

SUFFOCATION

DESCRIPTION:

Suffocation occurs when the stoppage or disturbance of respiration, as by strangulation, choking on food, or other exclusion of oxygenated air occurs.



Washington State Goal Statement

To decrease deaths and hospitalizations due to suffocation

National Healthy People 2010 Objectives

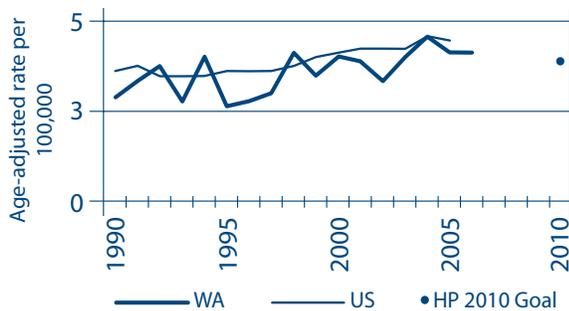
- Reduce suffocation deaths from 4.1 deaths in 1998 to 3.0 deaths per 100,000

Statement of the Problem in Washington State

Washington State Data

Suffocation rates have increased over the past 17 years in Washington State and nationally. Rates in the state are quite variable. In 2006, the latest data available, the suffocation rate in Washington was 4 per 100,000.

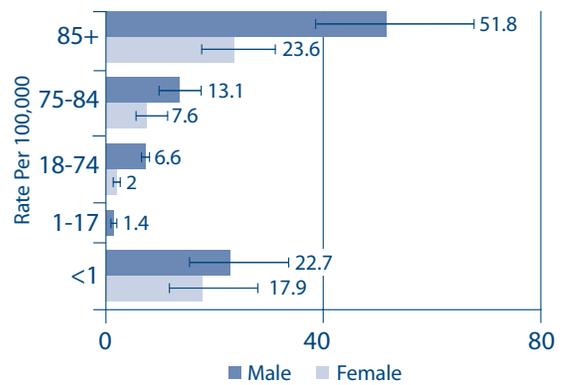
Suffocation Deaths
Washington State & United States Death Certificates, 1990-2006



Age and Gender

From 2004-2006, in Washington State, both children under the age of one and adults ages 85 and older have the highest risk of death from suffocation. For ages 15-64, suicides are about 77% of suffocation deaths. For those over 65, suicides represent about 17% of suffocation deaths. Females 1-17 years old had fewer than 20 deaths; the chart does not include them.

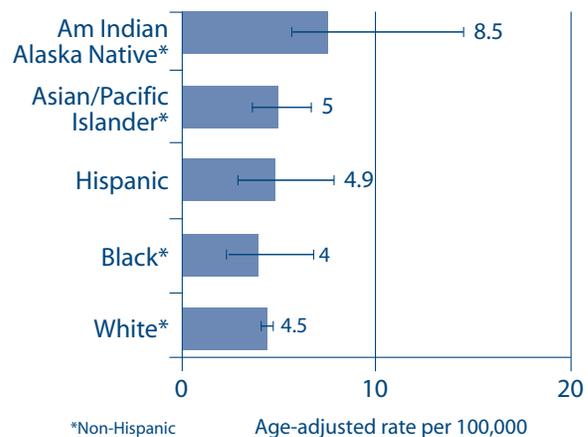
Suffocation Deaths
Age and Gender
Death Certificates, 2004-2006



Race and Ethnicity

In Washington State from 2004-2006, suffocation death rates were highest for American Indians and Alaska Natives, but the difference was not statistically significant.

Suffocation Deaths
Race and Ethnicity
Washington State Death Certificates, 2004-2006



Washington State Child Death Review Data

The Child Death Review (CDR) process is a tool used in local communities to identify circumstances leading to children's deaths; collect and report accurate, uniform information; and improve communication and collaboration around children's safety.

Based on 1999-2001 data from local Washington State Child Death Review teams, infants died from suffocation most often while they were sleeping. Infants suffocated by either being wedged between a bed and a wall or a pillow, or by co-sleeping with another person.

