

Alaska Suicide Follow-back Study Final Report

Study period September 1, 2003 to August 31, 2006

Prepared for the:

**Alaska State-wide Suicide Prevention Council
Alaska Department of Health and Social Services
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**Alaska Injury Prevention Center
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Executive Summary

Goals

There were two goals for the study: (1) to do an in-depth demographic analysis of the suicides in Alaska for three years from September 1, 2003 through August 31, 2006 and (2) to conduct interviews with key informants for as many suicide cases as possible. This report is divided into two sections, Section 1 addressing the epidemiological data and Section 2 addressing the data derived from the interviews.

Purpose

The purpose of the data gathering, reporting, and analysis was to better understand the etiology and antecedents of suicide among Alaskans, in order to identify potential points of intervention and strategies to reduce the rate of suicide.

Methods

Death certificates attributed to suicides occurring in Alaska between September 1, 2003 and August 31, 2006 were reviewed retrospectively. Information from the Alaska State Medical Examiner, State Troopers, and other law enforcement agencies was collated and reviewed for each suicide death. A cadre of Native and non-Native interviewers was trained in how to use the interview protocol and how to conduct follow-back interviews with survivors of the decedents. All information was entered into a secure database. All efforts to protect confidentiality were in accordance with the Institutional Review Board requirements of the Alaska Native Medical Center, the University of Alaska – Anchorage, and the National Institutes of Health (Certificate of Confidentiality).

Results

There were 426 suicides during the 36 month study period. The average annual suicide rate for the three year study period was 21.4/100,000 (U.S. Census, 2005 estimated population). Males out-numbered females 4 to 1. The age-group of 20 to 29 had both the greatest number of suicides and the highest rate per 100,000 population. Alaska Natives had a significantly higher average rate of suicide than the non-Native population (51.4/100,000 compared to 16.9/100,000). The leading mechanism of death was firearms, accounting for 63% of the suicides. The use of handguns was more prevalent in the non-Native population whereas long guns were used more often by Alaska Natives. The EMS region with the greatest number of Native suicides was Region 4, which includes Bethel and the Yukon-Kuskokwim Delta. Region 2, which includes the Northwest Arctic census area had the highest overall rate of suicide deaths. Follow-back interviews were conducted with 71 informants for 56 of the suicide decedents. Reported alcohol/drug use was the same for Urban as for Rural Native decedents. The same alcohol/drug use pattern was seen for Urban and for Rural non-Native decedents. Toxicology results were received for 33% of all the suicide cases. Alcohol was found in 44% of the toxicology tests and THC (marijuana) was found in 15%.

Conclusion

This study adds volumes of information to our existing knowledge of suicide in Alaska. More in-depth studies are already in progress, which will continue to add to our knowledge base while bringing in additional resources for prevention and treatment. The report also highlights the need for better death data collection, to quantify alcohol and drug involvement and other contributing factors.

Introduction

In 2004, the latest year for which official data are available nationally, suicide was the 11th leading cause of death in the United States for all ages and 3rd among the young. As a comparison, during that same period in Alaska, suicide was the 5th leading cause of death for all ages and 2nd for those under 50. In 2004, there were 155 suicides in Alaska, giving us the highest rate in the U.S. The suicide rate for Alaska was 23.4/100,000 population, more than double the U.S. rate of 11 per 100,000. The estimated years of potential life lost due to suicide in Alaska in 2004 was a staggering 4,686 years. (CDC Wisqars, 2006)

Follow-back studies are used to characterize those who complete suicide by identifying risk and protective factors associated with the death. Suicide risk and protective factors and their interactions form the empirical base for suicide prevention. Risk factors are associated with a greater potential for suicide and suicidal behavior while protective factors are associated with reduced potential for suicide. (Jenkins, 1994; Silverman, 1995) Existing suicide research is strongest in the identification of risk factors, particularly mental and substance abuse disorders, but less developed in non-mental health-related factors, in categorizing protective factors, and only beginning to analyze the unique contributions of individual risk and protective factors as they pertain to specific populations. (U.S. Public Health Service, 1999)

Clear progress has been made in the scientific understanding of suicide, mental and substance abuse disorders, and in developing interventions to treat these disorders. (Stoff, 1997) Much remains to be learned, however, about the common risk factors for self-directed violence and other forms of violence including homicide, intimate partner violence, and child abuse. Expanding the base of scientific evidence will help in the development of more effective interventions for these harmful behaviors.

Understanding risk factors can help those who are unfamiliar with suicide research to understand that suicide is not a random act nor results from a single factor. Protective factors can include a group's attitudinal and behavioral attributes, and the characteristics of the environment. (Blumenthal, 1998) Measures that enhance resilience or protective factors are as essential as risk reduction in preventing suicide.

The Healthy People (HP) Year 2010 Objective 18-1 states "Reduce the suicide rate" to the target of 6.0 suicide deaths per 100,000 population from the current rate of 10.4. (U.S. Department of Health and Human Services, 2000) Accurate information on risk and protective factors for specific populations (e.g., age, sex, ethnicity, etc.) at the national and local level is critical to achieving this objective. Effective intervention strategies must address potentially modifiable social, behavioral, economic, and educational conditions associated with violence. (Gunnell and Frankel, 1994; Rosenman, 1998) However, interventions are often planned and implemented without a systematic understanding of the forces that underlie high risk behaviors in their target populations. One of the recommendations from The Surgeon General's Call to Action to Prevent Suicide is "Enhance research to understand risk and protective factors related to suicide, their interaction, and their effects on suicide and suicidal behaviors". (U.S. Public Health Service, 1999)

Project Outline

Goals

There were two goals for the study: (1) do an in-depth demographic analysis of the suicides in Alaska from September 1, 2003 through August 31, 2006 and (2) to conduct interviews with key informants for as many suicide decedents as possible.

Objectives

1. Identify all decedents whose manner of death was listed as suicide occurring during the study period, as determined by the Alaska State Medical Examiner's Office.
2. Obtain and collate death certificates, medical examiner reports, and law enforcement records for each suicide decedent to form the basis for a demographic description of suicide in Alaska.
3. Further expand the data record for each decedent, where possible, with information from medical, mental health, military and school records.
4. Train a cadre of Alaska Native and non-Native interviewers in the formal follow-back survey instrument.
5. Conduct formal follow-back interviews with key informant survivors of suicide decedents where permissions can be obtained to conduct such interviews.
6. Report all findings in an aggregate fashion.
7. Protect the confidentiality, physical and emotional health of participants in the study in accordance with the Institutional Review Board requirements of the Alaska Native Medical Center, the University of Alaska, and regional Native Health corporations. Obtain a Certificate of Confidentiality from the National Institutes of Health.

Work Plan

- Task 1: Identify a detailed methodology for research process; identify problems anticipated in data collection, review and analysis.
- Task 2: Develop a detailed follow-back instrument building on previous methods and tools used in similar studies around the world.
- Task 3: Obtain formal Institutional Review Board approval of all methods and processes obtained in the study.
- Task 4: Develop a computer database for data entry, and analysis of study cases.
- Task 5: Implement data collection process. Prepare records on each decedent to be included in the study by gathering such records from all available sources;

removing all identifying information concerning the patient, caregivers, agencies and institutions.

Task 6: Complete data analysis and statistical testing.

Task 7: Provide quarterly, interim, and final reports to the Alaska Department of Health and Social Services, the Alaska Mental Health Trust Authority and the Alaska State-wide Suicide Prevention Council.

Project Methodology

Institutional Review Board Approval

The project methods and procedures were outlined in formal applications to the Institutional Review Board (IRB) of the Alaska Native Medical Center (ANMC) and the University of Alaska Anchorage (UAA). The follow-back study received approval by both of these IRBs. Additional permissions were requested and received from all of the regional Alaska Native Health Corporations, with the exception of the Bristol Bay Area Health Corporation. Approval was also received from the National Institutes of Health for a Certificate of Confidentiality.

Approval for the ANMC IRB took nearly six months and the UAA IRB took almost two months. All of the researchers were required to complete the CITI *Course in the Protection of Human Research Subjects* at www.miami.edu/citireg. One of the stipulations for the ANMC IRB approval, was that each Native Health Corporation had to provide written approval before any Alaska Native residing in their region could be interviewed. The Bristol Bay Area Health Corporation decided not to participate because they felt the survivors would be too upset by the interview process. The Yukon Kuskokwim Health Corporation and the Tanana Chiefs Conference both required that each community's Tribal Council give their approval before interviews could begin in their communities. Over one year was spent getting approvals to approach next of kin or key informants for the Native decedents. Ultimately, approval had to be given by the person identified to be interviewed.

A natural part of the IRB process required AIPC to develop an Interviewer Consent Form which would explain the interviewee's rights, allow them to terminate the interview at anytime, and assure their confidentiality. The Interviewer Consent Forms were approved by both of the IRB committees.

Case Identification and Survivor Contact

Initial case identification was provided by the Alaska State Medical Examiner's office. Death certificates which were generated for deaths that occurred within the borders of Alaska and whose manner of death was determined to be suicide, were copied and forwarded to the Alaska Injury Prevention Center (AIPC) for inclusion in the study.

Each case was entered into the database at AIPC and given a unique case identifier. Information provided on the death certificate, the medical examiner's report, and the police reports was used to contact survivors for permissions regarding potential interviews.

All of the case identifier information was kept in a locked safe and all of the case files were stored in locking cabinets. Computer files were password protected to maintain a high level of confidentiality.

The study protocol required us to wait for six weeks before contacting the survivors with any requests. Many times the contact information for next-of-kin took more than six weeks to obtain anyway. An initial letter was sent to each next of kin with condolences and an offer to sit down with our trained interviewers to talk about the decedent's entire life. Each request for an interview had a stamped return envelope, so the survivor only had to check a box for "yes" or "no", provide contact information and send it back to AIPC.

Study Population

The final study population included all deaths from suicide occurring from September 1, 2003 through August 31, 2006. Exclusions were made if, after receiving a death certificate, the death was ruled to be other than from suicide or was "undetermined" by the state medical examiner's office.

Major Data Sources and Elements

Death Certificate: Including patient identifier (later stripped), demographics, times and location of death, autopsy involvement, primary/contributory causes of death and manner of death.

Medical Examiner's Report: Including patient identifier (later stripped), mechanism of injury, address of death, next of kin identification, delays encountered and decedent destination, toxicology and blood alcohol levels.

Autopsy Transcript: Including co-morbid factors, quantification of injuries, detailed description of injuries, factors identified which contributed to death.

Law Enforcement Report: Including a description of events leading up to the incident, description of the event, type of weapon or other mechanism of injury and where patient was pronounced dead. This information was documented from Alaska State Trooper and law enforcement agency investigative summaries.

Other Data Sources: Such sources included medical, mental health, court records, employment and educational records when available. Exploration of these additional data sources is ongoing.

Follow-Back Interview Data: The results from the follow-back interviews can be found in Section 2 of this report. The data for the 71 follow-back interviews were entered into a separate database and were analyzed using qualitative and quantitative methods. These data were used to validate the quantitative sources and to make recommendations for further refinement of investigative tools used by law enforcement and medical examiners.

