Hazard Screening Report

Personal Use Items

(1602-1623, 1625-1634, 1637-1671, 1677-1687)

This report and all others in this series are general overviews, which use data taken directly from the CPSC data files for the purpose of comparison among the products. No recoding or adjusting of the data is performed. For this reason, estimates of injuries provided in this report will differ from estimates presented in other documents produced by Epidemiology staff working in specific program areas. The figures presented here are not intended to compare to other reports outside this series of hazard screening reports. The views expressed in this report are those of CPSC staff, have not been reviewed or approved by, and may not reflect the views of, the Commission.

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The Hazard Screening Project

As an aid in setting priorities, Consumer Product Safety Commission (CPSC) staff is preparing this series of Hazard Screening Reports. Each report covers a group of related products, such as nursery equipment, house wares, etc.

These reports follow a common format that allows readers to compare the risk for different types of products within a given category. Significantly, CPSC staff has also developed a measurement tool that allows comparisons of risks from products in different categories. This feature, called "Maximum Addressable Cost Estimates," is explained more fully below. CPSC managers plan to use this information to set priorities for efficient use of resources.

Each Hazard Screening Report contains information on the estimated number of injuries and deaths associated with the type of products covered in that report. A graph shows the frequency of emergency-room treated injuries over time. This is followed by a pie chart showing the distribution of injuries by the source of the hazard, such as mechanical, fire, electrical, chemical and other. CPSC staff also estimates the total "cost" to society of each type of product. This includes the cost of injuries, deaths and property damage associated with the products.

To facilitate comparisons of risk between different types of products, CPSC staff has developed Maximum Addressable Cost Estimates. These build on the concept of "addressable" cost. Simply put, the "addressable" cost is the portion of the total cost that could possibly be reduced by some action that CPSC could take. Many of consumer injuries are not addressable. For example, if a boy trips over a rake in the driveway, any injury he suffers could be associated with the category of Yard and Garden Equipment. But it is very unlikely that such injuries could be prevented by changing the design of rakes. By eliminating these unaddressable costs from consideration, we are able to focus on what's left -- the costs that we might be able to do something about. The name "Maximum Addressable Cost Estimates" is intended to emphasize that these estimates are upper limits of the cost that might be successfully addressed. It should also be stressed that the term does not necessarily mean that there is any existing method or technology for reducing the costs. For a more detailed explanation of this subject, please refer to the individual Hazard Screening Reports.

CPSC staff plans to complete 20 reports in 2005. As each report is completed there will be an active link to it on the CPSC website. All reports are in Portable Document Format (PDF). The 20 reports that will comprise the complete set are:

Home Workshop Apparatus, Tools and Attachments
Yard and Garden Equipment
Toys
Nursery Products
Children's Outdoor Activities and Equipment
Major Team Sports
Injuries to Persons 65 and Older

House wares and Kitchen Appliances
Recreational Cooking and Camping Products
Home Communication, Entertainment and Hobby Products
General Household Appliances
Home Furnishings and Fixtures & Home Alarm,
Escape and Protection Devices
Sports (minus major team sports)
Personal Use Items
Heating, Cooling and Ventilating Equipment
Packaging and Containers for Household Products
Miscellaneous Products
Home Structures and Construction Materials
Home and Family Maintenance Products – Household Chemicals
Drugs

These reports will be useful to individuals and organizations who are seeking reliable information about estimated deaths, injuries, and costs associated with consumer products and to CPSC's staff and Commissioners, who need objective data to identify candidates for future activities to reduce deaths and injuries.

Caveat!

The report addresses the question of addressability of injuries by attempting to identify those injuries which are incidental and not addressable by mandatory or voluntary standards or by other action which the CPSC could take. Those injuries which remain are referred to as maximum addressable.

To know the actual addressability of the hazards associated with a product usually requires a detailed study of the problem, and the product. That level of study is not feasible for this type of overview report. What we have done instead is try to eliminate those injuries and deaths which involve the product only marginally or incidentally. Maximum addressable costs are then generated by CPSC's Injury Cost Model using the remaining injuries.

