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Memorandum

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SAFETY COMMISSION

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Through: Dr. Robert D. Verhalen, DAED, Epidemiology

DATE: May 7, 1981

FROM : George Rutherford, HIEA

SUBJECT: Special Report, Accidental Strangulations of Children Less Than 5 Years of Age

Attached is the Special Report on accidental ligature strangulations of children less than 5 years of age. This report was prepared for the "Strings and Elastics" Project in the 1981 operating plan.

Attachment

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SPECIAL REPORT

Accidental Strangulations (Ligature) of
Children Less than 5 Years of Age

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I. EXECUTIVE SUMMARY

This analysis was performed to provide a broad overview of the continuing problem of accidental child strangulations. Nearly 300 incidents, involving children less than 5 years of age, most of them fatal, were reviewed. These cases had been reported to Consumer Product Safety Commission from 1973-1980.

Two products were involved in over half of the incidents. Usually a product around the child's neck became caught on some secondary product, resulting in a tightening around the neck and a strangulation. Clothing was the category most frequently reported as the primary product involved in accidents. Cribs were the most frequently reported secondary product.

There were 20 incidents involving crib toys. Because of this strangulation hazard, crib toys have been the subject of several voluntary recalls. Products such as backyard playsets, children's furniture, and toys other than crib toys are the subjects of voluntary industry standards with provisions to address the strangulation hazard; there were 62 cases involving these products.

Pacifiers which were involved in 29 strangulation accidents, are the subject of a mandatory federal regulation, which contains a labeling provision to address the hazard of cords tied to the pacifier.

All of these government and industry actions may serve to prevent injuries of this sort in the future. In many cases, however, neither of the products involved was a children's product (104 cases). In addition, many were things which it might not be feasible to remove from the environment, such as doorknobs, trees, and clothing. For these types of accidents, only an awareness of the potential for injury which exists in the child's environment, and parental action to reduce the likelihood of an accident happening, can effectively address the hazard.

In the cases of strangulations involving children under 5 years of age, the age group most frequently involved consists of children 9 - 12 months old. This knowledge, combined with awareness of the strangulation hazard and its presence in the environment could help parents and guardians to reduce the risk of these kinds of accidents.

II. INTRODUCTION

Over the past years, the U.S. Consumer Product Safety Commission has received reports of child strangulation and near strangulation involving strings and cords on toys and other products intended for use by children. For several of these incidents the Commission has taken action on a case-by-case basis, in some instances working with industry to recall specific products. As strangulations continued to occur, however, CPSC staff concerned with children's products came to believe that a more general review of strangulation incidents was necessary.

As a first step in this review, this report has been prepared to provide a broad view of the child strangulation hazard. Over a period of 8 years (1973-1980), a total of 298 cases of ligature strangulation were found among the data reported to CPSC. Incidents included are those in which something around the neck of a child under 5 years of age resulted in strangulation or near strangulation. These data have been examined in an effort to identify products involved in strangulations and to present details about these products and the victims. In just over half (153) of the cases examined, the object around the child's neck was caught on some other "secondary" product. To keep the accident picture as clear as possible, a distinction has been made between primary and secondary products. Admittedly, the distinction between primary and secondary products is a subjective one. In some cases, however, it is clear that the product in which the victim was tangled presented the greater hazard; e.g., a pacifier cord which might be caught on a variety of products with the same effect. In other cases, the second product appeared to present the greater hazard; e.g., a protruding bolt which snags the fabric of a baby's sleeper. Whenever possible, therefore, secondary products will be identified and relevant details presented.

Table 1 shows each of the product categories, the number of incidents reported, the number of fatalities, a sample scenario, whether any government or industry action has been taken to address this hazard on the product, and a reference to the page in Appendix A where the product is discussed in detail.

Appendix B contains data tables showing the interaction of the products involved by age and sex of the victim. Also included is a table showing the frequencies of combinations of primary and secondary products, and a table showing the data bases from which the information was derived.

Appendix C contains a listing of all the products involved in strangulations, for each of the age groups included in the analysis.

* Ligature strangulation includes only those cases in which something around the neck tightened and strangled the victim. This does not include structural strangulations such as have occurred involving entrapment in crib headboards and toy chests.

TABLE 1. Primary and Secondary Products Involved in Accidental Strangulations, With Sample Scenarios

PRODUCTS	NO. CASES	NO. FATALITIES	SAMPLE SCENARIO	ANY ACTION TAKEN BY GOVT. OR INDUSTRY*	PAGE REFERENCE
PRIMARY PRODUCTS:					
I. Clothing (67)					
A. General Clothing	35	32	Hanged by shirt while trying to get out of crib.		A-1
B. Clothing w/strings or hoods	20	19	Hooked jacket hood on door handle, hanged.		A-2
C. Buttons	12	6	Dress button caught in portable crib mesh.	YES	A-2
II. Drapery and Blind Cords (57)					
III. Ropes	41	41	Strangulation--became entangled in drapery cord by crib.		A-3
IV. Toys	33	32	hanging, playing with rope from tree.		A-3
A. General Toys	17	12	Found dead--toy telephone cord around neck		A-3
B. Crib Toys	13	10	Neck tangled in string of crib toy.	YES	A-5
V. Pacifier Cords	29	28	Pacifier string found wrapped around baby's neck	YES	A-4
VI. Bedding	16	5	Strangled by binding of baby blanket	YES	A-3
VII. Children's furniture straps	14	13	Found suspended in air; high chair strap around neck.		A-6
VIII. Cords	10	10	Cord around neck snagged on baby bed.	YES	A-6
IX. Harnesses	9	9	Victim died; crib belt harness wrapped around neck.		A-7
X. Strings	8	8	Accidentally choked by string around neck.		A-7
XI. Play Equipment	6	5	Swing rope twisted around neck.		A-7
XII. Electric Cords	5	5	Strangulation--caught in extension cord.		A-7
XIII. Necklaces	5	5	Roseary caught on top of crib.		A-8
XIV. Bibs	2	2	Bib caught on play gym crib toy; found hanged in crib.		A-8
XV. Slings	2	2	Fatally injured when arm slings caught on crib finial.		A-8
XVI. Miscellaneous	21	17	Entangled in adult exercise hanging on bedroom doorknob.		A-8
SECONDARY PRODUCTS (70)					
I. Cribs (59)					
A. Crib, General	44	40	Found hanging by neck over side of crib.		A-10
B. Crib Cornerposts	21	15	Hanging on outside of crib; sweater caught on crib cornerpost.		A-11
C. Crib Projections	5	4	Pacifier cord caught on crib raiser catch.		A-11
II. Play Equipment	23	22	Poncho string caught on slide rail.	YES	A-12
III. Children's Furniture	16	15	Slipped from infant seat, caught in safety strap.	YES	A-12
IV. Playpens	6	6	Pacifier string around neck caught on playpen latch.		A-12
V. Doors	6	6	Hanged self with cord attached to screen door.		A-12
VI. Beds	6	5	Found hanging from bed by T-shirt.		A-12
VII. Miscellaneous	20	20	Hanged self on fence post by coat hood.		A-12

* Refers to known specific attempts to address safety hazards.

III. DESCRIPTION OF THE HAZARD AND PRODUCT INVOLVEMENT IN ACCIDENTS

As can be seen by a review of the categories shown in Table 1, many different types of products have been involved in ligature strangulations of children under 5 years of age. Among the primary products several categories such as: drapery and blind cords, ropes and chains, cords, strings, and electric cords are not children's products. These products are involved because they are normally present in the home environment and, very likely, present an unsuspected hazard. Ninety-seven accidents, including 96 fatalities, involved these products.

