Women's, Children's, & Family Health

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Unintentional Infant Injury in Alaska

Although largely preventable, the most common causes of unintentional injury deaths among infants in Alaska and the U.S. are suffocation, motor vehicle accidents, and drowning. Promoting safe home and sleep environments, and regular and proper use of car seats are of critical importance to reduce unintentional infant morbidity and mortality. According to the Centers for Disease Control and Prevention (CDC), many children who ride in child safety seats are improperly secured. A national study estimated that only 15% of children in safety seats were correctly harnessed into correctly installed seats.[1] Mother-infant co-sleeping and infant sleep position are important topics that are addressed in the fact sheet 'Infant Sleep Position and Co-Sleeping in Alaska' as part of this series.

Seriousness

Healthy People 2010 Targets and National Data

Indicator	Alaska	Nation	Healthy People 2010 Goals*
Non-Fatal Unintentional Injury Hospitalizations			
Non-fatal unintentional injury rate per 100,000	286.9 (1997-01)†	271.2 (2002)^	Dev.
Non-fatal motor vehicle occupant rate per 100,000	24.0 (1997-01)†	25.1 (2002)^	---
Non-fatal falls rate per 100,000	132.2 (1997-01)†	116.8 (2002)^	---
Unintentional Injury Mortality			
Unintentional injury mortality rate per 100,000	96.9 (2000-02)‡	23.7 (2000-02)¥	17.5
Motor vehicle mortality rate per 100,000	4.9 (2000-02)‡	3.3 (2000-02)¥	NA
Mortality due to drowning rate per 100,000	3.9 (2000-02)‡	1.6 (2000-02)¥	0.9
Mortality due to falls rate per 100,000	0 (2000-02)‡	0.5 (2000-02)¥	NA
Mortality due to fire rate per 100,000	2.0 (2000-02)‡	1.1 (2000-02)¥	0.2

NA: The target is not applicable for this indicator. The target setting method for the HP2010 goals is 'Better than the best', which for some special populations does not currently apply.

- The overall rate of unintentional injury mortality among Alaskan infants is 5.5 times higher than the Healthy People 2010 goal.
- Compared to the Nation, rates of non-fatal unintentional injury among infants – overall, those due to motor vehicle accident, and those due falls, were similar in Alaska.
- Nearly half (47.1%) of all non-fatal, unintentional injury hospitalizations among Alaskan infants were due to falls, compared to 40.1% for the nation.
- Unintentional injury accounted for 14.2% of all infant mortality in Alaska, compared to 3.4% for the U.S. as a whole. During this time period, Alaska's unintentional injury mortality rate among infants was 4 times that of the Nation.

Severity

Falls are a leading cause of traumatic brain injury (TBI) among infants and children. Degree of disability resulting from a TBI can vary depending on force of impact and area of the brain that has been injured. A TBI may result in slight learning disabilities, retinal damage that causes loss of vision, mental retardation, cerebral palsy, or death.[2]

According to the CDC, more than 40% of children that receive emergency room care for non-fatal submersion require hospitalization and are at risk of brain damage which can result in long-term disabilities ranging from memory problems and learning disabilities to the permanent loss of basic functioning.[3]

Urgency

Non-fatal Unintentional Injury

- Data from the Alaska Trauma Registry for 1997-2001, indicated that 8 in 10 non-fatal injury hospitalizations among infants were due to unintentional injuries. Of these nearly half (47.1%) were due to falls. (Figure 1)
- After falls, swallowing an object, poison, burns, motor vehicle accident, and suffocation were the most common cause-specific, non-fatal unintentional injuries among Alaskan infants. (Figure 1)

Unintentional Injury Mortality

- In Alaska, the trend in infant mortality due to unintentional injury declined over the 1990s, but increased dramatically during the early 2000s – an

effect due to an unusually large number of unintentional injury deaths in 2001, of which, more than half were asphyxia related. (Figure 2)

- The average unintentional injury mortality rate from 1994-2003 was 50.3 per 100,000 infants.

- Over the last decade, the most common cause of unintentional injury mortality among Alaskan infants was suffocation – accounting for nearly 65% of all unintentional injury mortality. (Figure 3)

- The second most common cause of unintentional injury mortality for Alaskan infants over the last decade was motor vehicle accidents – accounting for nearly 10% of all unintentional injury mortality. (Figure 3)

