

Alaska Suicide Hospitalizations 2001 - 2002

**Alaska Injury
Prevention Center**



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EXECUTIVE SUMMARY

INTRODUCTION

In 2002, nearly 32,000 people took their own lives in the United States, and estimates indicate that 20 times that number sought treatment for self-inflicted injuries. Alaska had the highest age adjusted suicide rate of all the states in 2002 at 21.12, which is nearly double the U.S. rate of 10.99 per 100,000 population. An average of 125 people die from suicide each year in Alaska, making it the number one cause of death for Alaskans under the age of 50 years (if unintentional injuries are examined individually instead of grouped). The epidemiology for suicide deaths is very different from the epidemiology for suicidal acts that result in hospitalization. This analysis looks at the epidemiology and costs associated with hospitalizations for self inflicted injuries.

RESULTS

Using data supplied by the Alaska Trauma Registry (ATR) and funding from the Alaska Mental Health Trust, the Alaska Injury Prevention Center (AIPC) conducted a thorough analysis of the 1,223 hospitalized suicide attempts in Alaska for 2001 and 2002. The epidemiology and hospital costs associated with this injury group are reported below.

A few of the interesting facts revealed by this study for Alaska's suicide attempts:

- ✓ The average age for the patients was 30 years.
- ✓ The average length of each hospital stay was 4 days, with a range of 1 to 366.
- ✓ The average hospital costs per year were \$5,508,363.
- ✓ The average cost per case was \$8,986.
- ✓ Over 75% of the hospital costs were paid through public funding sources.

More than \$4 million in "public funds" is spent each year to care for suicide attempts, and those are just the documented hospital costs. Physician's fees and other specialist's fees are usually not included in the hospital costs. Also not included in hospital costs are self-inflicted injuries that result in death or long-term disabilities. These suicidal acts take a huge toll on individuals and families and are very difficult to quantify.

CONCLUSIONS

The *Alaska Suicide Hospitalizations* analysis makes a compelling case for the prevention of suicide, and gives new insights into this dramatic public health problem. Hospitals must accept the loss of at least 15% of the costs due to the patients' inability to pay.

Introduction

According to Thomas Insel, M.D., Director of the National Institute of Mental Health, "Since even one previous attempt multiplies the suicide risk by 38-40 times and suicide is the fourth leading cause of death for adults under 65, a proven way to prevent repeat attempts has important public health implications."¹

Suicide is the 11th leading cause of death for Americans and the 3rd leading cause for the young, between the ages of 10 to 24 years.² Every 16.6 minutes, someone in America dies from suicide, and every 40 seconds, someone attempts to take their own life.³ Each year in the U.S., suicide claims about 32,000 lives and results in an estimated 706,000 injuries.⁴ The total estimated costs of these suicides are \$111.3 billion per year (\$3.7 billion medical, \$27.4 billion work-related, and \$80.2 billion quality of life costs)⁵. Although the financial costs are great, they are minor compared with the pain and suffering of the victims or the loss of loved ones.

According to the American Association of Suicidology (AAS), in the year 2002, 31,655 people took their own lives. AAS also estimated that approximately 760,000 people attempted suicide. The Centers for Disease Control reported 132,353 individuals were hospitalized following suicide attempts and an additional 116,639 people were treated in emergency departments and released.⁶ Almost \$41.3 million is spent each year, saving those who try to kill themselves.⁷

In 2002, Alaska had the highest age-adjusted suicide death rate of all the 50 U.S. states. This death rate was nearly twice the overall U.S. rate.⁸

In 2005, the Alaska Injury Prevention Center received funding from the Alaska Mental Health Trust Authority to document suicide hospitalizations for 2001 – 2002 and analyze the data found. This report attempts to quantify the hospital costs associated with suicide attempts, as well as to determine the methods used, cultural implications, age, sex, and seasonal patterns.

Methods

The Alaska Trauma Registry (ATR) was used extensively for this study because it documents every trauma case resulting in at least one overnight stay in an Alaskan hospital. The ATR contains information about the length of stay, costs for treatment, source of payment, age, sex, injury severity, month, race, etc. The ATR does not contain information about outpatient visits, scene deaths, private physician contacts, and other costs associated with intentional self-inflicted injuries.

Hospitalization costs (from the Alaska Trauma Registry) were documented for 64% of all the cases in this study. An average cost per payment source, i.e. Medicaid, Medicare, private insurance, etc. was calculated and applied

appropriately to the cases from the same sources. This calculation gave us cost estimates for all of the cases by payment source. Hospitalized suicide attempts were analyzed and compared for Alaska Native/Non-Native, urban/rural, all age groups, source of payment, days in the hospital, fatalities, and compared with U.S. statistics. SPSS 13 was used to analyze the data.

Several studies have estimated the loss of productivity or quality of life costs for various types of injury, but for this analysis, only the quantifiable hospital related costs were examined. Very little research has been previously published to show these costs.

Costs attributed to “public sources” included payments from programs such as Medicaid, Medicare, Indian Health Service, military, CHAMPUS (military dependents), and no-pay patients.