Clothing is the largest single category of primary products. Clothing related incidents are broken down into 3 sub-categories. The "general clothing" category refers to garments such as shirts, sweaters, night-gowns, and coats, which were not reported as having any strings or hoods which caught on something. The category "clothing with strings or hoods" refers to cases in which a string or a hood or some other cord incorporated into a garment caught on something. The category "buttons" includes cases in which buttons on clothing were caught in the mesh side of a playpen or crib, and the child was hanged by the garment. There were 67 cases including 57 fatalities involving clothing.

Pacifier cords and necklaces are products which are intentionally placed around the neck of a child. The purpose of these items is either adult convenience or decoration. These two product groups accounted for 33 fatalities and 1 near miss.

Toys and crib toys were involved in 30 cases, 22 of which were fatalities. Accidents occurred in several ways. Toys became tightened around children's necks; toys which were tangled around children's necks caught on something; children became tangled in cords or strings of a hanging crib toy; and clothing or something around a child's neck caught on a crib toy. There is an industry voluntary standard to address the hazards of toys around necks and entanglement in crib toys, and CPSC's corrective actions staff have worked with individual companies to recall or label products which present a strangulation hazard.

Play equipment has been involved in a total of 29 accidents, 27 of which were fatalities. In 23 of these cases, clothing or something around the child's neck caught on part of the equipment, usually an upright post of the slide component. In six other cases, the victim was entangled with a rope or chain, which was an integral part of the equipment. The industry has been informed of the hazard of slide uprights, and is considering an amendment to the voluntary industry standard to reduce the risk of this type of occurrence.

Cribs were involved in more accidents as the secondary product (70), than any other product reported. Fifty-nine of these were fatalities. Crib related cases have been broken down into three groupings. The largest group consists of those cases in which something

either caught on or was attached to the crib, but which did not indicate a specific projection or catch point. There were 44 cases in this grouping; 40 were fatalities. The second grouping consists of 23 cases which indicated that something caught on a crib finial or cornerpost. Fifteen of these were fatal. Many of these cases occurred when children were climbing from the crib and clothing became caught over the cornerpost. The result of this was that the child was hanged on the outside of the crib. Five cases, four of which were fatal, referred to crib projections. There were things such as hinges, bolts, and a catch for raising the mattress.

These and all other products identified in Table 1 are discussed in detail in Appendix A.

IV. VICTIM AGE

As shown in Figure 1, when ligature strangulations to children less than 5 years of age are examined, the age group, including children 9 to 12 months of age, is involved in four times as many accidents as any other age group. When the fact is considered that the age groups are not of equal size (i.e., 4 months vs. 12 months), this comparison is more impressive. This is the age when many children are beginning to stand upright, to walk, and in some cases to climb. Through these activities they get into difficulty, but they do not yet have the motor control to get out of difficulty, the cognitive ability to figure out how to get out of difficulty, or the speech skills to call for help. The injuries to this age group involve entanglement with every type of product discussed in this report with the exception of swings and of slings. Children in this age group were injured by catching something on all of the second products discussed with the exception of swing sets, outdoor structures such as trees, and beds.

In a more general sense, there are differences by age in the types of product with which children have been strangled. These are shown in Appendix C and in Tables A1 and A2.

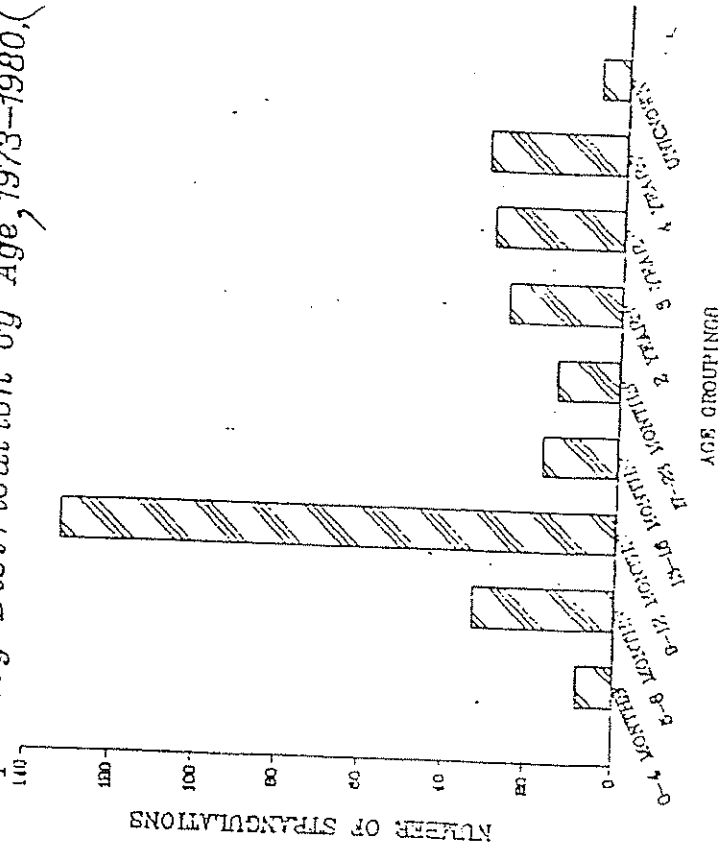
The types of products with which children are involved in strangulation accidents changes with the age of the children. We wish to discuss three factors which bear on this. These are: the products to which the child is exposed, the capability of the child to get into and out of difficulty, and the environment in which it may be normal for the child to function.

Injuries to children 0-4 months were relatively infrequent (8 cases) and the accidents happened either in the crib, in an infant carrier, or in a high chair. Children in the 5-8 month old group were injured 4 times as frequently as the younger children and on a much wider range of products. This age group includes children, who are much more active and although they may be more able to get out of difficulty, they appear to be much more likely to get into difficulty. The accidents to this group still occur mostly in the crib and other environments in which they are placed by the parent. Nine to twelve month olds have been discussed at the beginning of this section. Although most of the accidents still occur in cribs and infant furniture, other products such as doors and fences begin to appear at this age. The products involved in injuries to 13-16 month olds are much the same as for the preceding group, but the frequency is less than 1/8 of the frequency for 9-12 month olds. Apparently, these children who are at least as ambulatory and active as the other group are better able to extricate themselves from a potentially hazardous situation and, perhaps, able to call for adult help.

The next age group takes in a period of 7 months, from 17 to 23 months of age. This larger age group was reported involved in 14 cases. Although many of the same products are involved, this group has the second largest number (3) of cases involving crib cornerposts, and also has two cases indicating harnesses being involved in accidents. Both of these findings point toward active children, capable of climbing and anxious not to be restricted.

FIGURE 1.

*Ligature Strangulation Incidents Involving
Children Less Than 5 Years Old
Frequency Distribution by Age, 1973-1980, (N=298)*



SOURCE: U.S. Consumer Product Safety Commission
Epidemiology

Two-year olds began to be exposed to a larger variety of products, and products like ropes, play equipment, and outdoor structures began to be involved. Cribs and toys and crib cornerposts, still appear as being involved in accidents, but not as large a portion as for younger children.

