.: Alaska Native Tribal Health Consortium blood mercury level study results. Personal
communication cited in Use of Traditional Foods in a Healthy Diet in Alaska: Risks in Perspective. Second
Edition: Volume 1. Polychlorinated Biphenyls (PCBs) and Related Compounds, Section of Epidemiology,
Alaska Division of Public Health, Department of Health and Social Services, October 25, 2004.

Blood Lead Epidemiology and Surveillance: Non-Occupational Exposures in Adults and Children—Alaska,
ak.us/bulletins/docs/b2008_07.pdf.

Bloom, B., and R.A. Cohen: Summary Health Statistics for U.S. Children: National Health Interview

Breastfeeding in Alaska. Women’s, Children’s, and Family Health. Title V Fact Sheet: Needs Assessment
Vol2_Num02.pdf.

Bring the Kids Home Indicators: Baseline Data State Fiscal years 1998–2004. Alaska Division of
Behavioral Health—Policy and Planning. Department of Health and Social Services. Accessed online at

Bruce, M.: Epidemiology Team Leader, Arctic Investigations Program, Centers for Disease Control and

Update. State of Alaska Department of Health and Social Services, Section of Chronic Disease
ak.us/dhp/chronic/chp/pubs/burden_july06.pdf.

Burden of Injury to Alaska Natives: Arctic Slope Native Association, Executive Summary. Analysis of ABVS
and Alaska Trauma Registry data by Alaska Native Epidemiology Center. Provided courtesy of the NSB
Health Department.


This report provided aggregated survey data on health-related attitudes and behaviors of 6th-12th graders in the NSB. The survey was administered anonymously in November, 2004 throughout the NSB School District.


This volume is part of a planning process involving participants from across the state with the common goal of improving community health in Alaska. It provides baseline measures on numerous health topics at the state level and sets targets for 2010 that, if achieved, would reflect improved health status in the state. It is meant to provide a framework for action at the local and state level.


This volume offers an alternative to the standard strategic health plan. This plan addresses the targets and indicators in Volume I through 14 stories of community-based efforts for public health improvement.


This national data repository contains clinical and administrative information from encounter records from facilities reporting to the IHS data system. Data were provided, upon request, for this report on leading reasons for inpatient and outpatient visits to Samuel Simmonds Memorial Hospital (SSMH).


Nageak, E.: NSB Health Department Health Educator. Personal communication, January 26, 2011. States sources as "what I have learned from the Elders and from knowledgeable presenters."


National Co-Morbidity Study—Replication. The NCS-R was a nationally representative survey carried out as a follow-up to the baseline NCS to assess prevalence, trends, and patterns of mental health and substance abuse disorders nationwide. Data accessed online at http://www.hcp.med.harvard.edu/ncs/.


This is a randomly sampled telephone survey, in which a household adult who knows the most about the randomly-selected child’s health is asked questions on a variety of health topics. Approximately 1,800 interviews are collected per state and results are weighted to represent the population of non-institutionalized children ages 0–17 years.


North Slope Borough Health Department, Community Health Aide Program: Village Clinic Monthly Reports, 2005–2008, courtesy of the NSB Health Department CHAP program.

North Slope Borough Health Department, Community Health Aide Program: Structured interviews with health aides from NSB villages, March 2010.

North Slope Borough Police Department report, courtesy of NSB Health Department.

North Slope Borough Public Health Nursing program Resource Patient Management System (RPMS):

Body-mass index (BMI) percentiles for age/gender were provided by NSB PHN program upon request in August, 2009 for NSB children aged 3–18 years. The RPMS database was queried for BMIs for children who had been seen either by a public health nurse or other health provider in a clinic or school and had had a height and weight taken on the same day within the past year and entered into the database. Prenatal patients were excluded, and the villages of Point Hope and Anaktuvuk Pass were not included. This sample of more than 1,000 children, while not a representative sample of all children in the NSB, represents more than half of the public health nursing database for children and teens in this age group and likely provides a reasonable estimate of the BMI distribution in the community. A very large proportion of children and adolescents in the NSB are seen by public health nursing for immunizations, well-child care, and other screening services.