Data Entry and Analysis Process

All data were entered into Microsoft XP Excel for administrative record tracking. A more detailed database, inclusive of all data elements of interest was constructed using SPSS (Statistical Program for Social Science) software, and analyses were performed in SPSS 15. Data were abstracted from each case record using a standardized checklist before computer entry. All data entry into the SPSS database was completed by a single researcher (TLS). Descriptive and non-parametric analyses were conducted. Where appropriate to the statistical test, level of significance was established at .05.

Results

During the three year study period from September 1, 2003 to August 31, 2006, there were 426 suicides identified in Alaska. The 156 suicide deaths in 2004 represent the greatest number of deaths from suicide for more than a decade with the previously high number of 135 occurring in 2000. The suicide rates per 100,000 population for Alaska was 23.4 in 2004, 19.9 in 2005, and 20.3 in 2006.

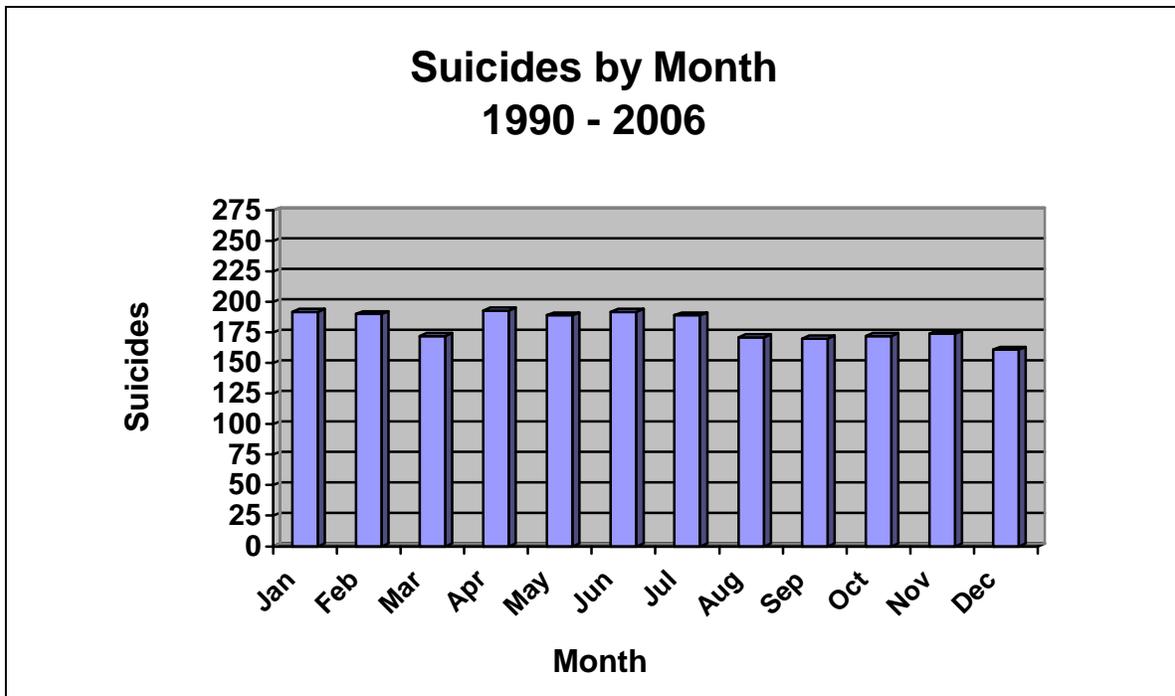


Figure 1: Temporal Distribution

The monthly distribution of suicides was compiled by combining Alaska Bureau of Vital Statistics data for 1990-2003 with data from the Alaska Follow-back study for 2004-2006. The combination of these two data sets provided a 17 year compilation of suicides by month. The resulting distribution ranged from a low of 161 deaths for the month of December to a high of 192 for months of January and June. Figure 1 provides a graphic illustration of this distribution. Tests of significance showed that all of the months fell within the 95% confidence intervals. In other words, there were no months where the number of suicides were consistently higher or lower than the normal distribution.

Age Groups

During the three year reporting period the greatest number of suicides occurred in the younger age groups. Suicides in the 20-29 year old age group (n=118) represented 28% of the total suicides for the study period. Figure 2 represents the age distribution of the suicide cases.

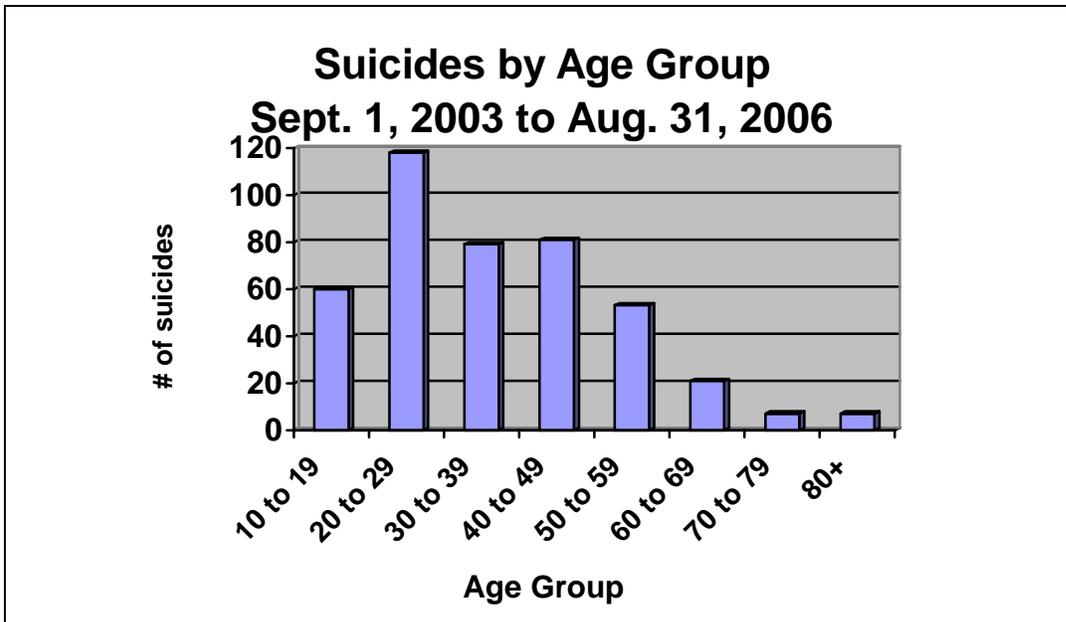


Figure 2: Number of Suicides by Age Group

Since Alaska has a relatively young population (median age 33.2 years), age adjusted rates are necessary for comparisons. A similar distribution is noted when comparing the number of suicides by age group and the rates by age group, with the exception of those over 80.

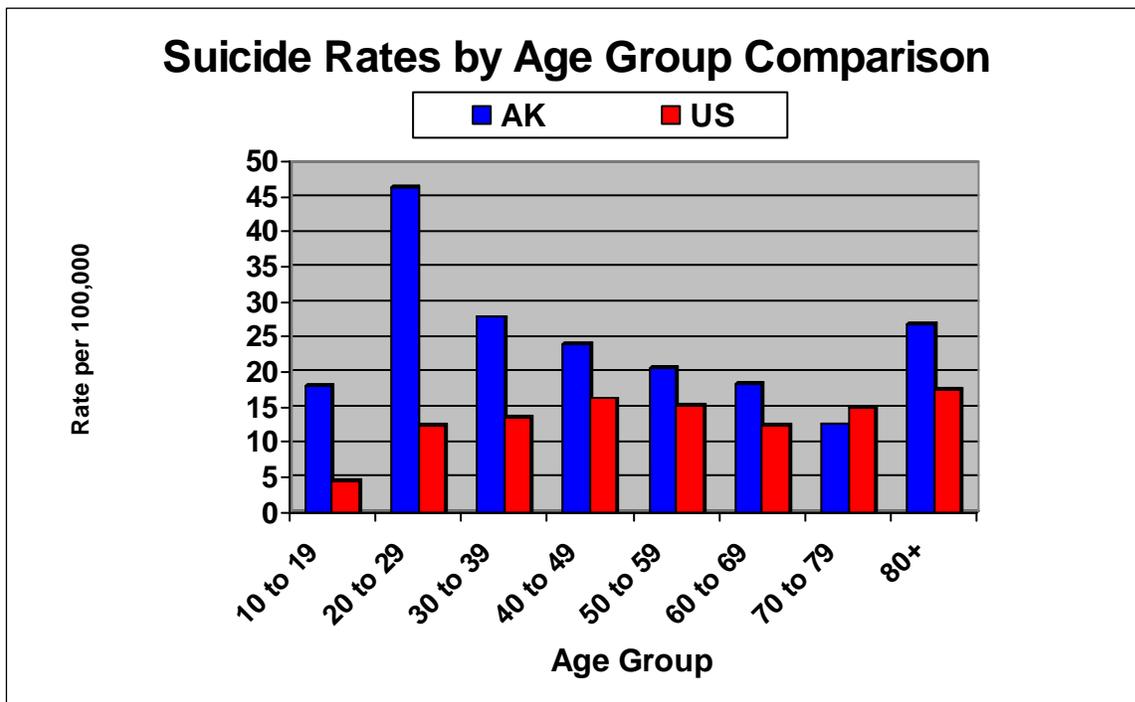


Figure 3: Rates of Suicide by Age Group (2004 est. pop.)

Figure 3 captures the age-adjusted rate distribution for the study period and compares it to the national. The 2004 population estimate was used for both groups.

The age group of 20-29 year olds in Alaska had the highest rate at 46.4/100,000, followed by 30-39 at 27.8/100,000. Nationally, suicide rates are highest in the 80+ age group, followed by the 40-49 group. (CDC Wisqars: 2002-2004) The 20-29 age group is ranked in seventh place nationally.

Ethnicity

The distribution of suicide by ethnicity shows a greater proportion of Alaska Natives taking their own life than the Caucasian or “other” racial categories. Although Alaska Natives comprise 16% of the population, they accounted for 39% of the suicides. Using a combination of statistics from the Alaska Bureau of Vital Statistics and this study, we can show the long term trend for racial disparities in suicides. Figure 4 documents this ethnic disparity.