Three-year olds with their increased independence and mobility were not injured more frequently, but were injured through interaction with almost a completely different group of products. There were still cases involving window cords, but most of the remaining cases involved products such as hooded jackets, ponchos, ropes, play equipment, and outdoor structures.

Four-year olds suffered the greater part of their strangulation injuries in relation to ropes, hooded jackets, and ponchos, play equipment, outdoor structures, and beds. There was, however, one case involving a crib.

To summarize the age-related findings, it appears that as the child gets older and is more physically able to deal with his environment and to get around on his own, he encounters new types of hazards which have the potential to exceed his newly developed ability to deal with them.

The greatest risk is indicated by the data to be at the age (9-12 months) when neither the child nor the parent is fully aware of the child's abilities. The child can reach places and do things he has never done before, but has not yet developed a familiarity with those places and situations which would enable him to deal with problems should they occur. As the child grows more capable and sure, new hazards arise, but injuries of this type are never again as frequent as when the capability of walking and climbing are new.

V. PRODUCT INTERACTION

Review of the data revealed no outstanding pattern to the interaction of the various primary products and secondary product groups. The types of clothing involved in accidents differ between the types of secondary products. However, this and any other apparent relationships are most likely related to the age of the victim rather than the product group involved.

The one possible noteworthy interaction is that cases in which pacifier cords caught on crib toys and crib projections are more frequent than cases of clothing catching on these products. This may be attributable to the narrowness of a pacifier string when compared to a shirt, for example.

Several products are involved in strangulations without a second product or rarely involving a second product. These are:

- Drapery and Blind Cords
- Bedding threads or binding
- Strings, NOS
- Toys
- Play equipment
- Electric cords

The strangulation without additional entanglement hazard appears to be most likely among younger children, who are less capable of disentangling themselves.

Aside from these findings there appears to be little about the accidents attributable to the interactions between two specific products. However, it is clear that while cases do occur involving only one product, many cases would not have occurred had both products not been present.

VI. DISCUSSION

The data presented and discussed in this report are extensive. From these, however, some salient points to the problem of childhood strangulations can be extracted.

Most of the injuries and fatalities involve products which are intrinsically subject to involvement in strangulation accidents. Moreover, because products such as ropes, and chains, drapery and blind cords, and electrical wires, and secondary items such as trees, fences, and doors are commonplace in a home environment, they may not elicit parents' attention or concern. Because of this, establishing an initial awareness of the hazard may be the most effective approach to prevention.

Some injuries result when items are placed around the necks of infants merely for decoration or convenience purposes. Necklaces, pacifier cords, and some kinds of clothing with strings fit this category. While some regulatory activities have sought to minimize these unnecessary hazards, ultimately, awareness of the hazard and prevention will have to be accomplished by the parent or guardian.

Toys and crib toys account for only a small part of the strangulation problem. Even so, these incidents are, in large degree, avoidable. Several steps have been taken through the combined efforts of government and industry. With the exception of the provisions of the voluntary toy standard addressing length of cord, action has been on a case by case basis. Although a great deal has been accomplished in trying to protect children who use crib toys, parental awareness of the hazard is an important part of creating a safe environment for an infant. For this reason, we believe that the labeling adopted by one manufacturer, which links the hazard to the developmental stages of the child, is quite valuable.

Unraveled threads and blanket bindings may be related to manufacturers' quality control or product wear. Frequently checking an infant's bedding can help parents find this condition and correct it before an accident occurs.

Among secondary products, such as cribs and play equipment, were children's products which might be amenable to correction. Many other items such as trees, fences, and doorknobs are normal parts of a child's environment. Thus, as discussed in this report, while there are areas for which some action by CPSC or industry may be appropriate, the bulk of the cases could best be addressed through consumer awareness of the hazard.

The major points to be included in information to consumers are the following:

1. Anything around a child's neck, even clothing, can become entangled with another product and result in a strangulation.
2. A string or cord around an infant's neck, can, just by becoming twisted, strangle a child. The presence of some sort of protrusion in the environment increases this risk.

3. The hazard of strangulation is present for all ages under five, but the risk is greatest when the child is first developing and learning about the skills of walking and climbing.
4. The entire environment through which children will move should be examined and considered, taking into account the clothing they wear, the toys they use, and the places they play. Parents must be able to recognize the hazard of something around the neck which can catch and the kind of things it is likely to catch on. While either situation presents a hazard, if both are present the probability of an accident is greater.

An understanding of the hazard and the ability to see potential dangers requires a practiced eye, based on knowledge of what can go wrong. The time spent to consider the hazard is valuable though, because it only takes a few minutes for a baby to strangle.

APPENDIX A

Discussions of Categories of Products Involved in Accidents.

Index to Appendix A.

Primary Products

I.	Clothing	A-1
	A. General Clothing	A-1
	B. Clothing with Strings on Trim	A-2
	C. Buttons	A-2
II.	Drapery and Blind Cords	A-3
III.	Ropes and Chains	A-3
IV.	Pacifier Cords	A-3
V.	Toys	A-4
VI.	Bedding	A-6
VII.	Children's Furniture Straps	A-6
VIII.	Cords	A-7
IX.	Harnesses	A-7
X.	Strings	A-7
XI.	Play Equipment	A-7
XII.	Electrical Wire	A-8
XIII.	Necklaces	A-8
XIV.	Bibs	A-8
XV.	Slings	A-8
XVI.	Miscellaneous	A-8

Secondary Products

I.	Cribs	A-9
	A. Cribs, General	A-9
	B. Crib Cornerposts	A-10
	C. Crib Projections	A-11
II.	Play Equipment	A-11
III.	Children's Furniture	A-12
IV.	Playpens	A-12
V.	Doors	A-12
VI.	Beds	A-12
VII.	Miscellaneous	A-12

Primary Products

I. Clothing

IA. General Clothing - Thirty-five strangulations and near strangulation accidents involved entanglement of or with normal clothing without involving hoods or clothing with strings or buttons. Thirty-two of these accidents were fatal; two were near misses; one resulted in severe brain damage. Although the largest single group, 15 cases, were in the 9-12 month old group, children in all of the age groups in the scope of this analysis suffered injuries involving clothing. Several different types of clothing were involved and clothing caught on several different types of secondary products.

The items on which clothing became entangled are listed below:

Crib corner posts	9
Crib projections	2
Cribs, part not stated	6
Play equipment	3
Trees	2
Infant furniture	1
Playpens	4
Beds	2
Fences	1
Unknown	5

TOTAL 35

Most of these cases will be discussed in more detail in the sections on second products, since clothing without strings or cords or hoods, by itself does not appear to present a hazard.

Twenty-five of the 35 victims were less than 2 years of age, and 22 of the incidents involved secondary products intended for very young children. Seventeen involved parts of cribs. Many cases referred only to clothing as being involved in the accident. Among the types of clothing noted in the other cases were six shirts and T-shirts, two dresses, five pajamas, six nightgowns, three sweaters, three coats, and a playsuit.

The most frequent scenarios were: clothing catching on a cornerpost of a crib, when a child tried to climb out, entanglement in other parts of cribs and playpens, and clothing catching on play equipment when a child fell off of the equipment or went down the slide.

In General Clothing cases, the data indicate that if correction or prevention is to be attempted that attention to the second product and the child's overall environment are of most importance.

