Choking, Suffocation, Strangulation & Entrapment

This category of injury comprises several different hazards that all result in a child being unable to breathe or being trapped in a space that does not provide adequate oxygen. According to the National Safety Council and data collected by the National Electronic Injury Surveillance System, a majority of these types of injuries occur in the child’s home. Children ages 4 and under, especially infants, are at greatest risk for all forms of airway obstruction. Over 800 children die annually from airway obstructions based on data from the National Center for Health Statistics. Injuries of this type can frequently be prevented, but many deaths still occur even under direct adult supervision. In addition to awareness of the potential hazards, quick action, knowledge of CPR and knowledge of how to remove airway obstructions can be critical to saving a child’s life.

Choking

- Approximately 19,000 children are treated in emergency rooms for choking-related episodes annually.¹
- Children under three years old are particularly vulnerable due to their small airways, their inexperience with chewing/lack of molars and their natural tendency to put everything in their mouths.
- The majority of childhood choking injuries are associated with food items.
  - Children should always be supervised when eating.
  - Children under five should not be fed small, round or hard foods, including pieces of hot dogs, cheese sticks, hard candy, nuts, grapes, marshmallows or popcorn.
  - If and when they are introduced to a child, foods such as grapes and hot dogs should be cut length-wise and into very small, non-circular pieces.
  - Vegetables should be softened by cooking and cut as described above.
  - Cut food into tiny pieces for toddlers. Remember that “bite size” for children is not the same as bite size for adults.
- Common non-food items that are choking hazards are frequently round, such as coins, small balls, batteries, and toys. Keep small objects, especially spherical toys such as marbles, from children. These objects present a very high risk of choking.
- Other household risks: rubber caps on door stops, magnets, buttons, pet food and jewelry.
  - Keep toys with magnets away from young children. If two or more magnets are swallowed they can attract through intestinal walls and can cause holes, blockages, and infection which could lead to death.
  - Keep all small magnets, including refrigerator magnets, away from children. These include magnets found in children’s toys. Recent magnet recalls include stress-relieving adult desk toys and rare earth magnets such as Buckyballs.
  - Coin size or button batteries can cause very serious injuries if swallowed. Please review this link for more information.
  - Replace door stops with one piece door stops. One piece door stops do not contain the small rubber cap on the tip that children often can remove and swallow.
- The small object tester utilized by the Consumer Product Safety Commission is used by manufacturers to determine if toys/toy parts are a safe size for a child under 3 years old.
A small objects tester is a great tool for babyproofers to teach caregivers about choking hazards.

- If an object completely fits within the testing device, it is deemed unsafe for children under age three.
- Because some items that pass this test could still cover the top of the device or be squished inside it, a more conservative judge may be using the cardboard tube from a toilet paper roll to test objects in the home.

- Other common items that can cause airway obstruction are thin plastic, such as balloons (un-inflated and pieces), cellophane, or plastic bags used for garbage, shopping or dry-cleaned clothing. These items can conform to a child’s airway and stick to their wet throat making breathing impossible.
- Products used for childproofing (when a child has access) should not be choking hazards (i.e. outlet caps or small pieces of cushioning).

**Suffocation**

- Suffocation is the number one cause of injury-related death among children under one.
- 88% of unintentional suffocation-related deaths involve children ages 4 and under.²
- 70% of suffocation deaths among infants are from accidental suffocation or strangulation in bed.³
- 1,176 children died from unintentional suffocation in 2010. 22,791 children were treated in emergency departments for nonfatal inhalation or suffocation in 2011.⁴

**Safe Sleeping Tips:**

- Place a baby on his/her back in a crib with a firm, tight-fitting mattress. A firm tight-fitting mattress helps prevent a baby from getting trapped between the mattress and the sides of the crib.
- Do not put pillows, quilts, comforters, bumper pads or stuffed toys in the crib as these can obstruct breathing if a child gets into the wrong position relative to one of these items.
- Use a sleeper or sleep sack instead of a blanket.
- Parents should not use sleep positioners.
- Use only crib sheets fitted for crib use (that tightly fit mattress).
- Babies should not sleep on beds, couches/sofas, water beds, recliners, chairs, soft surfaces, bouncy chairs or baby swings. If a child falls asleep on/in one of these, move your baby to a safe sleep environment. Parents should also be aware of the increased risk of suffocation when a child sleeps on an adult bed or sofa, with or without the parent. Room-sharing is a safer option than having your baby sleep in bed with you. Place your baby’s crib, play yard or bassinet in your room for more convenient feeding and close contact.
- Parents should not use older cribs that do not meet today’s safety standards.
- Check for recalls. Children have been entrapped in recalled cribs or playpens. Visit www.cpsc.gov to register to receive recall notices.