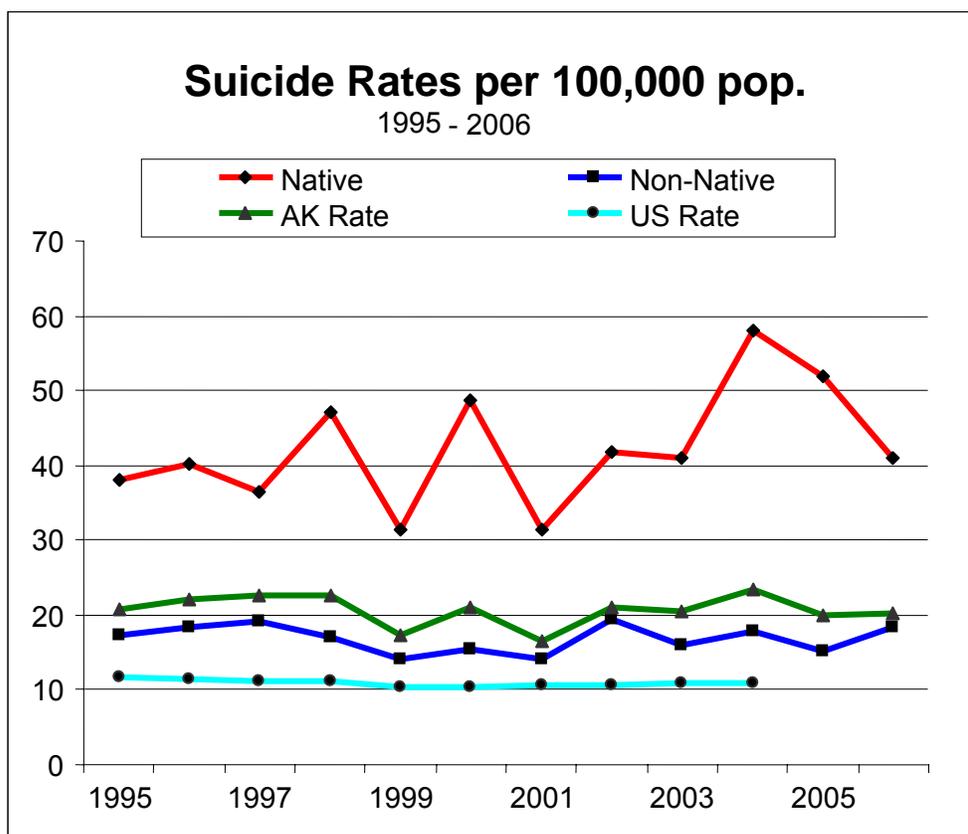


Figure 4: National, Alaska, and Alaska ethnic suicide rates

The Alaska Native rate increased during the three years from 2001 to 2004, and then declined for the past two years. The ethnic disparity is even greater for Alaskan youth 19 and younger, where, over the past 15 years, Alaska Natives accounted for 19% of the youth population and 60% of the suicide deaths in that age group. See Figure 5 for the trend comparisons.

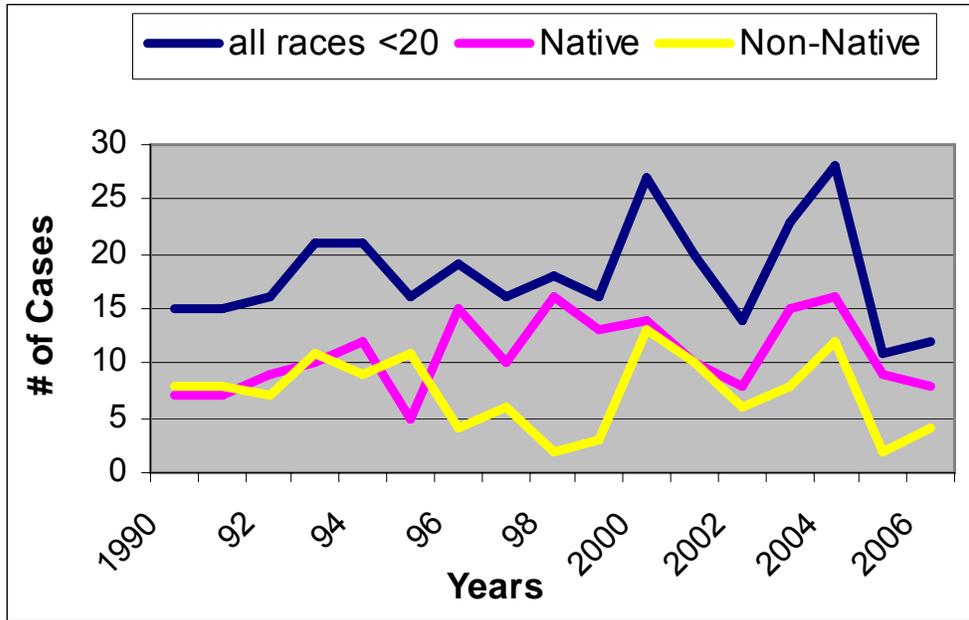


Figure 5. Suicide deaths for Alaskans 19 and younger.

Figure 5 shows the actual number of suicide deaths for youth under the age of 20. The disparity becomes obvious when one sees that the actual number of deaths is higher for Alaska Natives in this age group although the Native population is less. Figure 6 shows a comparison of the death rates per 100,000 population for the 10 – 19 age group. The rates are based on the number of suicides for the actual population in that age group (2005 population estimates).

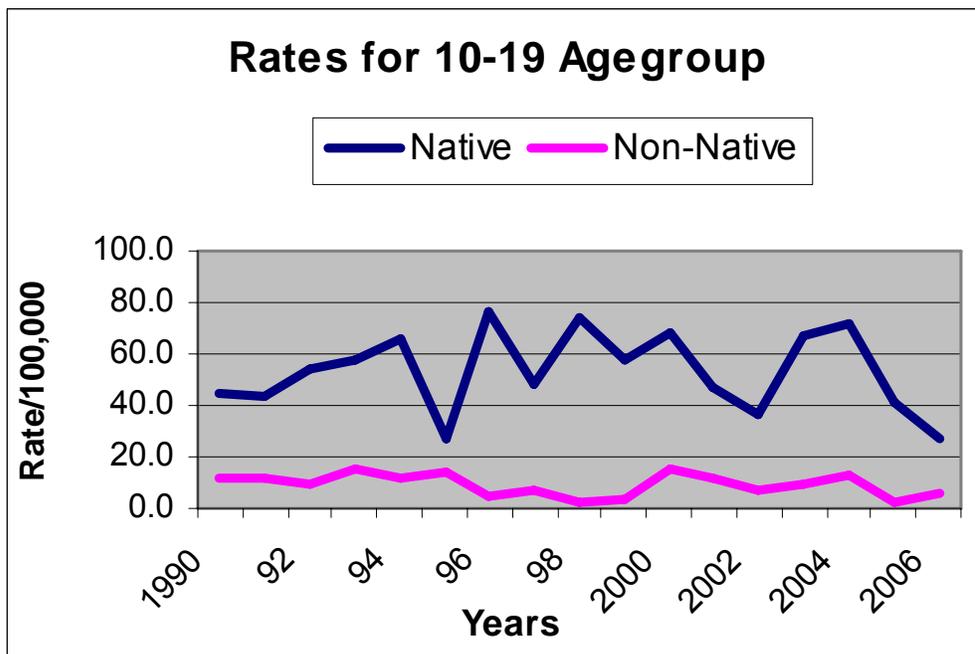


Figure 6. Suicide rates for Alaskans 19 and younger

Mechanism of Suicide

The mechanisms used in the suicides were divided into groups that were consistent with national data. Therefore, hanging, plastic bags, and other forms of suffocation were grouped into “Suffocation”. Drug over-doses and carbon monoxide deaths were grouped as “Poisons”. Other types of suicide where very small numbers were involved, such as jumping, cutting, drowning, etc. were grouped as “Other”.

Choice of mechanism for the suicide act varied significantly between Natives and non-Native Alaskans. The results of a chi square test of association indicated that there is a significant difference between Natives and non-Natives with regards to the mechanism utilized, $\chi^2= 24.095$ (3, $N= 421$) $p = .000$. Mechanism was reported for 426 cases while ethnicity was reported for 421 of the cases. Of those 421 cases, 262 were non-Native and 159 were Alaska Native.

Table 1 shows the various mechanisms of suicide. The three leading mechanisms of suicide were firearms, suffocation, and poisoning, with firearms accounting for 63% of all suicides.

Mechanism	Native	Non-Native	AK - all	USA (2003)
Firearms	60%(93)	65%(172)	63% (270)	54%
Suffocation	32%(55)	17%(44)	23% (99)	21%
Poisoning	6%(7)	15%(39)	11% (46)	17%
Other	2%(4)	3%(7)	3% (11)	8%
Total cases	100% (159)	100% (262)	100% (426)	31,484

Table 1: Mechanism used in Suicide

The proportion of suicides by firearms was fairly consistent between the ethnic groups in Alaska, but the deaths using suffocation (hanging) was nearly twice as high (1.8:1) for the Native as the non-Native decedents. Poisoning (primarily drug overdoses), showed the opposite results, with non-Natives accounting for more than twice (2.5:1) the percentage as the Alaska Natives.

The type of firearm used was grouped by handgun or long-gun (rifles and shotguns). Figure 6 shows the comparisons between Alaska Natives and Non-Natives by type of firearm used. Handguns accounted for 34% of all the suicides and long-guns for 27%.

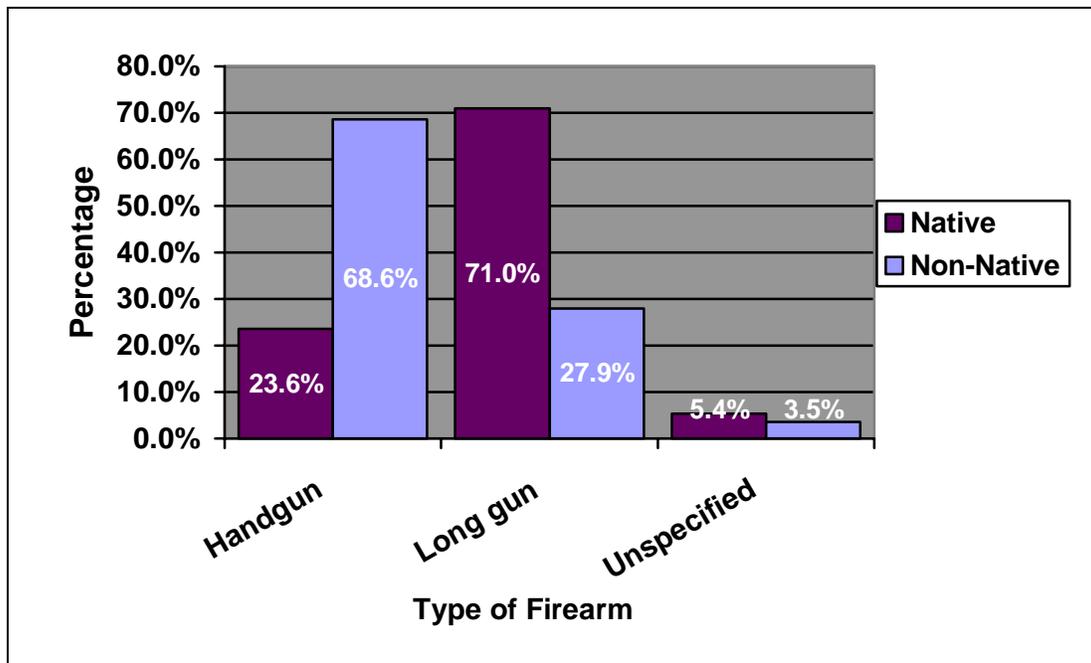


Figure 7: Distribution of Firearms by Type

For the firearm suicides alone, 53% used handguns and 42% used long guns. According to the 1996 Alaska Behavioral Risk Factor Survey, 60% of Alaskan adults reported having a firearm in their home. Forty percent (40%) of these adults reported owning handguns and 54% reported owning long guns. The primary reason for owning a firearm was reported to be hunting or sport (72%).

In 2005, the Alaska Native Tribal Health Consortium's Injury Prevention Program initiated a random sample of 318 homes from 10 villages in southwestern Alaska. Of the 318 homes, 258 completed a survey and 197 of those homes had at least one firearm present (76%). Of the 197 homes with at least one gun, the surveys found a mean of 5.5 firearms per home, with 91% being long guns and 9% handguns.