Disparities

Non-fatal Unintentional Injury

Figure 1

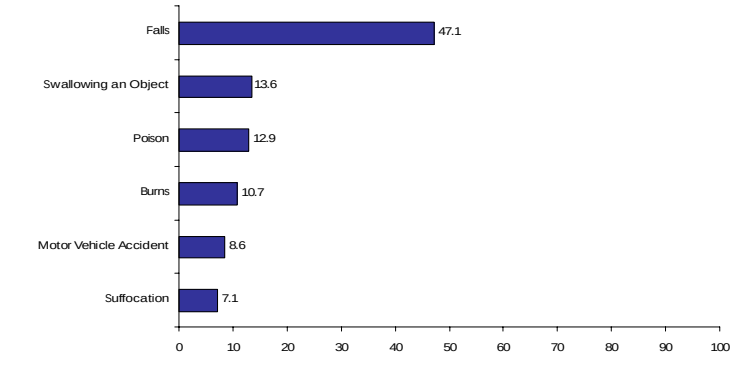
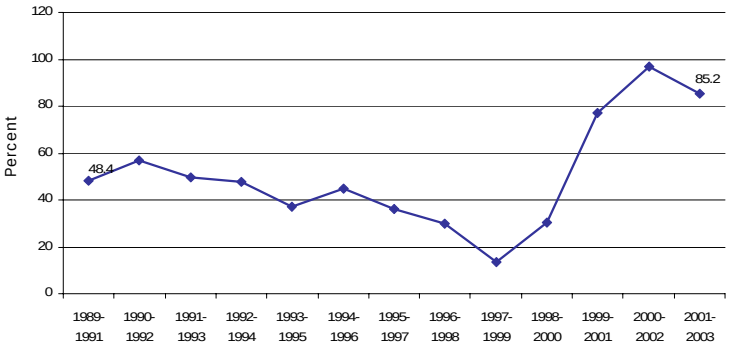


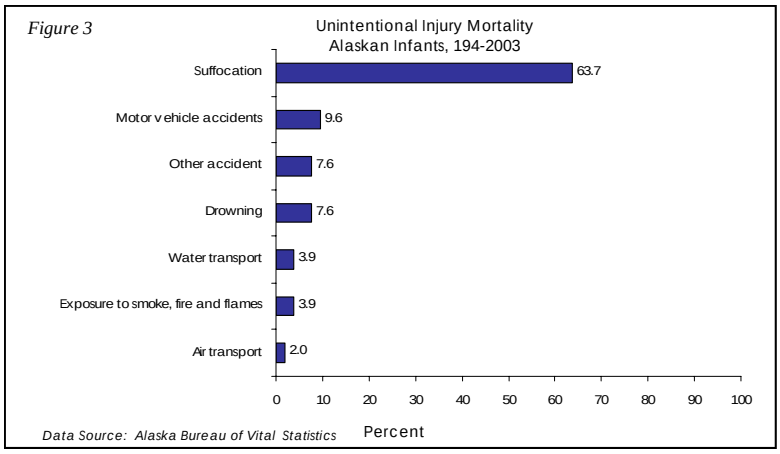
Figure 2



- During 1997-2001, compared to non-Natives, the rate of non-fatal unintentional injury hospitalizations among Alaska Native infants was 1.8 times higher – 240.6 and 421.5 per 100,000 infants, respectively.

Unintentional Injury Mortality

Figure 3



- Over 30% of all unintentional injury deaths during 1994-2003 occurred in 2001. Of these deaths, 7 in 10 were among Alaska Natives.

- More than 80% of the unintentional injury deaths among Alaska Natives during 2001 were asphyxia related. (Refer to Notes)

Economic Loss

Analysis of Alaska Trauma Registry records of Medicaid patients from 1995-1999 showed that the average medical cost per injury based on hospital charges for children 0-20 years of age included: $4,100 per poisoning injury; $20,000 per motor vehicle traffic occupant injury; and $7,800 per burn injury.[4] The Trauma Registry only records costs of hospitalization for injury. The figures do not include physician services billed separately, laboratory work billed separately, ambulance service transport and patient care, outpatient treatment, rehabilitation, out-of-state hospitalization, and post-hospital care. Severe burn injuries are transported to out-of-state burn centers. The average charge for pediatric admissions to burn centers is $22,700 per case.[4]

Interventions & Recommendations

There are several recommendations for preventing unintentional injury among infants, including: proper and regular use of infant car seats; safe home environment for prevention of death and injury related to falls, drowning, choking, fire, and poisoning; safe sleeping environment including safe co-sleeping practices and appropriate infant sleep environment; increased access to poison control centers; ability of caregivers to recognize age appropriate foods and toys and provide CPR. The American Academy of Pediatrics recommends that pediatricians counsel parents about falls from windows, decks, fire escapes and age appropriate interventions to reduce the risk of drowning.[5,6]

The Task Force on Community Preventive Services (TFCPS) recommends two interventions to increase child safety seat use: laws mandating the use of child safety seats

and programs that distribute child safety seats and educate parents about their use (Alaska currently has such laws and programs). They also recommended community-wide information and enforcement campaigns and incentive and education programs.[7]

Intervention Effectiveness

Reviews of published studies provide strong evidence of the effectiveness of the recommendations set forth by the TFCPS. Their review found that laws mandating the use of child safety seats were effective in decreasing fatal and nonfatal injuries, and in increasing child safety seat use. When correctly installed and used, child safety seats reduce the risk of death by 70% for infants and 47%-54% for toddlers and reduce the need for hospitalization by 69% for children aged 4 years and younger.[8]

Functional smoke alarms cut the chances of dying in a house fire by 40% to 50%. However, at least one-quarter of U.S. households lack working smoke alarms.