IB. Clothing with Strings, Hoods, etc. - A total of 20 cases of strangulation and near strangulation have been reported, involving clothing with strings, straps, or hoods which caught on some object; 18 of these accidents were fatal. There were similar, yet separate patterns among these accidents. One group involved jackets with hoods and loose outer clothing such as ponchos. All seven of these injuries were fatal. Four of these cases, involving children 22 months to 3 years of age, occurred when the clothing became caught on home playground swings and slides. (NOTE: Since the scope of this review only includes cases involving children less than 5 years old, these data do not include the recent death of a 6-year-old Washington, D.C., girl who was hanged by her coat on a school playground.) Three other cases, indicating that coat hoods were involved, were also fatal. These victims were 12 months, 3 years, and 4 years of age. They became caught on a door handle, a truck door, and a fence post. The third pattern was different in that an actual string or cord, incorporated as part of the garment became caught on something. Five of these involved very young children (oldest 2 years) who were strangled when the string became caught on a crib cornerpost, a crib toy, or the mesh of a playpen. The strings involved were: a hat string, a shirt drawstring, a rope holding a whistle as part of a sailor suit, and two instances of clothing straps catching on something. All of these, with the exception of the sailor suit which was involved in causing severe brain damage, were fatal. The four remaining cases referred to products which contributed to injuries in unusual ways. A 2-year old was killed when he fell from a window and was hanged by his pant's strap. A 4-year old was hanged from a bunk bed by a belt. Another 4-year old was killed when her scarf became caught in the pulley of a snowmobile. The last case stated only that the 10-month old victim was strangled on his play suit.

Hooded jackets and ponchos are traditionally accepted and practical pieces of clothing for cold weather. Because of their popularity and practicality, the potential hazard associated with them is probably overlooked by many parents. What perhaps should be recommended in any message to parents about the hazard is the advice that they consider what sort of environment the child will be in while wearing the jacket, before deciding which jacket the child will wear on a certain occasion. In the case of pre-school children playing on home playground equipment, close supervision is also necessary.

The strings on the clothing of infants and toddlers are a different matter. Although they may serve some purpose, they appear subjectively, to increase the probability of catching on something when compared with clothing without strings. It appears that a string on a piece of clothing is more likely to get caught on a small projection than is an entire hem of a garment.

IC. Buttons - Twelve cases in which buttons on clothing became caught in the mesh of a mesh type crib or playpen have been included in the total because they were in fact ligature strangulations. This

injury mechanism is different from the one being examined in this report and is discussed in detail in a separate report on mesh sided cribs and playpens.

- II. Drapery and Blind Cords - CPSC is aware of 41 fatal hangings involving window cords. Most of these reports specifically referred to the child being in a crib at the time of the accident. This is a particularly insidious hazard, because it is quite natural to place a crib by a window. The victims in these cases ranged in age from 6 months to 4 years. There were only two children less than 9 months old; however, and the bulk of the cases, 27, involved children between 9 and 12 months of age.
- III. Ropes and Chains - There are a total of 33 cases involving ropes and chains around the necks of children less than 5 years of age; 30 of these were fatal. The victims in these cases were typically older children than those injured with other products. One 12-month old died with clothesline around her neck. All of the other victims were at least 2 years old. Fifteen were 4 years of age. Simply stated, each of these products was functioning as intended, and it was the nature of the product which led to its involvement. With the exception of a few cases involving jump ropes, none of these products were really children's products, and were not intended for use by children less than 5 years old.
- IV. Pacifier Cords - Twenty-nine cases of strangulation related to cords on pacifiers have been reported; 29 of these were fatalities. This hazard has been addressed by a labeling provision of the mandatory pacifier regulation. CPSC received a petition in 1980 to prohibit grip rings on pacifiers with the intent of eliminating the place on the pacifier where many pacifier cords in fatal accidents have been fastened. The staff research into the available data at the time indicated that fatal accidents have also occurred when cords were tied to other parts of the pacifiers, including through the ventilation holes of a pacifier which complied with the mandatory regulation. Most of the cases reported occurred before the February 1978 effective date of the pacifier regulation. Of those cases which occurred subsequent to that date, seven were followed up. Two of these were found to be complying pacifiers, including the one discussed above in which the cord was tied through the ventilation holes. All but two of the victims in these cases were 12 months old or younger. The youngest was 6 months old. We do not know for sure how common is the practice of tying pacifiers on cords around infants' necks. Small scale surveys done in response to the petition on grip rings indicated that the practice is not very common and appears to be decreasing in frequency.

Pacifier cords have caught on crib cornerposts, crib toys, other crib projections, and other projections around the house. There have also been incidents in which the pacifier cord strangled the victim by tangling around the victim's neck without catching on anything.

V. Toys - Toys were the primary product in 30 cases and the secondary product in 7 cases. Crib toys were the most frequently involved in strangulations. Toys, mobiles, and exercisers strung across a crib or attached to a crib and suspended above the infant or attached to a cornerpost were involved in 22 cases. In 15 of these cases the toy was the object which strangled the victim. All but three of these cases resulted in a fatality. The victims in these accidents were quite young; the median age was 8 months. Crib toys as a secondary product accounted for six fatalities and a near miss. Four cases involved pacifier cords. Two of these caught on the crib gym toy, and two had been intentionally tied to the crib toy. Two cases involved clothing strings catching on suspended crib toys. The remaining case occurred when a child got a blanket tangled around his neck and on the toy suspended across the top of the crib. No injury occurred. The victims in these cases were all between 7 and 11 months of age.

The "crib gym and mobile" cases in which they were involved as the primary product are shown below, along with the disposition of the victim.

- A 16-month old was found tangled in the ropes of a toy that had apparently stretched upon tugging. Fatal
- A 5-month old got his right arm caught in a plastic ring of a musical crib toy. Ring was attached to a string which activated a music box. Neck tangled on string. Fatal
- A 12-month old became entangled in a braided toy tied to the crib rail. Fatal
- A 21-month old strangled on a hanging toy. Fatal
- A 10-month old strangled on a homemade crib toy which drooped into the crib. Fatal
- A 10-month old became entangled in the coiled springs of a crib exerciser trapeze bar and strangled. Fatal
- An 8-month old became entangled in the suspension cords of a toy elephant suspended from the cornerpost of the crib. Cords measured 14 inches. Fatal
- An 11-month old hanged on suspension cords of a toy bee, suspended from the cornerpost of the crib. Cords measured 20 inches. Fatal
- A 2-month old got his foot caught in a hanging play ornament in a crib and was either strangled by his clothing or suffocated by being face down on the crib. Fatal
- An 8-month old strangled when caught in a crib gym. Fatal
- A 7-month old pulled the crib exerciser loose, so that one side was no longer attached to the crib. He got it wrapped around his neck and was unconscious. He was found and revived by an adult. No permanent damage - length of rope 36-1/2".

- A 12-month old cut himself when entangled in synthetic cords from a crib mobile. Near miss
- An 8-month old became entangled in a crib mobile that fell from a stand into the crib; one string wrapped around his neck leaving a red mark as a result of the accident.
- A 1-month old was strangled by a Yoy mobile. Fatal
- A 6-month old became entangled in a toy strung across a playpen. Fatal

The toy industry has addressed this problem in Voluntary Product Standard 72-76. This standard calls for strings to be less than 12 inches in length, and if it forms a loop less than 14 inches in perimeter. For elastics the length of 12 inches is used as the maximum length to which it can stretch under a load of 5 pounds.