The maximum addressable cost estimate does not necessarily represent the injury and death costs that the CPSC might actually be able to prevent each year through some type of action. It represents only a target population from which any successful prevention will have to come.

Therefore, while the report states that the maximum addressable percentage of the costs is about 18%, it would be incorrect to say that 18% of the injuries or 18% of the costs are addressable.

For example: If a child fell out of a shopping cart but no other information was recorded, we would count that injury in the maximum addressable category. It may not be addressable; we just don't have enough information to rule it out.

Maximum addressable injury estimates include every case that we could not clearly rule out as incidental. <u>They do not represent the number or percent of injuries that could actually be prevented.</u>

In addition, addressability definitions are based on review by Epidemiology staff using information available at the time each report is prepared. These determinations should be considered general estimates for agency planning purposes, not <u>definitive</u> staff evaluations of whether a specific type of hazard might be prevented. The fact that a given hazard associated with a product was not considered addressable in one of these reports should <u>not</u> be construed as indicating that the hazard should never be reconsidered or addressed.

Introduction

This report provides overall injury and death figures associated with Personal Use Items. The first information presented is a summary of the injury, death and cost data for the entire class of products. A trend graphic (figure 1) is presented which shows the frequency of estimated emergency room-treated injuries since 1997. This is followed by a chart (figure 2) showing the distribution of the injuries for this class of products by energy source of the hazard, i.e., mechanical, fire, electrical, chemical, or other. There is also a summary table, which shows the injuries, deaths, and costs associated with each product group. This overview is one of a series of hazard screening reports. Each report provides information in a similar format to allow product and hazard comparison, both within and among the reports.

Personal Use Items

Individual Product Categories

Electric grooming devices
(Includes product codes for: hair dryers; electric toothbrushes; massage devices or vibrators; electric shoe polishers; electric combs; electric razors or shavers; hair curlers, curling irons, clips & hairpins; and hair clippers and trimmers)

Clothing

Shopping carts & hand trucks
(Includes product codes for: grocery or shopping carts; dollies, hand trucks, or luggage carriers; and carts, other or not specified)

Protective devices
(Includes product codes for: eye protection devices; ear protection devices; and respiratory protection devices)

Cigarette or unspecified lighters

Heat lamps and saunas[1]
(Includes product codes for: saunas; sun lamps; heat on infrared lamps; and suntan booths)

Miscellaneous personal use items
(Includes product codes for: wigs; personal protection devices; luggage (excluding foot lockers); lighted makeup mirrors; keys, key rings; desk supplies; paper cutters; umbrellas; pins and needles; sewing basket articles; pens and pencils; and coins)

Jewelry

Unpowered grooming devices
(Includes product codes for: nonelectric toothbrushes; combs or hairbrushes, unpowered; clothes brushes; combs, not specified; bath or facial brushes; and nonelectric razors or shavers)

Grooming devices, Not Specified
(Includes product codes for: manicuring devices; hair grooming equipment, not specified; teeth cleaning devices, not specified; razors or shavers, not specified)

Eyeglasses or hearing aids[2]