Injury Prevention in Alaska

- During 1996-1999, Alaska PRAMS data indicated that 87.2% to 99.6% of mothers living in urban areas reported their baby regularly rides in an infant car seat, 95.1% of families with newborns had a working smoke alarm in the home, and 13.4% of mothers took parenting classes.[9]

- According to data from Alaska PRAMS during 1996-1999, Alaska Native mothers, teen mothers, and mothers with a previous live-birth were less likely to report that their infant regularly rides in an infant car seat than non-Native mothers, mothers 20 years of age or older, and first time mothers.[9]

- According to the Alaska Behavioral Risk Factor Surveillance System (BRFSS) 97.6% of Alaskans reported having a smoke detector in their home in 1999, however, nearly 1 in 5 had either never checked to see if they were working or had not done so in more than one year.

- According to data from Alaska PRAMS, during 1996-1999, the prevalence of having a working smoke alarm in the home was lower among Alaska Native mothers (89.9%) when compared to white (97.1%) and black mothers (97.6%).[9]

Capacity

Propriety

Reducing risk factors associated with mortality for Alaskan infants falls within the overall mission of the Women's, Children's, and Family Health Section. Infant mortality is an important issue among the maternal and child health population – national initiatives have been set forth to reduce deaths due to unintentional injury (HP2010) and the Maternal and Child Health Bureau requires that several indicators of infant mortality are monitored and assessed on a yearly basis.

Economic Feasibility

Research shows that it costs far less to prevent injuries than it does to treat them. According to the Association of State and Territorial Directors of Health Promotion and Public Health Education, every $1 spent on a smoke alarm saves $69 in fire related costs; every $1 spent on a child safety seat saves society $32; every $1 spent on poison control centers saves $7 on medical costs.

Acceptability

There are several successful state and national programs that promote injury prevention targeted toward infants and children through community awareness.

Resources

Data: Alaska Trauma Registry and Alaska Bureau of Vital Statistics provide data for assessing and monitoring injury and mortality and can provide information on risk factors that can be used to target high-risk groups. Alaska PRAMS data can also be used to identify potential risk factors among mothers of newborns that may be associated with injury among infants (i.e., smoke detector, co-sleeping). The Alaska BRFSS can provide data for monitoring injury control (i.e., smoke detector, use of child restraints).

Services: CHEMS infant car seat program. Injury Prevention in a Bag provides safety education and devices to high-risk families through home visitation by training groups like Healthy Families, Head Sstart, and Village Health Aides. The Rural Smoke Alarm and Fire Prevention Program provides smoke alarm inspection, devices, and fire safety education and prevention to high-risk families – those that are low income or with children under the age of 5. The Urban Smoke Alarm and Fire Prevention Program provides devices to high-risk residences, such as multi-family dwellings, in the Anchorage, Fairbanks, and Juneau areas.

Legality

Not an issue.

References

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5 American Academy of Pediatrics. Committee on Injury and Poison Prevention. Falls From Heights: Windows, Roofs, and Balconies. PEDIATRICS: 107(5):1188-1191. May 2001.
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9 Schoellhorn J, Wiens HN, Perham-Hester K. Alaska Maternal and Child Health Data Book 2003. Anchorage, AK: Maternal and Child Health Epidemiology Unit, Section of Maternal Child and Family Health, Division of Public Health, Department of Health and Social Services. pp 52-53 June 2003.

Data Sources

† Alaska Trauma Registry, 1997-2001 Data: State of Alaska, DHSS, DPH.

^ National Electronic Injury Surveillance System (NEISS), 2002 Data in: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS). Feb 2005.

* Healthy People 2010. U.S. Department of Health and Human Services. Healthy People 2010. 2nd ed. With understanding and improving health and objectives for improving health. 2 Vols. Washington, DC: U.S. Government Printing Office. 2000.

‡ Alaska Bureau of Vital Statistics: State of Alaska, DHSS, DPH. Jan 2005.

¥ National Center for Health Statistics (NCHS) Vital Health Statistics System, 2000-2002 Data in: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS). Feb 2005.

Notes

Non-fatal unintentional injury estimates for the Nation and Alaska include infants that were hospitalized, transferred to another acute care facility, held for observation, or left against medical advice and would otherwise have been admitted.

Asphyxia related deaths in 2001 for Alaska included: probable overlie; positional asphyxia; asphyxia, undetermined; and overlie.