The Corrective Action Division in the C.P.S.C.'s Compliance Directorate has also taken action. The elephant and bee toys listed above have been recalled. In addition, several other crib toys believed to present a strangulation hazard have been either recalled voluntarily by manufacturers or discussions have taken place between manufacturers and CPSC staff which may result in some corrective action.

It is clear, however, that new products are still coming onto the market from time to time which do not meet the requirements of the voluntary standard.

There is still some risk of entanglement even with complying crib toys, and one manufacturer now recommends that the toy be removed from the crib when the child is old enough to be capable of pushing up onto his hands and knees and, thus, running the risk of getting entangled.

A different type of hazard pattern occurs with non-crib toys. Three of the 15 cases involved toy strings around children's necks becoming caught in or on a crib, when the victim fell out. One child hanged from homemade reins on a toy hobby horse. In the remaining cases, the cord itself tangled around the victim's neck. Six of these cases were fatal, and 5 were near misses. Toy telephones were the most frequently involved of non-crib toys. Seven incidents, four of them fatal, involved toy telephones. In two of these cases, the length of the cord was known; these were 26 and 34 inches, respectively. The age of these products was not known, but neither is in conformance with the requirements of the voluntary standard which sets a limit of 12 inches or less for cords used with toys intended for children less than 36 months of age.

Other products included a pull toy with a 33-1/2 inch string, a yo-yo, not intended for an infant, a toy purse's string, and a toy which was not further detailed.

- VI. Bedding, Crib, and Playpen Accessories - Sixteen incidents of entanglement in loose binding, threads or strings of bedding and accessories were reported; 5 were fatalities. Three of the fatalities involved the binding of blankets. The three victims were 5 months, 7 months, and 9 months of age. One other fatality involved a loosened nylon liner of a playpen. The fifth fatality involved a "jury rigged" attachment for a bumper pad tie.

There were two additional cases involving blanket bindings which unraveled and tangled around the necks of infants. These two cases were near misses in which no injury occurred, but which were potentially fatal. There were 4 near miss cases involving parts of bumper pads for cribs. Two of these involved unraveling thread, and two involved the strings by which the pads are tied to the crib. Three cases occurred involving thread from playpen structures or playpen pads. In these cases, as in others, the child unraveled the thread and got it tangled around the neck or body. Another such case occurred with thread from a crib mattress. The remaining case involved a child who got her head tangled in the elastic cord that held a mattress cover to the mattress.

There were 16 cases involving bedding and bedding accessories; and, there were 8 cases in which an unraveled thread was the string in which the victim became entangled. None of these cases, specifically referring to thread were fatal. The length of the string in these cases varied with how much was unraveled.

Several cases referred to very strong, synthetic thread. The Commission received a petition to ban or regulate nylon thread in infant products in 1975. The petition was denied. At that time only one near miss and some constricted fingers and toes had been reported in the data. Also pointed out at that time by the CPSC Bureau of Engineering, was the fact that this hazard is clearly related to the manufacturing process rather than to the design of the product.

- VII. Children's Furniture Straps - Fourteen cases, consisting of 13 fatalities and one case of brain damage resulted from entanglement with straps of furniture. Nine of these specifically referred to high chairs. The youngest victim of these high chair-related cases was 6 months of age; the oldest was 15 months. The scenarios for all of these cases were similar. The victim was restrained in the high chair and, either while trying to get out or by simply slipping down in his chair, became suspended by the neck from the strap. There is an industry voluntary standard for high chairs produced under the auspices of the ASTM for the Juvenile Products Manufacturers Association (JPMA). This standard addresses restraint systems and is intended to prevent this type of accident. The effectiveness of the requirement cannot be estimated at this time. The two cases which were investigated involved high chairs manufactured before the standard went into effect in 1975.

Two of the remaining five cases listed car seats as the product involved. Another case stated that an infant seat was the product. Two other cases stated only that a chair was involved. It is suspected that all of these cases may have involved infant carriers.

The scenario is similar, however, the victim was strangled on the restraining strap.

- VIII. Cords - Ten fatalities were reported which indicated the product to be a cord of some sort. Four of these cases, the victims of which were all 9 to 12 months old, indicated only that the strangulation involved a cord around the neck. The remaining cases involved cords either attached to or snagged on something. One of these was a cord used to repair a broken crib. The infant became entangled in the cord. Another case indicated that a cord had been tied to the infant's waist and to a crib headboard. It got around the victim's neck and strangled her.
- IX. Harnesses - Harnesses are products used to restrain children and prevent them from getting out of cribs, playpens, or other areas in which the parents want them to stay. Nine harness-related fatal strangulations have been reported. Five cases indicated that the victim fell or was climbing out of a bed or crib and was hanged by the harness. The other four cases stated that the victim was strangled by the harness, but did not indicate that a fall or a hanging was involved. By design, a harness is supposed to restrain the wearer. If the wearer becomes twisted in the straps, however, or partially extricates himself from the harness and succeeds in partially climbing out of the crib, he is at risk for strangulation. The victims in these cases ranged in age from 11 months to 2 years old. These were apparently active children, fairly well physically developed, and capable of climbing. Although we do not know the actual frequency of use of harnesses, it is suspected that they are not a widely used product. In light of this, the occurrence of fatalities appears significant.
- X. Strings - Eight fatalities were reported which indicated only that strangulation was caused by a string or shoestring around the neck. These children were quite young. One was 8 months old, 5 were between 9 and 12 months, and 2 were 2 years of age. There are no product specific details to indicate anything about the product or its use which contributed to the fatality. This hazard can be addressed through increasing public awareness of the potential for strangulation of a child, associated with any string or rope.
- XI. Play Equipment - These products are involved in ligature strangulations as both a primary and secondary product. When involved as the primary product, the scenario is simply that the child becomes entangled with and hangs from the chains or ropes used to suspend the swings. All but one of these accidents was fatal. The non-fatal case stated that a parent had found the victim entangled in the rope. Timeliness may have been the reason for this case being a near miss rather than a fatality. Four of the victims who were killed were 4 year olds and one was a 2 year old. There were 23 cases in which play equipment was the secondary product involved in the accident scenario.

- XII. Electrical Wire - Five fatalities occurred involving electrical wire. Four of the victims were in the 9 to 12 month age group. The fifth victim was a 3 year old who became entangled in an antenna wire. These cases strengthen the contention that any loop or cord of sufficient length can pose a potentially fatal hazard to a child who is able to interact with it for long enough.
- XIII. Necklaces - Five children strangled to death on necklaces placed around their necks. The oldest of these children was 12 months of age. Three of the cases were incidents in which the necklace became caught on a crib toy or part of the crib, resulting in hanging. The other 2 cases involved younger children, 8 months and 4 months old. In these cases, the strangulation occurred simply by the necklace in some way becoming too tight. The outstanding fact about necklace-related strangulations is that they are a product intentionally placed around a child's neck. Further, it is a decorative product which doesn't have a specific function. These accidents demonstrate that there was a lack of awareness of the strangulation hazard or a belief that although it can happen, it would never happen to their child.
- XIV. Bibs - Two fatal hangings involved bibs. One 11-month-old child fell from his high chair and was strangled by his bib. The other case involved a 7-month old whose "bib type" top caught on a crib toy.
- XV. Slings - Two cases indicated fatal hangings involving slings. One victim was a 22-month-old whose arm sling caught on a crib corner-post while he was climbing from his crib. The other case did not provide any detail other than that the 8-month-old victim became tangled in a sling in his crib.
- XVI. Miscellaneous - Several types of products, including fishing equipment, a macrame hanger, an adult exerciser and others are included in the 21 cases in this category. What these cases show is that many different types of products can present a strangulation hazard to a child, whether or not that product is entrusted to the child. These cases simply reinforce the need for parental watchfulness and awareness of this hazard:

Secondary Products

- I. Cribs - The largest single category of secondary products was "cribs." Within this category are three subcategories. These are "Cribs, General"; "Cribs, Cornerposts"; and "Crib Projections."
- IA. Cribs, General - This grouping includes 44 cases. There was one case involving a 4-year old, but the rest were all 2 years of age or younger. Thirty were 12 months of age or less. Parts of the crib referred to in these cases include:

Sideboard	6 cases
Slats	2 cases
Top of crib	4 cases
Railing	11 cases
Headboard	2 cases
Coat hanger attached to crib	1 case
Crib part not specified	18 cases

Products which were entangled included:

Crib toys	9 cases
Other toys	2 cases
Pacifier cords	6 cases
Clothing	6 cases
Harnesses	7 cases
Necklaces	2 cases
Cords	6 cases
Bedding strings	2 cases
String	1 case
Sling	1 case
Not stated	2 cases

Several different patterns are involved in these accidents, and attempting to specify a specific product or product part which presented the hazard is complex. In the case of crib toys, the crib is involved only as the object to which the product is fastened, intentionally, and the crib itself does not contribute to the hazard. In the case of other toys the toy caught in the crib while the child fell outside with the cord around his neck. Pacifier cords caught on a wide variety of products, and in some cases had actually been tied to the crib when the child became tangled in it.

One clothing case involved a coat hanger attached to a crib by the parents to hold a diaper bag, and was not really crib related. The remaining six cases contained no details of the scenario, but may have involved some projection on the crib.

Harnesses involved did not appear to accidentally catch on cribs; they were attached intentionally. In these cases, the crib was the anchoring mechanism, but one could not say that the crib had caught or snagged on something.

Necklaces, cords, and strings snagged on parts of the crib resulting in strangulations. What was caught onto was not stated and in a few cases it may have been that the accident occurred in the crib without the crib actually contributing directly to it. One case involved a cord which had been tied to the crib.

Cribs were involved in two cases with bedding strings. Those products were actually crib accessories. One was a crib cover intended to be attached to all four corner posts of the crib. The other was a bumper pad tie which had been modified and the accident was really not related to either the crib or the bumper pad.

To summarize, the involvement of the general crib category in accidents may in some cases indicate parts of the crib which can snag things. In most of the cases evaluated, however, the crib was involved indirectly. It is important to remember that, while this is true for these cases, this category is a very general category and excludes specific problem areas found, such as identified projections inside the crib.

- IB. Crib Cornerposts - The data included in this report indicated entanglement with crib cornerposts in 21 cases.

The smallest cornerpost reported was 1 inch high; the longest was 4 to 6 inches high.

Clothing was involved in 12 of these cases. This includes 9 cases of clothing without strings or cords mentioned, and 3 cases of clothing with strings. Seven of the 9 cases involving clothing without strings indicated either that the victim was climbing out of the crib or that the victim was found hanging on the outside of the crib. These children were all between 12 months of age and 2 years. Only one was 2 years old. Clothing that got caught included nightgowns, pajamas, a sweater, and a shirt. The size of the cornerposts involved was known in 3 of the 8 cases. One was 2-1/2 inches high, another was 4-6 inches high. One case did not state whether the victim was inside or outside the crib. The remaining case stated that the 18-month-old victim was inside the crib, and suffered severe brain damage, when his "T-shirt" caught on a 1-1/2 inch cornerpost.

Of interest is the fact that the 2-year-old who became caught while climbing out of the crib was not injured. The other cases, which involved younger children, were fatal.

As noted, three cases involved clothing with strings. One 2-year-old victim became suspended from the cornerpost when a jumpsuit strap caught when she tried to climb from the crib. This child sustained no injury. This cornerpost was 4-3/4 inches high. In another case, an 18-month-old hanged from a 1 inch cornerpost, when a cord holding a whistle as part of his sailor suit caught on it while he was climbing from the crib. This child suffered severe brain damage. The third case involved an 11-month-old who was fatally hanged on the inside of the crib, when a hat string caught on the cornerpost.

One child 22 months old hanged by a sling which he was wearing. He climbed out of the crib, and the sling caught on a 2-1/2 inch high cornerpost.

Two cases, in which toys which have since been recalled were involved, related to the cornerpost only as the anchor to which the toy was attached. These were actually finials of more than 2 inches in length, however, and it was from the toys attached to them that the 8-month and 11 month old victims were hanged. Three cases involved pacifier cords. These victims were all caught on the cornerpost and hanging inside the crib. The three victims were 9, 10, and 11 months old, respectively.

One case indicated a toy purse strap was involved, and two others stated only that the cornerpost was involved.

It is noteworthy that the age-related patterns for this hazard differ. The younger victims were found inside the crib, generally hanged from a thin cord. Older children were found hanging outside the crib from clothing, and the only two children 2 years-of-age were both rescued without injury, perhaps a result of their ability to articulate a need for help.

- IC. Crib Projections - Projections on cribs were specified as involved in 5 cases. Although it is likely that some of the cases included in the general crib category involved projection, this section will only deal with projections which were specified. The projections identified were a portable crib hinge, a crib raiser bracket, a folding portion of a crib, a protruding bolt from a crib rail extender, and the top bar of a portable crib. Three of these cases involved pacifier cords. One involved a nightgown. The case involving a protruding bolt indicated that the bolt had caught on the foot portion of pajamas. This probably means that the bolt penetrated, or became tangled in the fabric, rather than a looped elastic or cord. The neck opening of the pajamas was what actually strangled the victim.
- II. Play Equipment - A total of 22 fatal strangulations involved something getting caught on home playground equipment. Thirteen of these involved something, either clothing or a rope catching on the slide part of the equipment. This hazard was noted several years ago and there have been discussions with the home playground equipment industry about the problem. As a result of these discussions, the industry has developed a requirement for their voluntary standard to address the hazard. Because of administrative problems the standard amending process has been delayed. Further, the effectiveness of the provision in eliminating the hazard has not been determined. However, action has been initiated to address the hazard and if CPSC maintains contact with the industry on this standard, very likely the hazard will be reduced.

One near miss case involved a rope around a child's neck getting caught on a hand pushed merry-go-round, or whirler. The remaining 9 fatalities indicated entanglement of ropes and clothing with components of play sets. Three specified that the swing component was involved. The other just referred to the play equipment.

The victims in all of these cases were older than for most other products. One child was in the 17-23-month-old group, 4 were 2-year olds, and 18 were 3 and 4-year olds. The children in the cases which were investigated were playing alone on the equipment. Children of 3 and 4 years are capable of dealing with many kinds of situations, but there is still a risk of fatal injury when they are left alone in a potentially hazardous situation.