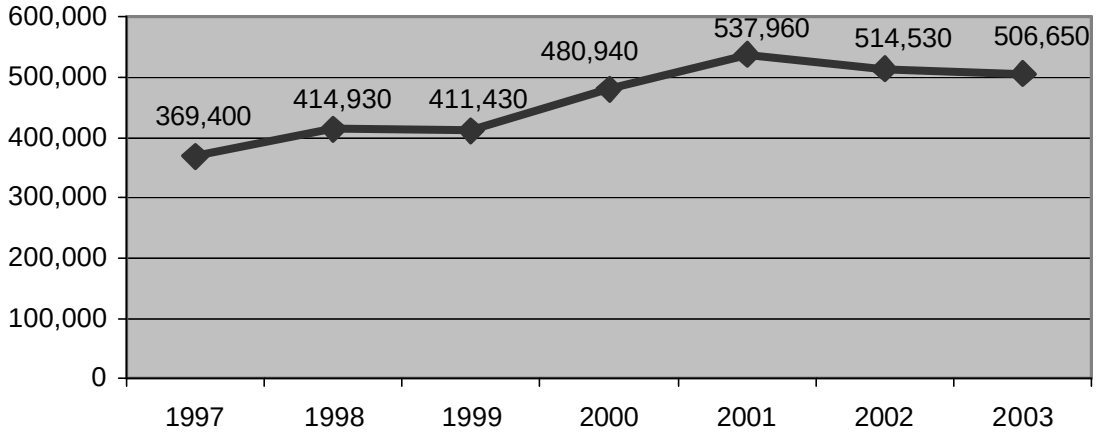
Footwear

[1] Health and safety issues related to the light emitted by the devices are regulated by the Food & Drug Administration (FDA), not the Consumer Product Safety Commission (CPSC).
[2] The CPSC has jurisdiction over eyeglasses and hearing aids intended for use by children. The FDA has primary authority over these items when intended for use by adults.

Overview: Personal Use Items
(1602-1623, 1625-1634, 1637-1671, 1677-1687)

ER Treated Injuries 2003	506,650	Percent of Households	not applicable
Medically Treated Injuries 2003	1,270,310	Number of Products in Use	not available
Percent of ER Treated Hospitalized	5.0%	Estimated Useful Life	not applicable
Deaths 2000	370	Estimated Retail Price Range	not applicable
Number of Incident Reports 2003	1159	Death Costs (Millions)	$1,850
Cost of Medically Treated Injuries (Millions)	$21,885.0	Total Known Costs (Millions)[3]	$23,735

Figure 1: Estimated Emergency Room Treated Injuries Associated with Personal Use Items, 1997 - 2003

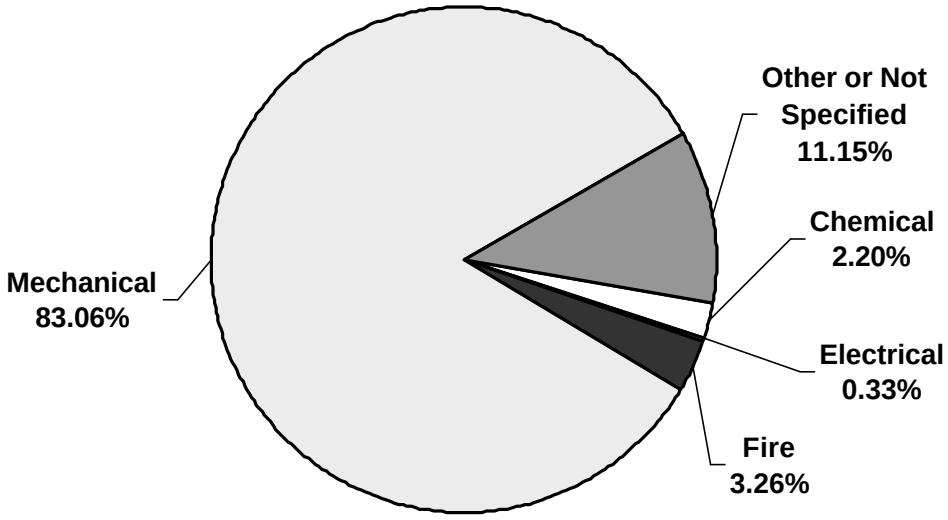


Source: National Electronic Injury Surveillance System (NEISS), 1997 – 2003

From 1997 to 2003, the estimated number of emergency room-treated injuries increased by 137,250. This is a statistically significant change ($p < .00005$).

[3] This total represents an index rather than an actual single year estimate of costs, because injury costs are based on 2003 and death costs are based on 2000. At the time this report was prepared, these were the most recent years for which each of these cost items was available.