Regional Differences

During this three year study period there were great variations in suicide rates by region on the state. Rates were calculated by using the number of suicides per 100,000 population for that region. The state EMS regions were used, several of which include more than one borough. Figure 7 shows the suicide rate differences. The regions listed here coincide with the 11 EMS Regions defined by the Alaska Department of Health and Social Services. The regions are made up of the following boroughs and census areas: 1. North Slope, 2. Northwest Arctic, 3. Nome, 4. Wade Hampton and Bethel, 5. Dillingham, Bristol Bay and Lake and Peninsula, 6. Kodiak Island, 7. Aleutians East and West, 8. Anchorage, Kenai and Mat-Su, 9. Valdez-Cordova, 10. Yukon-Koyukuk, Denali, SE Fairbanks, and Fairbanks North Star, 11. Yakutat, Skagway-Hoonah-Angoon, Haines, Juneau Prince of Wales, Outer Ketchikan, Ketchikan Gateway, Wrangell-Petersburg, and Sitka.

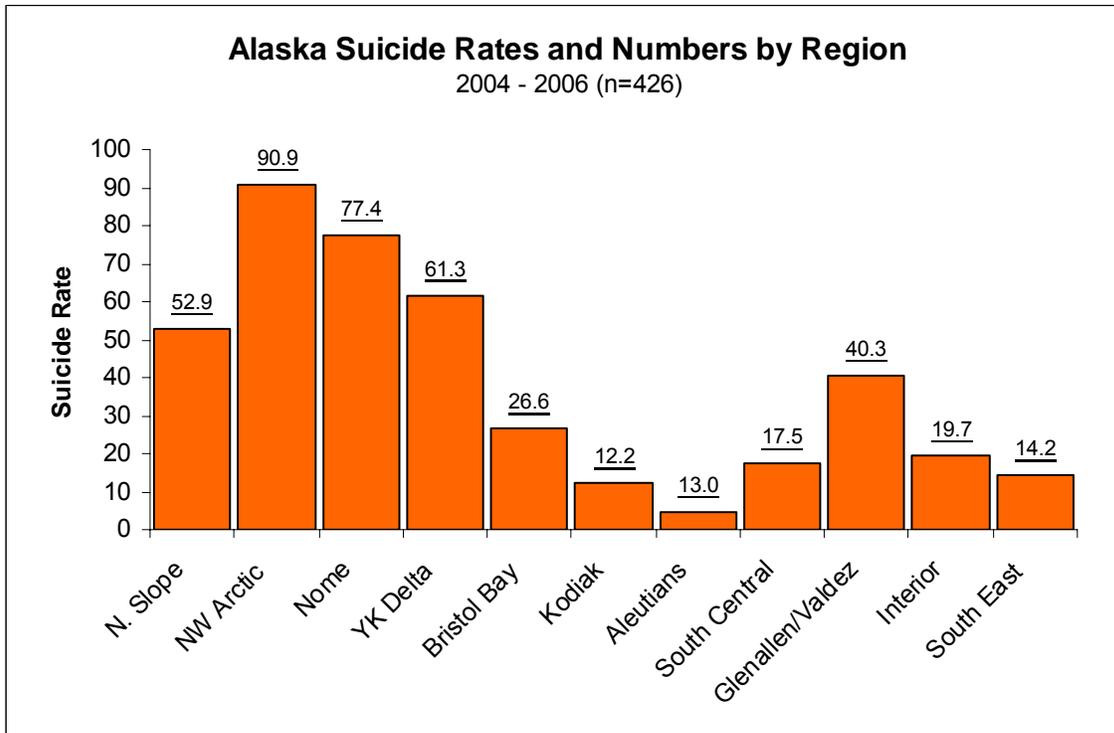


Figure 8: Rates of Suicides by EMS Region

When comparing the current regional suicide rates (from the Follow-back study) with rates from 1990 – 2003, the rank order for the top four regions has not changed: Northwest Arctic, Nome, YK Delta, and the North Slope regions. In more general terms, the northwestern regions of the state had the highest rates and the Aleutians and southeastern regions have the lowest rates. When comparing these rates by the Alaska Native ethnic groups that constitute the majority population in each region, the Inupiat and Eskimos have the highest rates, and the Aleuts have the lowest rates of suicide.

Alcohol/Drug Use

Alcohol and/or drug use at the time of death was combined because the researchers felt that it was a substance abuse issue, rather than the type of substance being abused. A good deal of subjectivity had to be used with this part of the study. For example, alcohol/drug use at the time of death was recorded “yes” (present) or “no” (absent) if it was specifically noted on a reporting form or mentioned by the law enforcement officer investigating the death. Alcohol/drug use was recorded as unknown if it was not mentioned in the investigative reports.

Toxicology tests were requested and samples were taken for 195 deaths, with 139 (33%) of the 426 decedents having toxicology results in their files. Of the 139 toxicology tests performed, 61 had a measurable alcohol level in their blood at the time of death, and 67 decedents tested positive for one or more drugs. We excluded drugs from this category which were non-addictive prescription or over the counter drugs (anti-depressants, Tylenol, etc.) or addictive prescription drugs within therapeutic levels (Oxycodone, Ambien, etc.). THC (marijuana) was found in 31% of the toxicology samples that were positive for drugs.

According to the National Violent Death Reporting System (NVDRS), of the 13 states collecting data on suicides, only one state (Oregon) had a lower toxicology testing frequency than Alaska. (CDC, MMWR 2006) The states with the highest testing frequency were Virginia (97.7%) and Rhode Island (96.5%). In the NVDRS report, Alaska reported toxicology samples tested for 41.1% of the decedents. In our 3-year follow-back study we found that toxicology screens were requested for a total of 46% of the deaths, but results were received for 31% of the decedents. According to this national study, marijuana tested positive in 7.7% of the cases, whereas in our Alaskan study, marijuana was positive in 16% of all the toxicology screens, and 31% of the positive drug screens. THC was the number one drug found, after alcohol, in our study.

When comparing alcohol/drug use for the 426 cases, we found 325 cases where the investigating officers or the Medical Examiner’s office reported the use of alcohol and/or drugs by the decedent at the time of death. This “reported” use was positive for 200 cases, negative for 125 cases, and undetermined for 101 cases. Toxicology samples were analyzed and we received reports for 139 cases. The toxicology tests were performed by a commercial laboratory under a contract with the State of Alaska. Table 2 shows the toxicology results that were positive for either alcohol and/or drug use by ethnicity. We found that 72% of the Native decedents were positive, as were 72% of the non-Natives tested.

Native	Non-Native
Toxicology tests completed (n=36)	Toxicology tests completed (n=103)
Positive = 26 (72%)	Positive = 74 (72%)

Table 2. Alcohol/drug use by ethnicity.

Urban-Rural Differences

The U.S. Census Bureau, in their 2000 Census report, made Urban and Rural designations for Alaska based on population density, but this methodology shows Nome, Kotzebue, Barrow and other small rural communities as being Urban. The federal subsistence guideline identifies Alaskan communities having over 7,000 population as being Urban. This definition comes the closest to reality in the culture and lifestyle differences for the Urban and Rural designation. The communities that we considered Urban include: Anchorage, Fairbanks, Juneau, Palmer/Wasilla, Sitka, Kodiak, and Ketchikan. These communities include populations that make up 57% of the statewide total population. Using these Urban designations, we found that 58% of the suicides in our study were from the Urban communities.

Another Urban/Rural comparison was made for alcohol and/or drug use. Alcohol/drug use was indicated or “reported” for 77% of all the cases. Of these 325 cases where alcohol/drug use was reported by the investigating officer, 61% were positive. This highly subjective data must be compared to the quantified lab results shown in Table 3. Table 3 shows the ethnic distribution by Urban and Rural communities and the number of toxicology tests (75%) that were positive for alcohol/drug use for each group.

Urban Native	Urban Non-Native
Toxicology tests completed (n=15)	Toxicology tests completed (n=84)
Positive = 12 (80%)	Positive = 60 (71%)
Rural Native	Rural Non-Native
Toxicology tests completed (n=21)	Toxicology tests completed (n=19)
Positive = 14 (67%)	Positive = 14 (74%)

Table 3. Alcohol/drug use by Ethnicity and by Urban/Rural location.

It is interesting to note that the percentage of suicide cases that took place in Urban communities matched the percentage of the statewide population for those same Urban communities. The toxicology results for alcohol/drug use in Urban areas (all races) was 73% and for the Rural areas it was 70%. For non-Natives the toxicology results were essentially the same for Urban as for Rural. The positive toxicology results were considerably higher for the Urban Native group when compared to the Rural Native group. The number of toxicology tests performed was a small sample (31%) of the whole group of suicides.

Missing data

There was a high degree of variability in the information available to the researchers. Many death certificates and a few ME reports could not be supplied to the Alaska Injury Prevention Center. Others had missing data at the time they were transmitted to AIPC. Some of the data fields that were frequently missing included Race, Military, Occupation, Education, and Marital Status. Alcohol use and drug use at the time of death are fields on the Anchorage Police Department's Death Investigation Report and on the Department of Public Safety reports. The Lead Sheet for the ME's office does not have a field for suspected alcohol or drug use. Details about a person's mental state or altered mental state are very important from a public health standpoint and should be routinely gathered by death investigators.

There were 195 toxicology tests requested and 139 received. The 61 missing reports could have been due to samples not being collected in the field, the sample not being sent to the lab, or the final test results not being included in the ME report.

The time of injury was documented for 202 of the 426 cases and it showed 51 cases from midnight to 6am, 56 cases from 6-noon, 55 cases from noon-6pm, and 40 cases from 6pm-midnight. Time of injury leading to death was not collected routinely and was based on "last seen" information, making it likely to be unreliable.

Discussion

Three years of data gave the researchers a very good snapshot of the current suicide problem in Alaska. There were however, some limitations involved with this research. It was difficult to obtain all of the information necessary, due to frequently incomplete forms and reports. Numerous death certificates were not available during the study period, which resulted in missing data. Also, the primary concern while investigating suicide

deaths by law enforcement agencies seemed to be the determination of intent and culpability rather than public health concerns.

A research project of this magnitude required Institutional Review Board approval from ANMC, UAA, and a certificate of Confidentiality from NIH. In addition we had to obtain approvals to share information or Memorandums of Agreement with the State Office of the Medical Examiner, the Department of Public Safety (Alaska State Troopers), the Anchorage Police Department, numerous local police departments, hospitals, and other sources of information. With so many different people responsible for each piece of data, it sometimes took months (or not at all) to find the race of a decedent, next of kin, alcohol use, drug use, occupation, education, military experience, etc. Apparently the mortuaries fill out much of the information on the death certificate, so we never saw the updated or amended copy before it was sent to the Alaska Bureau of Vital Statistics.

When comparing rates per 100,000 population with state and national databases, we tried to use the latest common year for which data were gathered and the Census population estimates for that year. Actual numbers were not shown in this report when calculating rates for the EMS regions, due to very small number in some cases.

Alcohol use and drug use at the time of death were combined into a single category. Information for the “reported” use cases was extracted from death investigation reports, while the data for the “tox. tests” was taken from the final lab results.

The Urban and Rural designations were an attempt to look at lifestyle differences for people living in different environments.