More than nine out of ten infants who died of suffocation while sleeping were co-sleeping with a parent or sibling at the time of their deaths. Adult use of alcohol and/or other drugs was involved in approximately one-third of the suffocation deaths.¹

Risk and Protective Factors

Sudden Infant Death Syndrome (SIDS)

SIDS is the sudden death of an infant, under one year of age, which remains unexplained after a thorough case investigation. This includes a complete autopsy, examination of the death scene, and review of the clinical history.² In the United States, there are over 2,000 SIDS cases a year.³ The infants are most often found in potentially suffocating environments, with their noses and mouths covered by soft bedding. SIDS may be confused with suffocation, even by the medical examiner or coroner who is classifying the death. Studies have shown that since 1999, some deaths previously classified as SIDS are now classified as due to accidental suffocation or unknown/unspecified cause. This finding suggests that changes in reporting of cause of death may account for part of the recent decrease in SIDS rates.⁴

Back to Sleep Campaign

The American Academy of Pediatrics (AAP) and others launched the Back to Sleep Campaign to help inform parents and infant caregivers that the safest position for an infant to sleep is on their back. Since the start of the Back to Sleep Campaign, the percentage of infants placed on their backs has increased dramatically. The rate of SIDS has declined by more than 50% since 1990.⁵

Bed Sharing

The suffocation deaths of infants most commonly occur while sleeping. Infants suffocated by either being wedged between the bed and a wall or pillow, or parental overlay. In Washington from 1999-2001, 91% of the infants who suffocated while sleeping were co-sleeping with a parent or sibling at the time of their death, and 75% of the deaths were due to an overlay by an adult or sibling.¹

Children

Small children have small airways that can be blocked very easily. The majority of childhood choking injuries are associated with food. Children choke on such items as candies, nuts, grapes, or hot dogs. Airway obstruction injuries can also result from entanglement or entrapment.

Children have been strangled on window covering cords. The majorities of deaths involve outer blind cords, and occur when the cord is hanging near the floor, crib, or when furniture is too close to the cord. Children have also died from entanglement of clothing drawstrings, most often hood or neck drawstrings. Entanglement most often occurs when children are playing on playground slides.

Children can strangle in openings big enough for parts of their bodies, but too small for their heads. These include spaces such as cribs, bunk beds, strollers, and high chairs.⁶

Two agencies have passed safety laws and regulations that protect children from airway obstruction. The Child Safety Protection Act bans any toy intended for use by children under age 3 that may pose a choking, aspiration or ingestion hazard. It requires choking-hazard warning levels on packaging for those items intended for use by children age's three to six.

The US Consumer Product Safety Commission has established a voluntary guideline for children's clothing to prevent them from strangling in the neck and waist drawstring of upper outerwear such as jackets and sweatshirts. The commission also issues mandatory standards for bunk beds and cribs to address entrapment hazards. The standard restricts opening sizes, requires guardrails and specifies company identification and age-specific warning labels to be present.⁷

Older Adults

Older adults are also at high risk for asphyxiation through food and non-food items. This is usually a result of under-chewed food, use of sedative drugs, or diseases affecting coordination or mental function.⁸ Swallowing is an important and complex task. Normal aging and diseases that are common in older adults can affect swallowing. Other eating alterations are associated with normal aging. With advanced age, an older adult may have a reduced taste sensation and not a reduced taste preference. For example, an older adult may be able to distinguish sweet from salty, but may need more salt to taste the difference.

Salivary function is also important. Salivary function is not clearly reduced with aging, but the adverse effects of medication often cause older adults to complain about a lack of saliva. When older adults lose their teeth, they are not able to chew as efficiently. In order to achieve the same level of food softening, many older adults may need to chew longer and use more chewing strokes. If older adults don't properly chew their food, they may be at risk of choking.