- The City of Chicago now has a ban on bumper pads. A ban on bumper pads took effect in Maryland in June, 2013.
- Cribs that are improperly assembled, have missing, loose or broken hardware or broken slats can cause entrapment or suffocation deaths. Infants can be strangled when their head and neck become entrapped in gaps created by missing, loose or broken hardware or broken slats.
Children can also suffocate by becoming entrapped in air-tight or near-air-tight enclosures.

- Lidded chests like toy, storage, blanket or hope chests should always have ventilation holes in case a child climbs in and becomes trapped inside.
- Check to make sure that all chests including hope chests, blanket chests and antique storage chests do not lock automatically. There was an extensive recall on hope chests because the lids locked when closed. Children have become entrapped and died when they could not unlock the chest from inside.
- Large ice coolers, freezers, refrigerators and even trunks of automobiles have been locations of suffocations. These items should always be kept latched and stored where children cannot access them.

**Strangulation**

- In 2004, close to 1000 children ages 14 and under died from an unintentional strangulation; 88 percent of these deaths occurred to children under 4 years old.\(^5\)

**Window Covering Cords**

- Children have strangled on inner and outer cords of blinds and window treatments. Although safer models of blinds have been developed, children are still becoming entrapped in cords.
- The safest window coverings are CORDLESS or have no exposed cords.
- Keep cribs/beds/furniture away from windows and cords of any type.
- If a home must have corded coverings:
  - Cords should be fastened to the wall using cleats installed up high to wrap up the cords.
  - Tassels should be split or replaced with safety tassels. Each cord should have a separate tassel. There should not be multiple cords on one tassel (this creates a dangerous loop).
  - Blind cords should be kept free of knots and tangles. If you tie the blind cords/tassels together, you are creating a serious hazard by creating a loop. Children have climbed on radiators, furniture and window sills and become entrapped in the loops.
  - Blind cord stops should be in place to limit movement of the inner cords. Cords stops are typically small rings (usually clear plastic, sometimes wood) that are installed to help prevent entrapment in the internal cords (visit [www.windowcoverings.org](http://www.windowcoverings.org) for photos and more information).
  - Some blind and drapery cords have continuous loop cords (this style does not have tassels). These loops should be secured with tie-down devices that are permanently anchored to the floor or wall. Children have strangled on cords because they were able to pull tie-down devices off of walls or the tie-down devices have broken and the child gained access to the cord.
  - Ultimately, there should be no unsecured loops, even on high cords.
  - Roman Shades are a hazard and are very difficult to make safe. There are retrofit kits available from [www.windowcoverings.org](http://www.windowcoverings.org) but parents should be reminded that any window covering with a cord is a hazard.
- Resources: [www.windowcoverings.org](http://www.windowcoverings.org) and [www.CPSC.gov](http://www.CPSC.gov)

- Draw strings on jackets or clothing have been the cause of numerous incidents where the string gets caught on an object and results in strangulation. [CPSC Resource](http://www.cpsc.gov)
• Any string or cord longer than 7 inches is considered a strangulation hazard for children. Even a toy like a jump rope could become a strangulation hazard. Necklaces and pacifier string are other common items that could strangle a child.
• Ensure there are no cords or electrical cords near the crib.
  ▪ Check all baby monitors to ensure the monitors/cords are not near the crib.
  ▪ Review this link for additional information about baby monitor cord hazards.