Conclusions

Seasonal or monthly suicide numbers fluctuate a great deal from year to year, but when looking at the composite from the last 17 years, we see that there is not a seasonal pattern. Neither is there a statistically significant difference by month. We also looked at suicide numbers during full moon phases to see if there were increased numbers during lunar phases and could find no correlation.

One of the greatest differences between the Alaska and the U.S. national data pertained to age groups with the highest suicide rates. Nationally the highest age group involved senior citizens over the age of 80, followed by the 40-59 year olds. In Alaska, the highest age group was the 20-29 year olds followed by the 30-39 group. The age group of 10-19 year olds was very disparate for ethnicity, with Alaska Natives accounting for 19% of the population in that age group and 60% of the suicides.

When examining the mechanism of suicide within each age group, the 20-29 group had the lowest percentage using a firearm (58%) and the highest using suffocation (35%). The 60+ age groups had an average of 84% using firearms.

The percentage of Natives and non-Natives using firearms was very close but the disparity was greatest for those using suffocation and poisonings. Natives were almost twice as likely to use suffocation (hanging) than non-Natives. Non-Natives were more than twice as likely to use poisons (drug OD) than Natives. When comparing Alaska with national statistics, we are higher in the use of firearms and lower in the use of poisons.

When looking at the type of firearm used by ethnicity, we saw an inverse relationship. Non-Natives primarily used hand guns (69%), while Alaska Natives used long guns (71%) such as rifles and shotguns. This was primarily thought to be due to availability.

The regional suicide rates have remained relatively constant for the last decade with the NW Arctic Borough having the highest rate, followed by the Nome census area, and the Bethel/Wade Hampton census area. The ethnic groups that predominately populate these areas are Inupiat and Eskimo. The Aleut regions have had the lowest rate of suicide during this same time period.

Toxicology lab results were received for 33% of all the suicide cases. Alcohol was found in 44% of the toxicology tests and THC (marijuana derivative) was found in 15% of lab results. Alcohol/drug use resulted in some of the most interesting findings, with Natives and non-Natives having identical usage percentages as shown by the toxicology lab results. The reported use of alcohol/drugs by urban/rural living environments was consistent within the non-Native group, but very different for the Urban and Rural Native groups. Caution must be used when using small numbers, as the variability can increase.

References

1. Blumenthal, S.J. (1998). Suicide: A guide to risk factors, assessment, and treatment of suicidal patients. *Medical Clinics of North America*, 72(937), 71.
2. Centers for Disease Control and Prevention (CDC), National Center for Injury Prevention and Control. (2001). *Wisqars, Injury Mortality Reports*. <http://www.cdc.gov/data/statistics>
3. Gunnell, D., & Frankel, S. (1994). Prevention of Suicide: Aspirations and Evidence. *British Medical Journal*, 308(1227), 33.
4. Jenkins, R. Principles of Prevention. (1994). In: Paykel, E.S., & Jenkins, R., (Eds.), *Prevention in Psychiatry* (pp. 11-24). London: Gaskell.
5. Rosenman, S.J. (1998). Preventing Suicide: What Will Work and What Will Not. *Medical Journal of Australia*, 169, 100-102.
6. Rudd, M.D. (2000). Integrating Science into the Practice of Clinical Suicidology: A review of the psychotherapy literature and a research agenda for the future. In Maris, R.W., Canetto, S.S., McIntosh, J.L., & Silverman, M.M. (Eds.), *Review of Suicidology* (pp. 47-83). New York: Guilford Press.
7. Silverman, M.M., & Felner, R.D. (1995). Suicide prevention programs: issues of design, implementation, feasibility, and developmental appropriateness. *Suicide and Life Threatening Behavior*, 25, 92-103.
8. Stoff, D.M., Mann J.J. (Eds.) (1997). The Neurobiology of Suicide. *Annals of New York Academic Science*, 836(1), 363.
9. U.S. Department of Health and Human Services (2000). U.S. Department of Health and Human Services. *Healthy People 2010*. Washington, D.C.: U.S. Government Printing Office.
10. U.S. Public Health Service (1999). The Surgeon General's Call to Action to Prevent Suicide. Washington, D.C.: United States Department of Health and Human Services.
11. World Health Organization (1996). *Prevention of Suicide: guidelines for the formulation and implementation of national strategies*. Geneva: World Health Organization.
12. American Association for Suicidology (2006). U.S.A. Suicide: 2004 Official Final Data. December 15, 2006.
13. CDC MMWR, Toxicology Testing and Results for Suicide Victims – 13 states, 2004. Nov. 24, 2006/ 55(46);1245-1248.
14. CDC, Behavioral Risk Factor Surveillance System, 2005, <http://apps.nccd.cdc.gov/brfss>

Alaska Suicide Follow-back Study Final Report

Section 2

Interviewed Cases

Study period September 1, 2003 to August 31, 2006

Introduction and Background

The data contained in this section must be viewed as a small sample of the 426 suicides that took place during the reporting period. We have 71 interviews for 56 cases. Key demographic, social and behavioral factors were analyzed to determine whether the cases in which an interview was conducted varied significantly from non-interviewed cases. It was determined through chi-square analysis that the differences between the two populations were not significant except for the racial/ethnic data.

Follow-back examinations of suicide are a relatively new permutation of the psychological autopsy method of investigation. Follow-back studies are generally distinguished from psychological autopsies in the number of key informant interviews that are conducted on each decedent. Whereas, detailed psychological autopsies often involve 6 or more interviews, follow-back examinations usually involve 1 or 2 such interviews. (Maris, Berman, & Silverman, 2000) It is, therefore, necessary to discuss the psychological method from which the follow-back method has evolved. The psychological autopsy method of examining antecedents related to a suicide is recognized as a valuable research tool. Isometsa (2001) notes, "Psychological autopsy is one of the most valuable tools of research on completed suicide". (p. 379) Cavanagh and colleagues (2003) reaffirm that posit "The psychological autopsy method offers the most direct technique currently available for examining the relationship between particular antecedents and suicide". (p. 395) Cooper (1999) further confirms the importance of the psychological autopsy methods "The psychological autopsy method is thought to be the cornerstone of suicide research, providing more detailed knowledge than other research methods". (p. 468) Gustafsson and Jacobsson, (2000) note that, "Psychological autopsy diagnoses have been proven reliable and valid". (p. 383)

The use of psychological autopsy methods could increase the level and detail of important epidemiological data that have traditionally been noted as missing in law enforcement summaries. Runyan, et al (2003) documents the absence of these key data.

Some information, such as whether the decedent had a history of mental health problems or a left a suicide note was recorded frequently... by the officers we interviewed. In contrast, other information that might help to understand the context of the suicides is not recorded often, including information about a history of drug or alcohol problems, history of child or adult traumas, or information about other precipitating factors. (p. 69)

The psychological autopsy involves conducting structured interviews with family members, relatives, friends and professional personnel who were close to, worked with, or treated the decedent. (Brent, 1989) These interview findings are typically augmented by abstraction of key data elements from medical and psychiatric records. The purpose of the methodology is to "retrieve comprehensive information about a suicide". (Cooper, 1999) (Cavanagh, Carson, Sharpe & Lawrie, 2003) describe the utility of the process.

From this information an assessment is made of the suicide victim's mental and physical health, personality, experience of social adversity and social integration. The aim is to produce a full and accurate a picture of the deceased as possible with a view to understanding why people kill themselves. (p.88)

The psychological autopsy method has been used to describe the role of acculturation and assimilation pressures in displaced natives. (Lee, Chang, & Cheng, 2002 note that previous studies concerning the relationship between acculturation and suicide have

yielded varied results, they suggest that methodological differences likely contribute to these varied findings.

... the association of acculturation and mental disorders would be better understood when the scope of acculturation, the types of mental disorders, the targeted population, and other possible confounding factors are carefully defined and systematically investigated. (p. 134)

The psychological autopsy method of investigation provides opportunities to define those “other possible confounding factors”. Lee and his colleagues (2002) note that

The concept of ‘anomie’ proposed by Durkheim in 1897 to describe the phenomena of social disorganization and weakened social and cultural affiliation has been speculated to be one of the important contributors to the high suicide rates among natives in Australia, Alaska and Manitoba. (p. 134)

The assumption of this study, based on supporting documentation, is that the formal key informant interviews of a follow-back or psychological autopsy process, if not the “gold standard”, are at least a lesser precious metal and more accurate by their nature than unstructured police investigations. Gelles (1995) concludes, that, in spite of its imperfections the psychological autopsy is the best tool available.

The psychological autopsy is a postdictive analysis. It is speculative and probabilistic. However, it is the best conclusion giving a logical given a logical understanding of the relationship between the deceased and the events and behaviors that preceded the death... Its specific purpose is to form a logical understanding of death from tangible physical evidence, documented life events, and intangible and often elusive emotional features. (p. 337)

This section of the research focuses on the contributing factors that led to the suicide, an area of critical weakness in law enforcement investigatory summaries. This is often due to the orientation of the law enforcement investigation, even when using psychological autopsy methods. “The psychological autopsy serves as an adjunctive aid... in determining the manner of death”. (Gelles, 1995) This statement confirms that the primary orientation is to determine that the suicide is neither a homicide nor an unintentional injury death, rather than collecting data on the antecedents and etiology of the decedent’s suicide. These latter factors are the greatest interest to suicidologists who continually strive to find effective prevention opportunities and treatment measures.

The follow-back interviews conducted as part of this research project were based on the best science from previous psychological autopsy and follow-back processes. The tool went through several iterations to make it as pertinent to Alaskan cultures as possible. Specific training was conducted in the use of the tool. The following pages capture the essence of the quantifiable data from the interviews that have been conducted to date. Again, caution must be exercised in the use of these data. As additional interviews are conducted and added to this pool of information, the confidence and reliability in these data will increase.

Methodology

Seventy-one (71) interviews were conducted for 56 cases. Where multiple interviews were involved, the researchers chose the most reliable source for the interview answers.

The project methods and procedures were outlined in formal applications to the Human Subjects Review Committee of the Alaska Native Medical Center (ANMC) and the

University of Alaska Anchorage (UAA). The follow-back study received approval by both of these IRBs. Additional permissions were requested and received from all of the regional Alaska Native Health Corporations, with the exception of the Bristol Bay Area Health Corporation. Approval was also received from the National Institutes of Health for a Certificate of Confidentiality.

Approval for the ANMC IRB took nearly six months and the UAA IRB took almost two months. All of the researchers were required to complete the CITI *Course in the Protection of Human Research Subjects* at www.miami.edu/citireg. One of the stipulations for the ANMC IRB approval, was to that each Native Health Corporation had to provide written approval before any Alaska Native residing in their region could be interviewed. The Bristol Bay Area Health Corporation decided not to participate because they felt the survivors would be too upset by the interview process. The Yukon Kuskokwim Health Corporation and the Tanana Chiefs Conference both required that each community's Tribal Council give their approval before interviews could begin in their communities. Over one year was spent getting approvals to approach next of kin for Native decedents, and then the ultimate approval had to be given by the person we wanted to interview.

A natural part of the IRB process required AIPC to develop an Interviewer Consent Form which would explain the interviewee's rights, allow them to terminate the interview at anytime, and assure their confidentiality. The Interviewer Consent Forms were approved by both of the IRB committees.

Initial case identification was provided by the Alaska State Medical Examiner's office. Death certificates, generated for deaths that occurred within the borders of Alaska and whose manner of death was determined to be suicide, were copied and forwarded to the Alaska Injury Prevention Center (AIPC) for inclusion in the study.