Figure 2. Distribution of Emergency Room-Treated Injuries by Energy Source of the Hazard for Personal Use Items, 2003



Source: National Electronic Injury Surveillance System (NEISS), 2003

Deaths

For 2000, CPSC has reports of 370 deaths associated with these products. Of these, 265 deaths were included in the maximum addressable category (see page 7 and page 14 for descriptions of this category). A reported 213 deaths involved clothing and of those, all but two involved clothing ignition. The remaining deaths included in the maximum addressable category involved the following products: 53 deaths involved cigarette or unspecified lighters, two deaths involved an electric grooming device (including one clothing ignition), three involved heat lamps and saunas, two involved miscellaneous personal use items, two involved jewelry, and one involved footwear. Ten of these deaths appeared in more than one category: nine deaths were associated with clothing and a cigarette or unspecified lighter, and one death was associated with clothing and a curling iron. The 105 deaths that were not included in the maximum addressable category had only incidental product involvement. See Table 2 for the number of deaths in each product category included in the maximum addressable category.

Overview

The increase of 137,250 injuries over the 7-year period, 1997 – 2003, was a statistically significant increase ($p < .00005$).

Table 1 provides a summary of all the product groups examined for this report. This table provides information on the number of emergency room-treated injuries, the number of medically-treated injuries, the percentage of the emergency room-treated injuries that resulted in admission to the hospital, the number of incident reports received, the number of deaths reported, the number of products of each type in use, the costs associated with deaths and medically-treated injuries, and the total of these two cost estimates.

Addressability

While it is useful to know the number of injuries, deaths, and related costs associated with a product, it is also important to have an estimate of how much of the associated social cost might actually be addressed through some action. Many of the injuries treated in emergency rooms that were related to personal use items may not be addressable because the injury had only incidental product involvement. To know the actual addressability of the hazards associated with a product usually requires detailed study of the problem, and the product. This level of study is not feasible for this type of overview report. What we have done is to identify the portion of the injury and death costs that is not addressable through case by case review. Maximum addressable costs were then generated by CPSC's Injury Cost Model[4] using the remaining injuries.

> **The maximum addressable cost estimate does not necessarily represent the injury and death costs that the CPSC might actually be able to prevent each year through some type of action. It represents only a target population from which any successful prevention will have to come.**

The reason for doing this kind of review is to identify situations such as the following example, and allow us to focus on the areas where CPSC action could have some effect.

For instance, the category of footwear ranks first on total costs but fifth in maximum addressable costs. Most of the injuries associated with this class of products had only incidental product involvement. In many of the incidents, the victim complained of general foot pain from wearing shoes or was injured while tying his/her shoes. There is very little action CPSC could take to reduce these types of injuries, so they are not included in the maximum addressable category.

The staff reviewed the narratives included in National Electronic Injury Surveillance System (NEISS) injury reports, and reviewed the death reports.[5] Because the NEISS narratives are brief and often do not provide much detail, cases were categorized as "not addressable" only if it was clear that the injury was incidental or not related to the product. If, for example, a

[4] See Methodology Section for a description of this model.
[5] See Methodology Section for a description of these databases.

child fell out of a shopping cart but no other information was recorded, this was not enough information to conclude that the case wasn't addressable. Such cases would be in the maximum addressable category. The death reports often had more information, allowing for better determination of addressability.

To control for the possibility that there may be a difference between costs associated with addressable injuries and costs associated with non-addressable injuries, the Injury Cost Model (ICM) was used to obtain cost estimates for all medically-treated injuries and the medically-treated injuries in the maximum addressable category. Deaths were also reviewed and determined to be in either the not-addressable or maximum addressable category, and were valued at $5 million dollars each. This value of $5 million dollars for each death is consistent with current economic literature which usually expresses the value as ranging from $3 million to $7 million. For ease of tabulation, we have used the midpoint of this range. The maximum addressable cost estimate for medically-attended injuries is added to the maximum addressable cost estimate for the deaths to obtain the total maximum addressable cost estimate. Table 2 shows the percentage of medically-attended injuries included in the maximum addressable category for each product group. It also shows how many of the deaths reported were included in the maximum addressable category.