Furniture and Equipment
Openings that permit the passage of a child’s body but are too small for his or her head can lead to entrapment and strangulation. Examples of hazards are cribs, bunk beds, playground equipment, baby strollers, carriages, and high chairs.
• Older cribs may not meet current safety standards.
  ▪ Cribs should have no spaces greater than 2-3/8 inches. This standard is to protect children from birth (parents should review the manufacturer’s instructions for when to discontinue the use of the crib).
  ▪ A simple test is that a standard soda can should not be able to pass through the rail openings in a crib.
• Millions of drop-side cribs have been recalled. Both the voluntary (ASTM) and U.S. mandatory (federal; CPSC, effective June, 2011) standards have banned drop-side cribs.
  ▪ New U.S. Crib Standard
    Resource: http://www.cpsc.gov/cribs
  ▪ Canadian Standards for members in Canada (Other countries: please check on crib standards in your country).
  ▪ Cribs should only be modified in accordance with the crib manufacturer’s instructions.
• Bunk beds are another entrapment/strangulation risk.
  ▪ The CPSC recommends children under 6 years old not sleep on top bunks.
  ▪ There should be no gaps on the frame or safety rails greater than 3.5” to prevent entrapment.
• The CPSC guidelines for playgrounds for children 2-12 years old do not allow for spacing greater than 3.5” (unless the spacing is over 9 inches).
• For play equipment for children 6-24 months, the spacing should not be greater than 3 inches (unless the spacing is over 9 inches).
• Baby gates should have spaces under three (3) inches.
• For additional information on entrapment and spacing, please review this IAFCS resource.
• Hinged Furniture: Reclining chairs, sofas or lidded chests could strangle a child if their head or neck should become entrapped in the closure mechanism (they are also at risk for finger pinching/injuries).
• Garage doors have caused entrapment injuries. Ensure the safety mechanism works properly on automatic garage door devices – the garage door should automatically open if anything is in the way.

Railings, Stairs and Windows
• Most current building codes require spacing to be less than four (4) inches apart on railings and balustrades, but these openings may still be too large for small children.
  ▪ Installation of railing guard protectors can help prevent entrapment and strangulation in wider spaces.
• When safety gates, railing protectors or window guards are installed, they must be installed in such a way that no additional hazards are created.
  ▪ The spacing for baby gates should be less than three (3) inches, including the space between the gate and the wall or the gate and the floor. Gates should be installed according to the manufacturers’ instructions (which might require smaller openings).
  ▪ The ASTM voluntary standard for window guards requires spacing to be less than four inches. In some cases a window limiting device must be used in conjunction with a window guard to meet this standard.

Governmental Regulations
The U.S. Federal Government through the U.S. Consumer Product Safety Commission (CPSC) is becoming increasingly active in issues and products involving child safety. As babyproofers, it is extremely important to remain current with legislation regarding juvenile products.

• The Child Safety Protection Act requires choking hazard warning labels on packaging for small balls, balloons, marbles and certain toys and games containing small parts.
Resources: Information on labeling requirements; U.S. Regulations on Small Parts
• The Consumer Product Safety Improvement Act of 2008 required the CPSC to issue a rule outlining labeling requirements for toy and game advertising in catalogs and other printed materials. Under the new rule, any toy or game that currently requires a choking warning for small parts, balloons, small balls, or marbles on the product packaging must be advertised with the same warning in any catalog or other printed material.
• The CPSC has issued guidelines regarding drawstrings in children’s upper outerwear garments, such as jackets and sweatshirts. The guidelines help to prevent strangulation from the neck drawstrings and entanglement of the waist drawstrings.
• In 1992, the CPSC voted to ban infant cushions in order to prevent infant suffocation while sleeping on the cushions. Banned cushions have all the following features: 1) a flexible fabric covering; 2) loosely filled with a granular material such as plastic foam beads or pellets; 3) easily flattened; 4) capable of conforming to the body or face of an infant; and 5) intended or promoted for use by children under age 1.
• As of June 2011, the CPSC requires that all cribs manufactured and sold in the U.S. meet the new standard. The new standard includes changes related to improved slats, mattress supports and hardware; and prohibits the traditional drop-side rails.
• The American Academy of Pediatrics does not recommend the use of bumper pads and similar products because of their potential to cause suffocation, entrapment and strangulation of young infants. Maryland and Chicago have outlawed the sale of crib bumpers. Currently, there is no federal regulation affecting the use of bumpers in cribs.
• The IAFCS has additional resources on standards for juvenile products in the Members Only section of our website. Most childproofing products do not have standards. ASTM has voluntary standards for Window Guards/Limiting Devices, as well as Juvenile Gates.
• Canadian members: Additional resources are available through Health Canada.