Once received by AIPC, each case was entered into the database and given a unique case identifier. Information provided on the death certificate, the medical examiner's report, and the police reports was used to contact survivors for permissions regarding potential interviews.

All of the case identifier information was kept in a locked safe and all of the case files were stored in locking cabinets. Computer files were password protected to maintain a high level of confidentiality.

Most of the potential interviewers were recommended by the various regional Native Health Corporation's mental health units. The initial training session was held in Anchorage in October 2003. The Alaska Injury Prevention Center paid for one participant from each corporation, but three of the corporations paid for additional staff to attend. A total of 35 interviewers were trained over the course of the project with 13 actually being asked to conduct interviews. All interviewers were trained counselors and were asked, as part of the training process, to conduct mock interviews. The instructors would then provide with feedback for improvement. This process also gave the study team an opportunity to select the best interviewers.

The study protocol required us to wait for six weeks before contacting the survivors with any requests. Many times the contact information for next-of-kin took more than six weeks to obtain anyway. An initial letter was sent to each next of kin with condolences and an offer to sit down with our trained interviewers to talk about the decedent's entire life. Each request for an interview had a stamped return envelope, so the survivor only

had to check a box for “yes” or “no”, provide contact information and send it back to AIPC. If a potential interviewee said they would like to be interviewed, an interviewer was assigned to the cases. The interviewer arranged a meeting for the interview.

RESULTS

Demographic Information

The questions concerning demographic information give a basic background of the decedent. According to the follow-back interviews, 36% were married or living together as married, and 39% were never married. Of those who had a recent change in their marital status (widowed, divorced, separated), 86% were devastated by the change.

Questions regarding the decedents’ origination and residency produced the following results:

- ◆ 96% were born in the United States
- ◆ 39% were born in Alaska
- ◆ 41% lived in Alaska their whole life
- ◆ 4% lived in Alaska seasonally

Interviewers reported the race or ethnicity to be 70% white, 23% Alaska Native and American Indian, and 7% as other. Of the decedents from Native ancestry, 46% were Yupik Eskimo, 23% Inupiaq Eskimo, 8% Aleut, and 8% Tlingit/Haida. Of this Native group, 15% attended Boarding school. Fifteen percent had parents who attended Boarding school, and 15% had grandparents who attended Boarding school.

Other results from the 13 Alaska Native interviews indicated that:

- ◆ 15% were reported as always speaking their Native language and 54% sometimes spoke it.
- ◆ 77% participated in traditional Native ceremonies
- ◆ 16% used traditional Native medicine to treat illness
- ◆ 77% had a special Native name, with the Native name being reported as very important for 60% of the decedents

Education

When interviewers questioned respondents about the decedent’s level of education, the following responses were received:

- ◆ 44% had at least some college or higher education
- ◆ 25% had less than a high school education
- ◆ 9% were in school at the time of their death
- ◆ 29% were bullied as youth

Religion

Questions about the decedents' religious activities reported that 29% were not affiliated with a religion. Of the 71% who had a religion 58% were not active, and only 12% were reported to be very active. During the last month of life 60% did not attend any religious services.

Occupation

When asked about the decedents' work life and jobs, the response was that 75% had a paying job during the last year of their life.

Of the last jobs held:

- ◆ 13% were professionals
- ◆ 38% were in the service industry

The length of time at the last job was reported as:

- ◆ less than 1 year for 38%
- ◆ 1 to 5 years for 29%
- ◆ 10 or more years for 18%

When rating job satisfaction at the last job, the responses were:

- ◆ 43% loved the job
- ◆ 38% thought the job was "just ok"
- ◆ 16% hated their job
- ◆ complaints about their job were as follows: difficult co-workers, poor pay, work too hard, and stressful job

Queries involving the decedents' recent job history produced the following results:

- ◆ 52% were employed by a private company or business; 11% worked for family business
- ◆ 32% started a new job during the last year of their life
- ◆ 36% experienced a major change in employment, with 50% taking a demotion
- ◆ 54% stopped working during the last year, with 20% getting fired or laid off and 23% quit. Another 17% stopped working for mental health reasons.

The main source of income for 50% was their current job. Fourteen percent stated the decedent was living with, and relying on relatives or friends at the time of their death.

Military

Sixteen percent of the decedents served in the military, with the vast majority serving in the Army. Of those who served in the military, 44% had combat experience, either in Vietnam (75%) or the Gulf War (25%).

Access to Care

When questioned about health care availability during the last year of life:

- ◆ 39% were seeing a counselor or therapist. Of those, 18% were seeing a religious leader and 78% were seeing other therapists; of those seeing a therapist, a psychiatrist was reported 41% of the time
- ◆ 50% were still seeing a therapist at the time of death
- ◆ 78% of all the respondents did not feel the decedents were getting the mental health care they needed.

Multiple reasons were given for their response about inadequate mental health care. The main reasons were that the decedent didn't believe in counseling or asking for help (29%), had difficulty finding mental health services (18%), or problems paying for treatment (11%).

On questions regarding insurance, the following responses were given:

- ◆ 57% had some health insurance, of those 40% had private insurance and 34% had Alaska Native Medical.
- ◆ 78% said the insurance plan covered mental health care.
- ◆ 36% had difficulty paying for health care

Medications

The interviewers asked about the medications the decedent had been taking:

- ◆ 62% were taking prescription medication for mental/behavioral health problems
- ◆ 54% were reported to have taken the medications as prescribed
- ◆ 54% had insurance that paid for the medications, while 29% reported problems paying for the medications
- ◆ 80% reported it was easy to get the medications needed

Cognitive Functioning

The interviewers questioned the respondents about the decedents' ability to think clearly or function during the last year of life:

- ◆ 54% had an illness or disability that made it difficult to take care of normal daily activities
- ◆ 36% had problems with memory or thinking clearly

Biological Family

This section of interview questions related to the biological family of the decedent:

- ◆ 96% were raised by at least one of their biological parents
- ◆ 27% were the first born, 22% were the 2nd born, 22% were 3rd born
- ◆ 20% had one or more siblings die, and of those siblings, 17% were from suicide
- ◆ 30% lost a mother or father but only 6% by suicide
- ◆ 35% stated that one or both parents had a drinking problem
- ◆ 13% reported that parents had abused prescription or illegal drugs
- ◆ 35% had a parent with a diagnosed mental illness, with most (68%) listing depression as the identified problem

- ◆ 37% had siblings with a drinking problem
- ◆ 30% had siblings with a drug problem
- ◆ 28% had siblings with a mental health problem

Activities

The questions in this section were intended to describe the recent activities of the decedent:

- ◆ 18% were an invalid or homebound at the time of death; 70% due to overwhelming depression or anxiety
- ◆ 43% had activity levels decrease and 46% stayed the same prior to death
- ◆ 89% had a hobby or favorite activity, for which 44% had a decrease in participation and 44% stayed the same
- ◆ Participation in social activities with family or friends decreased for 44% of the decedents and stayed the same for 50%
- ◆ The mean hours the decedents spent watching TV per week was 19, and 10 hours for computer or video games
- ◆ 39% moved to a new residence in the last year
- ◆ 4% were involved in a homosexual relationship
- ◆ 59% had experienced an event that caused a great deal of shame, such as financial (27%), drug or alcohol (21%), sexual relationship (18%), other crime (9%)
- ◆ 43% reported that a close family member or friend had died recently
- ◆ 55% reported experiencing significant losses, which included death of a loved one, suicide, health, loss of relationship, job, financial
- ◆ 18% reported having someone they were romantically involved with having had a pregnancy, miscarriage, abortion, still birth, or gave birth to a child
- ◆ 41% had problems with law enforcement, which included theft, assault, DUI, and domestic violence
- ◆ 57% were involved in a significant romantic relationship, 67% of which were having significant problems with their relationship.

The First 10 Years of Life

In the first 10 years of the decedents' life:

- ◆ 25% experienced the death of a close family member
- ◆ 27% experienced a major change in family structure, 73% due to divorce or separation
- ◆ 25% experienced a significant illness or injury
- ◆ 16% were hospitalized
- ◆ 43% had a major change in residence
- ◆ 32% experienced a major change in the health of a parent or close family member
- ◆ 30% were abused before the age of 10, most often by their father
- ◆ 36% were abused as a teen
- ◆ 29% witnessed violence or abuse, mostly between parents

Health Issues

Regarding the physical health of the decedents, 59% had significant health problems during their life. During the last six months, 64% of the decedents had seen a doctor for a health problem, and 69% of those said the health problem changed their lifestyle.

Social Support

This section of the interview was to ascertain the people in the decedents' lives who provided them with help or support:

- ◆ Only 5% had no close friends or relatives with whom they could feel at ease.
- ◆ 89% had one or more people who they could depend on for support or help.
- ◆ 57% were thought to be satisfied or very satisfied with the support they received from others; 39% were dissatisfied or very dissatisfied by the support they received.

Alcohol

These questions pertained to the decedents' reported alcohol use, of which 43% drank daily, 20% drank weekly, and 5% drank monthly. During the last month of life, 43% drank a lot or binge drank, 48% did not.

When asked about the decedents' drinking habits and events around drinking, the following answers were given:

- ◆ 50% reportedly had a drinking problem in the past
- ◆ 35% had attended Alcoholics Anonymous
- ◆ 33% were hospitalized or entered in a counseling program because of their drinking problem
- ◆ 37% had woke up in the morning not remembering what had happened
- ◆ 50% felt guilty about their drinking
- ◆ 76% usually had more than 2 drinks at a time
- ◆ 26% often drank before noon
- ◆ 33% had a drinking problem as a child or adolescent
- ◆ 37% got into physical fights when drinking
- ◆ Drinking created problems with family members in 59% of the decedents
- ◆ 26% lost friends or relationships due to drinking
- ◆ 37% sought help for their drinking
- ◆ 31% were jailed as a result of their drinking
- ◆ 19% had delirium tremens or heard voices/saw things that weren't really there
- ◆ 26% had been seen by a doctor, social worker, or clergyman for a drinking related problem
- ◆ 19% had been arrested for a DUI

Drugs

The respondents were questioned about prescription medicines and drugs used by the decedents during the last year of life:

- ◆ 45% used painkillers, of which 78% had been prescribed by a physician, 63% used as prescribed

- ◆ 30% were on sedatives, 75% prescribed, 67% using as prescribed
- ◆ 27% were taking tranquilizers, 75% prescribed, 38% using as prescribed
- ◆ 48% were on anti-depressants, 92% prescribed, 29% using as prescribed
- ◆ 14% were taking mood stabilizers, 88% prescribed, 33% using as prescribed
- ◆ 11% were on anti-psychotics, 100% prescribed, 60% using as prescribed

Reported illegal **non-prescription** drugs used during last year:

- ◆ 16% took stimulants
- ◆ 50% used marijuana
- ◆ 10% used cocaine
- ◆ 9% took hallucinogens

Psychiatric Symptoms

During the last month of life, 45% of the decedents were reportedly often worried, 32% were often withdrawn, 39% were often impatient or annoyed, and 32% seemed suspicious of others.