North Slope Borough Women, Infants and Children (WIC) Program, a division of the Alaska WIC Program. Upon request, WIC personnel queried the WIC program database for breastfeeding initiation and duration rates and low hemoglobin rates (USDA Risk 201) for the years 2003–2009.


Aggregated annual number of substantiated cases and substantiated unique victims were provided upon request for the Barrow office, as well as combined number of cases for the comparison community offices of Bethel, Nome, and Kotzebue for the years 2006, 2007, and 2008. Data for neglect, physical abuse, sexual abuse, and mental injury were provided in aggregate. Statewide data were obtained online from the above website. Rates were calculated using year 2000 U.S. census 0–17 year age-group population estimates for villages covered by each regional office.


SLiCA was an international joint effort involving a partnership of researchers and indigenous organizations in Greenland, Canada, Norway, Sweden, Finland, Denmark, Russia, and the United States (Alaska). The purpose of the study was to advance understanding of changing living conditions among Inuit and Saami peoples and the Indigenous peoples of Chukotka. In Alaska, 700 Inupiat participated in the study in three sub-regions, the North Slope Borough, the Northwest Arctic Borough, and the Bering Straits region. In-person interviews were conducted with Inupiat residents aged 16 and higher in each of these regions in 2003–2004.

Aggregated data from this study were made available for public use and was referenced in various sections in this report pertaining to the health, well-being, and socioeconomic circumstances of the Inupiat population of the NSB. Comparisons noted in this report do not include an analysis of statistical significance, as we utilized publically available aggregated data. Study authors state that "For interpreting differences in percentages, a conservative assumption is to use a difference of at least 10 percentage points as a threshold for concluding that there is a significant difference. In most cases smaller differences are significant. For interpreting differences in means, a conservative assumption is to use a difference of one or more as a threshold for concluding that there is a significant difference." Data tables and other information about the study were accessed online at http://www.iser.uaa.alaska.edu/Projects/living_conditions/results.htm.


Seasonal Influenza (Flu): Key Facts about Influenza (Flu) and Flu Vaccine, CDC Fact Sheet. Accessed online at http://www.cdc.gov/flu/keyfacts.htm.


Shepro C., D. Maas, and D. Calloway, North Slope Borough 2003 North Slope Borough Economic Profile and Census Report: This report represents the results of a periodic household census commissioned by the North Slope Borough that examines the current population, economic status, employment, education, subsistence participation, and attitudes of the entire NSB population.


Contains information at district and school level on graduation and drop-out rates, school performance on standardized testing, enrollment, special education programs, free and reduced lunch eligibility, and school financial information.


A program of the National Cancer Institute, SEER provides information on cancer incidence and survival in the United States based on data from population-based cancer registries covering approximately 26% of the U.S. population.


University of Alaska Anchorage Justice Center: http://justice.uaa.alaska.edu/links/lawenforcement/ak_localpds.html.

U.S. Census Bureau: American Fact Finder: http://factfinder.census.gov/home/saff/main.html?_lang=en. Data available from the 2000 U.S. census at the county (borough) and city (village) level on general, social, economic, and housing characteristics of residents.

U.S. Census Bureau Small Area Income and Poverty Estimates (SAIPE): http://www.census.gov/did/www/saipe/. The U.S. Census Bureau, along with other federal agencies, provides annual estimates of selected income and poverty measures at the state, county, and school district level. The estimates combine data from administrative records such as tax returns and food stamp program records, the nationwide American Community Survey, annual population estimates, and the decennial U.S. census.

U.S. Department of Health and Human Services: Community Health Status Indicators (CHSI) http://www.communityhealth.hhs.gov. Provides an overview of key health indicators at the county level, drawn primarily from national surveys, U.S. census, and vital statistics data. Also provides comparison to a group of “peer” communities, selected on the basis of similarity in a number of factors, including population size, poverty, age, and frontier status. Some data are not available for the NSB due to small population size.