Results

The Alaska Trauma Registry was used to document all hospitalizations resulting from self-harm during the years 2001 and 2002. The resulting database included 1,223 unique cases. Cases that were seen at more than one hospital for the same incident were not duplicated. Numerous new fields were added to the database to facilitate the analysis, such as the methods used, the drugs used in ODs, EMS region, etc.

Females accounted for more hospitalizations than males in all age groups and for all races, which was true for national statistics also. The ratio of female to male cases was much greater for Alaskans and the age group with the greatest difference in gender ratios was 0-19 years. See Table 1.

Literature searches of hospitalization data for suicidal acts were very sparse, but we did find that nationally there are approximately 4 hospitalizations for every suicide death. In Alaska, there were close to 5 hospitalizations for every death by suicide.

Overwhelmingly, the method of choice for Alaskan hospitalizations was “OD” or over-dosing on medications. Seventy-seven percent of the hospitalizations for self-harm were the result of over-dosing (OD). Approximately 64% of the OD cases used prescription medications. The single most common substance used by the OD cases was Tylenol, which can be very destructive to the liver. The age group most impacted by the use of Tylenol was the 0-19 group.

When comparing the cases by racial characteristics, well over 90% of all the cases were either white (Caucasian) or Alaska Native. Other racial groups were each under 2% of the total. Alaska Natives accounted for 19% of the statewide population but account for 44% of the suicide hospitalizations. An even greater

disparity exists with the 0-19 age group where 55% of the cases were Alaska Native. The average age of the patients was 30 years.

Table 1
Alaska Suicide Hospitalizations (ATR data)
2001 - 2002

| | All Cases | All Ages 0-19 | Native Ages 0-19 | All Ages 20+ | Native Ages 20+ | U.S. |
|------------------------|-----------|---------------|------------------|--------------|-----------------|---------|
| Number of cases | 1,223 | 349 | 193 | 874 | 344 | 255,641 |
| % Male | 33% | 25% | 26% | 36% | 34% | 43% |
| % Female | 67% | 75% | 74% | 64% | 66% | 57% |
| Methods: | | | | | | |
| - Over Dose | 77% | 76% | 71% | 77% | 73% | 58% |
| % Tylenol | 15% | 19% | 23% | 10% | 12% | |
| - Cutting | 13% | 13% | 14% | 13% | 15% | 17% |
| - Gun | 5% | 6% | 7% | 4% | 4% | <4% |
| - Hanging | 2% | 3% | 3% | 2% | 3% | <4% |
| Urban resident | 49% | 43% | 22% | 60% | 39% | |
| Rural resident | 51% | 57% | 78% | 40% | 61% | |
| Race: | | | | | | |
| - White | 47% | 40% | | 50% | | 53% |
| - AK. Native | 44% | 55% | 100% | 40% | 100% | <2% |
| - Black | 2% | 1% | | 3% | | 13% |
| - Other | 7% | 4% | | 7% | | 32% |

Comparisons were also made for the “urban” and the “rural” populations. Urban populations were composed of Anchorage, Fairbanks, and Juneau, while the rural group involved the rest of the communities within the state. The statewide population for 2002 showed that 60% of Alaska’s residents live in the urban areas, while 40% live in rural communities. The distribution of cases by community of residence (either urban or rural) for the hospital cases was evenly divided, which shows an over-representation for the rural communities.

One of the more popular public misconceptions about suicides and suicidal acts is that they increase around holidays or during the dark winter months. In this analysis, we not only compared the hospitalizations by month for this two year study period, but also looked at the monthly patterns for gender, race, age groups, and urban/rural residence. Figure 1 shows the monthly variation for suicide related hospitalizations during 2001-2002. The lowest month was December and the highest was April.

Figure 1.