Other behaviors, during the last month of life, were reported as follows:

- ◆ 61% seemed less able to enjoy things they used to
- ◆ 39% exhibited a change in appetite or significant weight gain/loss
- ◆ 36% felt fidgety or restless
- ◆ 63% were reported to be tired and without energy
- ◆ 54% felt worthless or guilty
- ◆ 46% had trouble thinking or concentrating
- ◆ 37% cried more often or had trouble controlling emotions
- ◆ 54% were depressed most of the time for the last two weeks of life

Twenty-seven percent reported a personality change for the better in the last few days of life.

Aggression

Below is the behavior exhibited by the decedents over the course of their lives:

- ◆ 70% reported having had tantrums, such as screaming, slamming doors, or throwing things
- ◆ 55% got into physical fights with others
- ◆ 87% had verbal fights or arguments with others
- ◆ 40% had discipline problems in school resulting in suspension
- ◆ 45% reported problems with law enforcement
- ◆ 43% had instigated problems causing others to call the police

Anxiety

When questioned about fear and/or anxiety attacks, 30% of the respondents said YES and 54% said NO, and 16% did not know. Over 87% did not respond to questions describing the symptoms of anxiety or panic attacks regarding the decedent.

Personality Traits

These questions explored the decedents' personality and habits:

- ◆ 56% described as a perfectionists
- ◆ 25% described as very strict or rigid
- ◆ 69% always wore a seat belt when riding in a motor vehicle
- ◆ 37% drove faster than most other drivers, 63% were the same speed or slower
- ◆ 60% were active smokers, 58% of those smoked <1 pack/day
- ◆ 73% were riders of ATVs, snowmachines, or motorcycles
 - 56% had been in a crash, 28% had been in 7 or more crashes
 - 45% always wore a helmet and 38% never wore a helmet
- ◆ 57% described as impulsive

PTSD

This section asked about Post-Traumatic Stress Disorder from events in the decedents' lives. The interviewers discovered that 39% had suffered from a traumatic event such as rape, abuse, war, accident, etc. that may have changed their behavior sometime in their lives. Sketchy information was derived from this line of questioning.

Firearms

Following are the responses given for questions regarding firearms and the decedent:

- ◆ 84% owned one or more firearms
 - 98% of these guns were kept in the same home as the decedent
 - 79% were not locked up
 - When known, 42% of the guns were loaded
 - 81% felt the decedent was familiar with the operation and use of firearms
- ◆ 66% of the interviewed cases used a firearm in their suicide
 - 23% of these guns obtained the same day as the death
 - 23% the gun was always available

Previous Suicide Attempts

When questioned about previous suicide attempts, 43% of the respondents stated the decedent had made prior attempts, 48% said NO, and 9% didn't know. Excluding the "Don't Know" responses:

- ◆ 51% had previous attempts
 - Averaged 1.7 attempts per person
 - When was last attempt:
 - < 1 month = 14%
 - 1-6 months = 19%
 - 7-12 months = 24%
 - 1-5 years = 24%
 - > 5 years 19%
 - Method for most recent of previous attempts:
 - Firearm = 33%
 - Drugs OD = 42%
 - Hanging = 8%

- Stabbing/cutting = 13%
- 46% of the previous attempts did not require hospitalization

Thoughts of Suicide

These questions asked about the people who the decedent confided in or sought help from concerning their thoughts of suicide.

- ◆ 66% verbally expressed thoughts of hopelessness or a wish to die
 - 84% expressed the thoughts in the last 30 days of life
 - These thoughts were most often expressed to (some multiple answers):
 - 41% to family members - parents, siblings, children
 - 32% to a spouse, former spouse, or intimate partner
 - 22% to a professional - MD, psychologist, psychiatrist
 - 22% to friends
- ◆ 23% of the 56 cases expressed suicidal thoughts in other ways like drawing, writing, or pictures
- ◆ 50% made specific threats or talked about suicide

Suicide Event

When asked whether the decedent was intoxicated by drugs or alcohol at the time of death, 18% of the respondents said "Don't Know". Of the ones who knew the decedents' condition, 46% said YES they were intoxicated.

Other situations surrounding the event:

- ◆ 46% of the decedents chose a place to die where someone would have been likely to find them in less than an hour
- ◆ 9% wished to be reunited with a loved one who had died
- ◆ 21% tried to get help immediately before or during the event
- ◆ 57% planned their suicide
- ◆ 36% left a note

Last Year of Life

During the last year of life:

- ◆ 21% participated in Public Assistance programs, which included food stamps, energy assistance, social security, etc.
- ◆ 18% received aid from other social service agencies, i.e. church, food bank, etc.
- ◆ 46% reported the decedent was having serious financial problems

Traumatic Brain Injury

This question was introduced about half way through the research project but of the 28 responses, 9 (32%) said the decedent had suffered a traumatic brain injury at some point in their life.

Civil and Criminal Court Cases

AIPC conducted an investigation of the civil and criminal court cases for the 56 interviewed suicide cases. Not all of the suicide cases had a court history and only those cases over the age of 17 had a legal history that could be documented. There were 35 suicide cases that had a court history. We found an average of 8 cases per person and an average of 9.5 charges per person. Six percent of the court cases were felonies, 52% were misdemeanors, and 42% were violations. The number of court cases seems extraordinarily high, further investigations are needed to compare with a random sample of a control population.

Limitations and Strengths of Data

The data contained in Section B must be viewed as a small sample of the 426 suicides that took place during the reporting period. We have 71 interviews for 56 cases. Originally, we sought to conduct follow-back interviews with at least two key informants of approximately 1/3 of the suicide decedents. This turned out to be impractical for a variety of reasons including our inability to obtain contact information for next-of-kin (NOK), NOK lived in another state, NOK moved after the death, no NOK, NOK chose not to participate. We contacted 217 NOK, of which 92 agreed to be interviewed and 71 actually completed an interview. There were 21 people who agreed to an interview but changed their minds before the interview appointment. Only one person quit during the interview process and that was to go to meet a scheduled flight at the airport.

It was impossible to select a random sample of the suicide deaths for which to conduct interviews, but we have attempted to determine how much the interviewed cases resemble all of the cases. Table 4 shows a variety of demographics and the comparison of interview cases with all cases.

	Interview cases	All cases
Sex: Male	80%	79%
Female	20%	21%
Race: Native	20%	38%
Non-Native	80%	62%
Method: Firearm	66%	63%
Asphyxiation	25%	26%
Drugs	7%	8%
Firearm: Hand gun	34%	34%
Long gun	32%	27%
Location: Urban	79%	57%
Rural	21%	43%
Alcohol/Drug Use: Positive	18%	23%
% positive of those tested	100%	75%

Table4: Comparison of Interviewed cases with All cases

The greatest difference in the Interviewed cases and All cases is seen with the over-representation of non-Natives and Urban cases in the Interviewed database.

Part of the problem in getting more rural Native interviews could be due to the delays experienced getting approvals from the various governing layers that protect the individual next-of-kin living in rural Alaska. We were required to get Institutional Review Board approval from the Alaska Native Medical Center, each regional Native Health Corporation, many times the sub-regional or community government, and then of course the decedent's next of kin. It was not clear why rural Alaska Natives were less willing to participate in the interview process, but when some were asked why, we received responses like, "it is too soon to talk about it", or "I don't want to talk about it – it's too personal". Culturally, many Alaska Natives don't want to talk about their grief and feel that they should be strong enough to deal with it on their own.

AIPC trained thirty-five interviewers throughout the state, so that each region could have local interviewers. This methodology provided local, culturally aware interviewers but it also introduced variability in the interview process. Some interviewers probed more to elicit answers rather than just accepting "I don't know".

Another method we used to determine how representative the Interviewed cases were of the whole, involved using key demographic, social, and behavioral factors found within the "All Cases" database. They were analyzed to determine whether the cases in which an interview was conducted varied significantly from non-interviewed cases. It was determined through chi-square analysis that the differences between the two populations were not significant except for the racial/ethnic data. While this does not mean that the interview cases are a perfect representation of all the suicide cases, it does mean that most of the information gleaned from the interviews is highly likely to be similar for the whole group. The results of the chi square test of association indicated that there is no significant difference between those who were interviewed and those who were not, in terms of gender, $\chi^2 = .040$ (1, $N = 426$) $p = .50$. Examination of the cells, showed that women made up 20.8% of the non-interviewed cases, and 19.6% of the interviewed cases. For the variable of marital status, again, there was no significant difference between marital status and whether a case was interviewed, $\chi^2 = 4.71$ (5, $N = 378$) $p = .45$. Another important aspect of the study was whether it was reported that alcohol was used close to the time of the suicide. Again, a chi squared analysis was performed and the results determined that there is no significant difference in the reporting of alcohol use between interviewed and non-interviewed cases. $\chi^2 = 1.12$ (1, $N = 327$) $p = .19$. In non-interviewed cases, 61% ($n = 200$) alcohol use was reported in the record, compared to 68.1% ($n = 32$) in interviewed cases. Alternatively, 40% ($n = 28$) of non-interviewed cases did not have a report of alcohol use, and 31.9% ($n = 47$) of non-interviewed cases did not have a report of alcohol use around the time of the suicide. One aspect in which chi-squared analysis showed that there is a significant difference between the interviewed cases and non-interviewed cases is in the proportion of native and non-natives represented. $\chi^2 = 9.03$ (1, $N = 421$) $p = .002$. In the interviewed group 80.4% ($n = 45$) were non-native, and 19.6% ($n = 11$) were native. In the group in which an interview was not conducted, 59.5% ($n = 217$) were non-native and 40.5% ($n = 148$) were native.

We feel confident that this research project, even with its limitations, is the most comprehensive and important suicide research in Alaska.

Conclusions

Some of the more salient conclusions are:

- For the Native decedents, 77% participated in traditional Native ceremonies and 77% had a traditional Native name.
- The education questions showed that when the 7 “Don’t knows” were excluded, 71% of the decedents had a high school education or greater, while the overall Alaska graduation rate was 67%. (Hall, D. Getting Honest About Grad Rates, 2005).
- 71% of the decedents reportedly had a religion but only 12% were active.
- 54% stopped working during the last year, with 20% of those getting fired and 23% quitting.
- 78% did not feel the decedent was getting the mental health care they needed.
- 43% of the decedents didn’t have health insurance.
- 62% of the decedents were taking prescription medications for mental health problems at the time of death.
- 54% had an illness or disability that made it difficult to take care of normal daily activities.
- 35% had a parent with a diagnosed mental illness with the majority of them (68%) citing depression as the illness.
- 18% were homebound at the time of death; most of those (70%) were due to depression.
- 59% experienced an event that caused a great deal of shame – many of them (27%) were financial problems, 21% for alcohol or drug problems, and 18% involved a sexual-related problem.
- 57% were involved in a romantic relationship and 67% of those were having significant problems.
- 36% of the decedents were abused as children.
- During the last year of life, 64% had seen a doctor for a health problem, of those, 69% said the health problem changed their life.
- Social support was reportedly available for 89% of the decedents but 39% said the decedent was not satisfied with the support from friends/family.
- 50% of the decedents reportedly had a drinking problem in the past.
- 43% drank alcohol daily and 43% were binge drinkers during the last month. The national Behavioral Risk Factor Surveillance Survey for 2005 shows the national rate for binge drinking was 14.4%, the Alaska rate was 17.5%, and for our decedents it was 43%.
- 48% were taking anti-depressants; of those 29% were taking them as prescribed.
- 54% of decedents used marijuana during the last year of life.
- During the last month, 61% seemed less able to enjoy things they used to, 54% were depressed most of the time.
- Aggressive behavior was exhibited by many of decedents, with 87% having verbal fights or arguments and 55% having physical fights.
- 60% of the decedents were active smokers while the state rate is 25%.
- 84% had firearms available in their homes but only 66% used a firearm in their death.
- 23% obtained the firearm the same day as the suicide.
- 51% had previous made attempts, with 57% of those in the last year.