Recommended Strategies

Promote SIDS reduction strategies

Babies who sleep on their backs have a much lower risk of dying from SIDS or suffocation. Promote SIDS reduction strategies throughout communities. The Back to Sleep Campaign recommends the following strategies:

- Always place your baby on his or her back to sleep, for naps and at night.
- Place your baby on a firm sleep surface, such as on a safety-approved crib mattress, covered by a fitted sheet.
- Keep soft objects, toys, and loose bedding out of a baby's sleep area.
- Do not allow smoking around your baby.
- Keep a baby's sleep area close to, but separate from, where others sleep.
- Think about using a clean, dry pacifier when placing the infant down to sleep, but don't force the baby to take it.
- Do not let your baby overheat during sleep.
- Avoid products that claim to reduce the risk of SIDS.

Promising or Experimental Strategies

Promote federal legislation that supports removal of recalled products that may cause choking and asphyxiation injuries.

Educate families on how to reduce suffocation and choking risks

Education can include learning about:

- Suffocation hazards.
- Recalled products.
- Instructions on how to perform the Heimlich Maneuver.
- How to administer cardiopulmonary resuscitation (CPR) to a child or adult who has stopped breathing.

Promote strategies for older adults

To eliminate or minimize choking risks, encourage older adults to consult health care providers for diet and medication modifications. Encourage or require adult caregivers to learn adult CPR and the Heimlich maneuver.

(For intentional suffocation deaths, see the Suicide Chapter.)

For More Information

Washington State

Harborview Injury Prevention and Research Center. **Best Practices: Choking, Aspiration and Suffocation** web site:
<http://depts.washington.edu/hiprc/practices/topic/suffocation/index.html>

Washington State Childhood Injury Report web site:
www.doh.wa.gov/hsqa/emstrauma/injury/pubs/wscir/WSCIR_Suffocation.pdf

National

The American Academy of Pediatrics
www.aap.org/healthtopics/Sleep.cfm

American Academy of Pediatrics, Parents Guide to Safe Sleep
www.healthychildcare.org/pdf/SIDSparentsafesleep.pdf

American SIDS Institute
www.sids.org

Manitoba Health. A review of best practices. Preventing suffocation and choking injuries in Manitoba, Canada
www.gov.mb.ca/healthyliving/docs/injuries_suffocation.pdf

National Institute Child Health Development
www.nichd.nih.gov/news/releases/infant_sids.cfm, and
www.nichd.nih.gov/news/releases/sidsRisk.cfm.

Safe Kids Worldwide
www.usa.safekids.org/content_documents/AOI_facts.pdf

Safe Infant Bedding Practices
www.firstcandle.org/expectantparents/exp_safeinfant.html

State Medical Society of Wisconsin
www.medem.com/search/article_display.cfm?path=n:&mstr=/ZZZDYWB1JJC.html&soc=SMS%20of%20WI&srch_typ=NAV_SERCH

U.S. Consumer Product Safety Commission. Recalls and Product Safety Alerts
www.cpsc.gov/cpsc/pub/prerel/prerel.html

Endnotes

- ¹ Washington State Department of Health. (2004). *Washington State Childhood Injury Report*. Olympia, WA, from <http://www.doh.wa.gov/hsqa/emstrauma/injury/pubs/wscir/default.htm>.
- ² Willinger M., James L.S., & Catz C. (1991). Defining the sudden infant death syndrome (SIDS): deliberations of an expert panel convened by the National Institute of Child Health and Human Development. *Pediatric Pathology*, 11(5), 677-84.
- ³ National Institutes of Health. National SIDS/Infant Death Research Center. Retrieved June 21, 2007 from www.sidscenter.org/Statistics.aspx?fromparent=parent&id=6&heading=Statistics.
- ⁴ Centers for Disease Control and Prevention, Sudden unexplained infant death initiative. Retrieved April 10, 2008 from www.cdc.gov/SIDS/SUID.htm.
- ⁵ National Institute of Child Health and Human Development. Back to Sleep Campaign. Retrieved on June 21, 2007 from www.nichd.nih.gov/sids/.