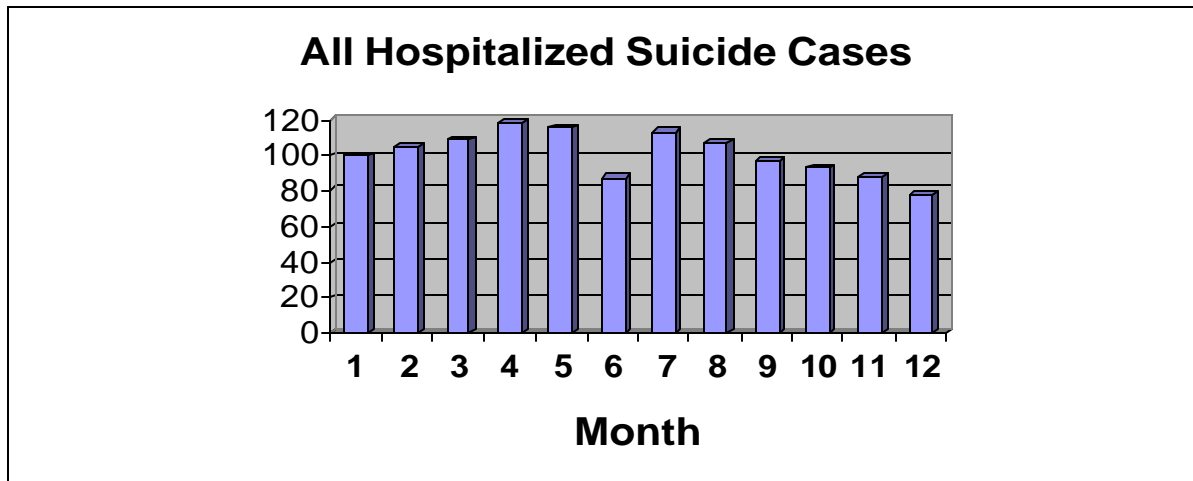


Table 2 shows the monthly variation for the hospitalized suicide attempts from 2001-2002 by different sub-groups.

Table 2

| | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec |
|---------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|
| All | 100 | 105 | 107 | 118 | 115 | 87 | 113 | 106 | 96 | 93 | 88 | 78 |
| 0 - 19 | 23 | 32 | 34 | 36 | 38 | 23 | 32 | 29 | 26 | 27 | 27 | 20 |
| 20+ | 77 | 73 | 74 | 82 | 77 | 64 | 81 | 77 | 70 | 66 | 61 | 58 |
| Urban | 48 | 47 | 51 | 55 | 61 | 48 | 53 | 48 | 43 | 52 | 44 | 42 |
| Rural | 52 | 58 | 57 | 63 | 54 | 39 | 60 | 59 | 54 | 41 | 44 | 36 |
| Native | | | | | | | | | | | | |
| 0 - 19 | 14 | 23 | 21 | 21 | 16 | 10 | 18 | 13 | 18 | 14 | 18 | 7 |
| 20+ | 25 | 30 | 28 | 36 | 35 | 25 | 27 | 39 | 27 | 27 | 28 | 19 |
| Urban | 12 | 12 | 12 | 14 | 22 | 13 | 13 | 10 | 16 | 16 | 17 | 7 |
| Rural | 27 | 41 | 38 | 43 | 28 | 20 | 32 | 42 | 28 | 25 | 29 | 19 |
| Female | 65 | 71 | 70 | 81 | 78 | 60 | 73 | 68 | 74 | 67 | 58 | 45 |
| Male | 35 | 34 | 37 | 37 | 37 | 27 | 40 | 38 | 22 | 26 | 30 | 33 |

When applying significance tests to these data, rural residents and females had no seasonal or monthly pattern for their suicide attempts. The highest correlation for monthly patterns was seen in the 20+ age group, males, and urban Natives. For the 20+ age group and for urban Natives, December was the lowest month while April and May were the highest respectively.

One measure of severity used in this analysis was the total number of hospital days or average length of stay. The average length of stay for each patient was 4.1 days in the hospital, with a average total of over 2,273 hospital days per year. About 40% of the cases spent one day in the hospital, but the longest stay was more than one year.

Hospital Costs were documented for 64% of the cases, so an average cost per day per “Payer” category could be calculated. The average cost per day, per Payer category was then multiplied by the total number of patient days for that category, to get the total estimated costs. The total hospital costs for suicide attempts during the two year study period were \$11,016,725 or \$5.5 million per year. Generally, these costs do not include physician care, radiologists, other special services provided by professionals, mental health referrals, ambulance, or any expenses after discharge. The average hospital cost per patient was \$8,986. Costs paid from “public” sources such as Medicaid, Medicare, Indian Health Service, CHAMPUS, etc. account for 75% of the total or \$4.1 million per year.

Conclusions

The method of choice for those being hospitalized for self-inflicted injuries was an overdose of some kind of medication, accounting for 77% of the cases. The predominant type of medication was Tylenol, which is very destructive to the liver in high doses. A public education program about the long-lasting side effects of Tylenol could possibly decrease its use as a substance for self-harm.

The hospital costs associated with suicide attempts in Alaska are considered by some experts to be less than one half of the actual expenses incurred for these cases. The annual hospital costs of over \$5.5 million, balloons quickly when transportation, physicians, radiologists, surgeons, psychiatrists, psychiatric inpatient facilities, and other professional expenses are added. Also, follow-up care becomes an expense that could not be captured from the Alaska Trauma Registry. Approximately \$1 million per year of these expenses have to be absorbed by the hospitals because the patients can't pay.

These monetary costs don't begin to cover the pain and suffering of individuals and families who are compelled to seek this form of resolution to their problems. More effort and funding should be devoted to screening, counseling, and other prevention programs.

References

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- ¹ Brown G, Beck A, et al., JAMA 8-3-2005.
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 - ³ Ibid
 - ⁴ National Strategy for Suicide Prevention, Ted Miller et al., 1999.
 - ⁵ Institute of Medicine of the National Academies, Reducing Suicide: A National Imperative, 2002.
 - ⁶ CDC, Suicide: Fact Sheet, 2004.
 - ⁷ American College of Emergency Physicians.