- 66% expressed thoughts of hopelessness or a wish to die. Most often these thoughts were conveyed to family members (41%) or spouse/partner (32%).
- 46% said the decedents were intoxicated by drugs/alcohol at the time of their death.
- 57% planned their suicide and 36% left a note.
- 46% reported the decedents were having serious financial problems.

A couple of the questions from the Follow-back interviews were also addressed in the 2005 Behavioral Risk Factor Surveys for Alaska. The 2005 BRFSS survey asked about binge drinking and found that 17.5 % of the Alaskan respondents reported binge drinking, 14.4% of the all U.S. respondents, and 43% for the interview decedents. The 2005 BRFSS surveys also asked about smoking and found that 20.6% of the all U.S. respondents were active smokers, 24.9% of the Alaskans, and 60% of the interview cases.

Recommendations

The following recommendations are made after analyzing and reviewing the Alaska suicide data collected over the past three years. There is no intention to criticize any individuals or organizations, but rather to highlight needs or areas for improvement:

Substance Use/Abuse:

- Toxicology screens should be completed on all suicides and equivocal deaths.
 - There is a variety of reasons why this would be difficult to accomplish, but the magnitude of alcohol and drug involvement in suicide deaths should make this a public health priority. Roughly half 46% (195/426) had toxicology screens requested and only 2/3 of those were completed.
- Public health education programs regarding binge drinking, especially its link to suicide should be instituted and supported.
 - Binge drinking appeared to be a contributing factor for the interviewed cases. Among the suicide cases that had a follow-back interview, a binge drinking rate of 43% was reported, which is 2.5 times higher than the Alaska rate (18%), and 3 times higher than the national estimated rate (14%) according to the 2005 BRFSS. 43% of the interview cases said the decedents drank alcohol daily.
- The role of marijuana as a contributing factor in suicides should be investigated further.
 - THC was found in 31% of all the Alaskan toxicology tests that were positive for drug use (non-ETOH) and in 16% of all the toxicology tests received. The National Violent Death Reporting System data indicates 7.7% of the national suicide cases involved marijuana. The interviews indicated the 54% of the decedents smoked marijuana within the past year.
- Smoking should be viewed as an important risk factor or marker for increased suicide risk.
 - The 2005 BRFSS found that nationally 21% of the adult population were active smokers. In Alaska, 25% of the population smoked; but 60% of the suicide cases for which we had interviews, smoked.

Case-Finding:

- Primary care physicians should be trained to screen for suicide ideation, especially in cases that present with alcohol or drug related medical problems and for any life-altering ailments.
 - According to the interviewees, 64% of the decedents were reported to have seen a physician in the last 6 months for a health problem.
- Patients with serious physical illness and/or disability should be monitored for suicide risk; many of these patients would need to be screened through home visits.
 - More than half (54%) of the decedents from the interview cases had a disability or illness that made it difficult for them to take care of normal daily activities. Eighteen percent (10) were homebound at the time of death and 70% (7) of those were due to depression.
- Physicians should routinely screen for depression and should consider treatment with an anti-depressant only in consultation with a mental health professional.
 - The vast majority of anti-depressants are prescribed by physicians who have little or no training in mental health issues. Current literature suggests the most effective treatment for depression is a combination of psychotherapy (particularly, cognitive behavioral therapy) and anti-depressants.
- Special screening and help should be provided for children of parents who are diagnosed with a mental illness.
 - 35% of the decedents were reported to have a parent with a diagnosed mental illness; depression was cited in 68% of these cases.
- Special mental health referrals and treatment should be provided for suicide attempters.
 - 51% (24/51) of the decedents were reported to have had previous attempts. Of the previous attempters, 57% had an attempt in the previous year and an average of nearly two attempts per person. Nearly half (46%) of the previous attempts did not require hospitalization, so outpatient services would also need to be involved.
- One aspect of the screening protocol should look at aggression.
 - 70% of the 56 decedents were reported to have problems with throwing tantrums, 55% had physical fights, and 87% had verbal fights with others.

Mental Health: Removing Barriers to Care

- Alaska should develop an incentive program to encourage more mental health professionals to work here.
 - The interviewees said that 78% of the decedents were not getting the mental health care they needed. Interviewees also spoke of long waiting periods for treatment and/or prohibitive costs. However, 29% reported that the decedents did not believe in counseling or didn't want help.
- Programs encouraging and teaching the importance of medication compliance should be instituted.

- Almost two-thirds (62%) of decedents were reported to have had current prescriptions for mental health medications at the time of their death. Twenty seven of the 56 interview cases (48%) were taking anti-depressants, but only 29% of these patients were taking the medications as prescribed.
- Focus groups should be used to determine what compliance issues are preventing people from using their prescribed mental health medications properly, especially anti-depressants.
- Follow-up contact is needed for the survivors, especially witnesses, of the suicide death.
 - One of the most surprising findings during the follow-back interviews was how therapeutic they were for the survivors. Every survivor who expressed an opinion, said how much the interviews helped them come to grip with the death by being able to talk about it in a non-judgmental situation. One lady said it prevented her own suicide by being able to talk with someone.

Public Health Campaigns

- Public education is needed to remove the stigma associated with depression and other mental health issues.
 - Of the interviewees, 78% felt the decedents was not getting the mental health care they needed. The reason given most often was that they didn't believe in counseling or asking for health, followed by difficulty finding care. The Alaska Mental Health Trust is already making great strides in trying to remove the stigma.
- The 20-29 year old age group should be targeted for a suicide prevention focus and for more in depth investigations.
 - The 20-29 year old age group had the highest suicide rate in Alaska, 3.5 times higher than the national average. They had the highest rate of suffocation and the lowest rate of firearm use. Of the interview cases, 64% stopped working the last year of their life and 64% were prescribed medications for mental health problems, but only 21% took as prescribed.
- Recent unemployment emerged as a significant factor of increased risk, thus those recently unemployed should be targeted for supportive programs and increased surveillance and screening.
 - More than half of the decedents (54%) stopped working in the past year. In Australia for 1967-1992, Eckersley (1992) found that the amount and duration of unemployment predicted suicide rates for those aged 15-24.
- The association between traumatic brain injury and suicide is an important area for further research into the association with suicide.
 - 9 of 25 interviewees (36%) said yes, the decedent had a TBI that altered their life.
- Public education is needed about the high risk of suicide in homes that have a combination of mental illness, alcohol, and accessible firearms.

- 84% (47/56) had access to a firearm but 66% (37/56) actually used the firearm. Only 13 of the firearms were reported locked up and 9 of those decedents used a gun anyway. 79% (37/47) of the people who had access to a firearm used a firearm to take their own life.
- The public needs to be informed about the warning signs and the ways to seek help.
 - 66% of the decedents were said to have verbally expressed their thoughts of hopelessness and their wish to die. 41% of the time these thoughts were expressed to family (parents, siblings, children) and 32% of the time they were expressed to a spouse or intimate partner.
- Financial counseling services to provide free or low cost financial counseling services should be available to everyone. Another service might be to provide financial counseling or curriculum in the high schools.
 - 46% of the decedents reported having serious financial problems, and 36% had difficulty paying for their health care. 41% were getting their income from a source other than their own work.

Death Data Collection

- A standard death investigation protocol and report forms should be developed with input from law enforcement professionals. Some of the investigators are doing an outstanding job but others are simply trying to determine if a crime has been committed or not. Once it becomes obvious that the person died by suicide the investigation is closed. The investigation should be a “death scene investigation” rather than as a “crime scene investigation”. A good death scene investigation would gather data about alcohol and drug use, recent traumatic events in the person’s life, a brief mental and physical health history, recent or impending legal actions, financial problems, etc.

Further Research Recommendations

- Focus groups to see why people aren’t using their mental health medications as prescribed.
- More comparisons of the suicide group findings with other statewide databases to compare and contrast differences.
- Ask similar follow-back questions of living groups of people, such as suicide attempters and/or people who have never attempted.
- The importance of “shame” as a warning sign.
- Why do our 20-29 year olds have a suicide rate that is so much higher than the national rate?

References

- Brent D.A. (1989). The psychological autopsy: Methodological considerations for the study of adolescent suicide. *Suicide and Life Threatening Behavior*, 19, 43-57.
- Cavanagh, J.T.O., Carson, A.J., Sharpe, M., and Lawrie, S.M. (2003). Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine*, 33, 395-405.
- Cooper, J. (1999). Ethical issues and their practical application in a psychological autopsy study of suicide. *Journal of Clinical Nursing*, 8, 467-475.
- Gelles, M.G. (1995). Psychological autopsy: An investigative aid. In Kurke, M.I., & Scrivner, E.M. (Eds.) *Police psychology into the 21st century*. (pp. 337-355). Hillsdale, New Jersey: Lawrence Erlbaum Associates, Inc.
- Gustafsson, L., & Jacobsson, L. (2000). On mental disorder and somatic disease in suicide: A psychological autopsy study of 100 suicides in northern Sweden. *Nordic Journal of Psychiatry*, 54, 383-395.
- Isometsa, E.T. (2001). Psychological autopsy studies: A review. *European Psychiatry*, 16(7), 379-385.
- Lee, C.S., Chang, J.C., & Cheng, A.T.A. (2002). Acculturation and suicide: A case-control psychological autopsy study. *Psychological Medicine*, 32, 133-141.
- Maris, R.W., Berman, A.L., & Silverman, M.M. (2000). Introduction to the study of suicide. In Maris, R.W., Berman, A.L., & Silverman (Eds.) *Comprehensive textbook of suicidology* (pp. 3-25). New York: Guilford Press.
- Hall, D. Getting Honest About Grad Rates, The Education Trust, June 2005
- CDC MMWR, Toxicology Testing and Results for Suicide Victims – 13 states, 2004. Nov. 24, 2006/ 55(46);1245-1248.
- Behavioral Risk Factor Surveillance System, CDC, State Prevalence Data, 2005, www.cdc.gov/brfss
- Eckersley, R. (1992). *Failing a generation*. 5th International Conference, Australian Rotary Health Research Fund, Canberra.
- Smith, G.D., Phillips, A.N., Neaton, J.D. (1992). Smoking as an independent risk factor for suicide. *Lancet*, 340, 709-712.
- Lebowitz BD, Pearson JL, Schneider LS, Reynolds CF 3rd, Alexopoulos GS, Bruce ML, Conwell Y, Katz IR, Meyers BS, Morrison MF, Mossey J, Niederehe G, Parmelee P. Diagnosis and treatment of depression in late life. Consensus statement update. *Journal of the American Medical Association*, 1997; 278(14): 1186-90

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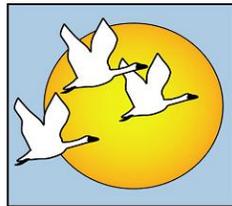
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