- III. Children's Furniture - A total of 16 cases involved infant furniture as the product on which something caught. In 14 of these cases the thing on which the child was entangled was a strap which was a part of the furniture itself. These cases are discussed in the section on first products. The other two cases involved a bib and clothing. These two victims were 10 and 11 months old, respectively.
- IV. Playpens - Six cases indicated that accidents resulted from something catching on a playpen. This does not include the cases in which it was stated that something became caught in a playpen mesh. All of the victims were 12 months of age or younger. In four cases the product which got caught was clothing. In another a pacifier cord was involved, and in the sixth case a crib toy strung across the playpen was involved.
- V. Doors - Six fatal accidents occurred when something around a child's neck became caught on a door. One of these cases involved a 12 month old whose jacket hood became entangled on a door knob. Three others, two 4-year olds and a 12-month old hanged when a ribbon, cord, or rope around their necks became entangled on a door of some sort. One 13 month old became entangled in an adult exerciser hanging on a door knob. The remaining case involved a 3-year old and stated only that the victim was hanged in a screen door.
- The one clear fact that came out of an examination of these cases is that even a doorknob can present a potentially fatal hazard if a child has something around his or her neck.
- VI. Beds - Five cases indicated beds as the product on which something caught. All of these were fatal. The youngest victim was 4 months old, the oldest was 4 years old. Three cases involved clothing, one involved a harness, and in one case the victim was hanged from a bunk bed by a belt. The two cases which indicated what had been caught onto involved a bed post and an unidentified projection of some sort.
- VII. Miscellaneous - Twenty fatal hangings involved things catching on things inside and outside the house. Seven of the victims in these cases were 4-year olds, six were 3-year olds, six were 2-year olds, and one was in the 9-12-month-old age group. Ten of the cases involved rope; e.g., victim fell off a porch with a dog's rope around his neck.

One case involved a chain, eight involved clothing, and one involved a cloth loop tied to a banister (the child became tangled in this loop). These cases emphasize the existence of a strangulation hazard in many environments and demonstrate that the increased independence of 2, 3, and 4-year olds exposes them to new risks of injury. These items included: trees, trucks, hay bales, fences, a porch, a ladder, a window, a bannister, a horse, and a snowmobile.

APPENDIX B.

DATA TABLES

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Table A-1. Strangulation and Near Strangulation Incidents
to Children Less Than 5 Years of Age
Primary Product by Age of Victim
N: 298

Primary Product	Total	Age of Victim									
		0-4 Months	5-8 Months	9-12 Months	13-16 Months	17-23 Months	2 Years	3 Years	4 Years	Unknown	
Total	298 (67)	8 (1)	33 (5)	133 (29)	16 (2)	14	26	11	31	6	
Clothing (Subtotal)	35	1	4	15	1	4	5	3	(6)	(-)	
General Clothing	20	-	-	5	-	2	4	5	2	-	
Clothing with Strings or Looms	12	-	1	9	1	-	1	-	4	-	
Buttons	4	-	2	27	3	1	3	3	2	-	
Drum and Blind Cords	33	-	-	1	-	-	4	13	15	-	
Ropes, Chains, Clotheslines	(30)	(2)	(6)	(14)	(2)	(1)	(2)	(-)	(-)	(1)	
Toys (Subtotal)	17	-	1	9	2	-	2	-	-	3	
General Toys	13	2	5	5	-	1	-	-	-	-	
Carb Toys	29	1	5	20	1	1	-	-	-	1	
Pacifier Cords	16	-	7	6	1	2	-	-	-	-	
Beading Thread and Binding	14	3	2	7	2	-	-	-	-	-	
Children's Furniture Straps	10	-	-	8	1	-	-	-	-	-	
Cords	9	-	-	3	1	2	1	-	-	-	
Harnesses	6	-	1	4	1	2	2	-	-	-	
Strings	5	-	-	-	-	-	-	1	4	-	
Play Equipment	5	1	1	4	-	-	-	1	-	-	
Electric Cords	2	1	1	-	-	-	-	-	-	-	
Placemats	2	-	1	1	-	-	-	-	-	-	
Bibs	2	-	1	-	-	-	-	-	-	-	
Slings	2	-	1	-	-	-	-	-	-	-	
Miscellaneous	21	-	2	6	2	4	1	5	3	2	

SOURCE: U.S. Consumer Product Safety Commission
Epidemiology

Table A2. Strangulation and Near Strangulation Incidents to

Children Less than 5 Years of Age

Secondary Product by Age of Victim

N=153

Secondary Product	Total	Age of Victim									
		0-4 Months	5-8 Months	9-12 Months	13-16 Months	17-23 Months	2 Years	3 Years	4 Years	Unknown	
Total	153 (69)	5 (2)	16 (10)	55 (33)	9 (6)	10	17	16	21	4	
Cribs (Subtotal)	44	2	9	20	4	4	4	-	1	-	
Cribs, General	21	-	1	10	1	4	1	-	-	4	
Crib Cornerposts	5	-	-	3	1	1	1	-	-	-	
Crib Projections	23	-	-	-	-	1	4	9	9	-	
Play Equipment	16	3	2	9	2	-	-	-	-	-	
Children's Furniture	7	-	2	5	-	-	-	-	-	-	
Crib Toys	6	-	1	5	-	-	-	-	-	-	
Playpens	6	-	-	2	-	-	-	-	2	-	
Doors	6	-	-	2	-	-	-	-	2	-	
Beds	5	-	-	-	-	-	-	-	-	-	
Miscellaneous	20	-	-	1	-	6	6	7	-	-	

Table A3. Strangulation and Near Strangulation
Incidents to Children Less Than 5 Years of Age
Primary Product by Sex of Victim
N=298

PRIMARY PRODUCT	Total	SEX OF VICTIM		
		Male	Female	Unknown
Total	298	179	109	10
Clothing—Subtotal	(67)	(34)	(31)	(2)
Clothing, General	35	21	12	2
Clothing Strings	20	9	11	-
Buttons	12	4	8	-
Window Cords	41	23	18	-
Ropes/Chains/ Clotheslines	33	26	7	-
Toys—Subtotal	(30)	(20)	(7)	(3)
Toys	17	9	5	3
Crib Toys	13	11	2	-
Pacifier Cords	29	16	13	-
Bedding (loose threads)	16	5	8	3
Children's Furniture Straps	14	9	5	-
Cords	10	6	4	-
Harnesses	9	6	3	-
Strings	8	5	3	-
Play Equipment	6	5	1	-
Electric Cords	5	4	1	-
Necklaces	5	4	1	-
Bibs	2	1	1	-
Slings	2	2	-	-
Miscellaneous	21	13	6	2

SOURCE: U.S. Consumer Product Safety Commission
Epidemiology

Table A4. Strangulation and Near Strangulation Incidents to Children Less than 5 Years of Age Secondary Product by Sex of Victim N=153

Secondary Product	Total	Sex of Victim		
		Male	Female	Unknown
Total	153	95	52	6
Cribs (Subtotal)	(70)	(43)	(22)	(5)
Cribs General	44	31	13	-
Crib Cornerposts	21	8	8	5
Crib Projections	5	4	1	-
Play Equipment	23	11	12	-
Children's Furniture	16	10	6	-
Crib Toys	7	5	2	-
Playpens	6	4	2	-
Doors	6	4	2	-
Beds	5	4	1	-
Miscellaneous	20	14	5	1

SOURCE: U.S. Consumer Product Safety Commission
Epidemiology

Table A5. Strangulation and Near Strangulation
Incidents to Children Less Than 5 Years of Age
Primary Product by Data Source

N=298

	Total	In-Depth Investi- gations	Consumer Complaints and News Clips	Death Certifi- cates	Files *
Total	298	53	40	202	3
Clothing—Subtotal	(67)	(17)	(8)	(41)	(1)
Clothing	35	7	2	25	1
Clothing Strings	20	6	1	13	-
Buttons	12	4	5	3	-
Window Cords	41	-	2	39	-
Ropes/Chains/ Clotheslines	33	1	2	30	-
Toys—Subtotal	(30)	(20)	(13)	(26)	(-)
Toys	17	5	4	8	-
Crib Toys	13	7	2	4	-
Pacifier Cords	29	8	7	14	-
Bedding (loose threads)	16	3	9	4	-
Children's Furniture Straps	14	2	-	12	-
Cords	10	1	-	9	-
Harnesses	9	2	2	5	-
Strings	8	1	-	7	-
Play Equipment	6	-	2	4	-
Electric Cords	5	-	1	4	-
Necklaces	5	1	-	4	-
Bibs	2	1	-	1	-
Slings	2	1	-	1	-
Miscellaneous	21	3	1	15	2

* Includes cases identified through personal contacts of the Epidemiological Staff.

SOURCE: U.S. Consumer Product Safety Commission
Epidemiology

Table A6. Strangulation and Near Strangulation Incidents to Children Less Than 5 Years of Age
 Primary Product by Secondary Product
 N=298

PRIMARY PRODUCT	SECONDARY PRODUCT											
	Total	Unk.	Cribs	Crib Corner Posts	Crib Projections	Play Equipment	Children's Furniture *	Crib Toys	Playpens	Doors	Beds	Misc.
Total	298	145	44	21	5	23	16	7	6	6	5	20
Clothing—Subtotal	(67)	(19)	(6)	(12)	(2)	(10)	(1)	(1)	(4)	(1)	(3)	(8)
Clothing, General	35	5	6	9	2	3	1	-	4	-	2	3
Clothing Strings	20	2	-	3	-	7	-	1	-	1	1	5
Buttons	12	12	-	-	-	-	-	-	-	-	-	-
Window Cords	41	41	-	-	-	-	-	-	-	-	-	-
Ropes/Chains/Clothes-lines	33	13	-	-	-	-	-	-	-	-	-	-
Toys—Subtotal	(30)	(15)	(11)	(3)	(-)	8	(-)	(-)	(1)	(-)	(-)	11
Toys	17	13	2	1	-	-	-	(-)	1	(-)	(-)	(-)
Crib Toys	13	2	9	2	-	-	-	-	1	-	-	-
Pacifier Cords	29	12	6	3	3	-	-	4	1	-	-	-
Bedding (loose threads)	16	15	1	-	-	-	-	-	-	-	-	-
Cords (NOS)	14	-	6	-	-	-	14	-	-	-	-	-
Harnesses	10	3	-	-	-	-	-	-	-	-	-	-
Strings (NOS)	9	1	7	-	-	-	-	-	1	1	1	1
Play Equipment	8	6	-	-	-	-	-	-	-	-	-	-
Electric Cords	6	6	-	-	-	-	-	-	-	-	-	-
Necklaces	5	5	-	-	-	-	-	-	-	-	-	-
Bibs	5	3	2	-	-	-	-	-	-	-	-	-
Slings	2	-	-	-	-	-	-	-	-	-	-	-
Miscellaneous	2	-	1	1	-	-	1	1	-	-	-	-
	21	6	4	2	-	5	-	1	-	2	1	-

*High Chairs, Chairs, Car Seats, Infant Seats

CONDUCTED BY: U.S. Consumer Product Safety Commission
 Epidemiology

APPENDIX C

Listing and Tabulation of Primary and
Secondary Products for each Age Group

9-12 Months As already discussed, this age group is most frequently involved in ligature strangulations. The products involved are broken down below:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	27	Cribs, general	20
General clothing	15	Crib cornerposts	10
Ropes/chains/clothesline	1	Crib toys	5
Pacifier cords	20	Crib projections	3
Clothing with strings or hoods	5	Children's furniture	9
General toys	9	Playpens	5
Bedding thread	6	Doors	2
Furniture straps	7	Fences	1
Crib toys	5		
Buttons	9		
Cords	8		
Harnesses	3		
Strings	4		
Electrical cords	4		
Necklaces	3		
Bibs	1		
Miscellaneous	6		
TOTAL	<u>133</u>	TOTAL	<u>55</u>

There were a total of eight accidents to this age group.

0-4 Months

<u>Primary Product</u>		<u>Secondary Product</u>	
Clothing	1	Cribs, general	2
Crib toys	2	Children's furniture	3
Pacifier cords	1		
Children's furniture straps	3		
Necklaces	1		
TOTAL	<u>8</u>	TOTAL	<u>5</u>

5-8 Months - Children in this age group suffered involvement in 33 cases. The products were as follows:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	2	Cribs, general	10
General clothing	4	Crib toys	2
Pacifier cords	5	Children's furniture	2
General toys	1	Playpens	1
Bedding thread	7	Beds	1
Furniture straps	2		
Crib toys	5		
Buttons	1		
Strings	1		
Necklaces	1		
Bibs	1		
Slings	1		
Miscellaneous	2		
TOTAL	<u>33</u>	TOTAL	<u>16</u>

13-16 Months There were 16 reports of injuries to children 13-16 months of age. These involved the following products:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	2	Cribs, general	4
General clothing	1	Crib cornerposts	1
Pacifier cords	1	Crib projections	1
General toys	2	Children's furniture	2
Bedding thread	1	Doors	1
Furniture straps	2		
Buttons	1		
Cords	1		
Harnesses	1		
Strings	1		
Miscellaneous	2		
TOTAL	<u>16</u>	TOTAL	<u>9</u>

17-23 Months. The 14 cases involving this age group broke down as shown:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	1	Crib, General	5
General clothing	4	Crib cornerposts	3
Pacifier cords	1	Play equipment	1
Clothing with strings or hoods	2	Beds	1
Bedding thread	2		
Crib toys	1		
Harnesses	2		
Slings	1		
TOTAL	<u>14</u>	TOTAL	<u>10</u>

2 Years

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	3	Crib, General	4
General clothing	4	Crib cornerposts	1
Ropes/chains/clotheslines	4	Crib projections	1
Clothing with strings or hoods	4	Play equipment	4
General toys	2	Outdoor structures	4
Buttons	1	Beds	1
Harnesses	3	Other structures	2
Strings	1		
Swings	1		
Miscellaneous	1		
TOTAL	<u>26</u>	TOTAL	<u>17</u>

3 Years. Thirty accidents involved 3 year olds. Product involvement broke down as shown below:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	3	Play equipment	9
General clothing	3	Outdoor structures	4
Ropes/chains/clothesline	13	Doors	1
Clothing with strings or hoods	5	Other structures	1
Play equipment	1	Fences	1
Electric cords	1		
Miscellaneous	5		
TOTAL	<u>30</u>	TOTAL	<u>16</u>

4 Years. The victims of 32 cases were 4 year olds. The products involved broke down as shown:

<u>Primary Product</u>		<u>Secondary Product</u>	
Drapery and blind cords	2	Cribs, general	1
General clothing	2	Play equipment	9
Ropes/chains/clothesline	15	Outdoor structures	6
Clothing with strings or hoods	4	Doors	2
Play equipment	4	Beds	2
Miscellaneous	3	Other structures	1
TOTAL	<u>32</u>	TOTAL	<u>21</u>

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