Overall, after applying this process of review of the data to the entire category of personal use items, we find that the total maximum addressable injury and death cost[6] is $4.3 billion dollars, out of a total cost associated with these products of $23.7 billion dollars, which is about 18.1% maximum addressable[7]. Note that the percentage of addressable injuries is different than the percentage of addressable costs. The cost estimates are derived from a number of variables associated with each injury[8], so two cases may have the same weight but different cost estimates. Thus, the cost estimates do not have a one-to-one relationship with the injury estimates.

Figure 3 shows the index[6] of estimated injury and death costs for each of the product categories.

[6] This total represents an index rather than an actual single year estimate of costs, because injury costs are based on 2003 and the death costs are based on 2000. At the time this report was prepared, these were the most recent years for which that data was complete.
[7] Based on the more precise totals presented in Table 3.
[8] See Methodology Section for more description of how the cost estimates are computed.

Table 1: Product Summary Table – Injury, Death, and Cost Estimates

Product	Codes	ER Injuries 2003	All Medically Treated Injuries 2003	Hosp. % 2003	Incident Reports 2003	Deaths 2000	# of Products in Use[9] (millions)	Death Costs (millions)	Med. Trtd. Injury Costs (millions)	Total Known Costs (millions)
Electric grooming devices	1602, 1608, 1610, 1613, 1637, 1664, 1682, 1683	17,420	39,320	5.00%	185	4	285.5	$20	$793.60	$813.60
Clothing	1644, 1645, 1646, 1647, 1677, 1658	73,180	199,420	7.80%	479	273	N/A	$1,365	$4,293.80	$5,658.80
Shopping carts & hand trucks	1679, 1680, 1684	47,100	121,620	3.30%	34	2	1.4	$10	$2,942.90	$2,953.90
Protective devices	1607, 1617, 1618	6,400	16,920	2.30%	8	2	N/A	$10	$152.60	$162.60
Cigarette or unspecified lighters	1604, 1687	3,310	6,820	14.80%	258	76	195	$380	$326.60	$706.60
Heat lamps and saunas†	1612, 1609, 1634, 1681	480*	1,020*	**	44	7	N/A	$35	$37.5[y]	$72.50
Miscellaneous personal use items	1605, 1619, 1623, 1625, 1643, 1650, 1660, 1654, 1669, 1671, 1685, 1686	109,800	265,860	6.60%	45	5	N/A	$25	$4,572.80	$4,597.80
Jewelry	1616, 1622	71,610	168,270	1.40%	29	2	N/A	$10	$1,271.20	$1,281.20
Unpowered grooming devices	1629, 1638, 1641, 1651, 1678, 1661	16,150	36,630	2.60%	19	1	N/A	$5	$475.10	$480.10
Grooming devices, NS	1659, 1662, 1666, 1667	35,870	77,450	2.40%	11	0	N/A	$0	$991.50	$991.50
Eyeglasses or hearing aids‡	1606, 1620	14,540	33,690	6.70%	2	0	N/A	$0	$536.60	$536.60
Footwear	1615	115,190	314,700	5.50%	81	9	N/A	$45	$5,693.10	$5,738.10
Total[10]		506,650	1,270,310	5.00%	1,159	370		$1,850	$21,885.00	$23.735.0

* Estimate is based on a small sample size and has a high degree of variability; interpret with caution.

** Sample size is too small to report percentage.

† Health and Safety issues related to the light emitted by the devices are regulated by the Food & Drug Administration (FDA), not the Consumer Product Safety Commission (CPSC).

‡ The CPSC has jurisdiction over eyeglasses and hearing aids intended for use by children. The FDA has primary authority over these items when intended for use by adults.

N/A – Not available, n/a- not applicable, there is no actual product to estimate number in use or product life

Descriptions of how these estimates were derived can be found in the Methodology Section.

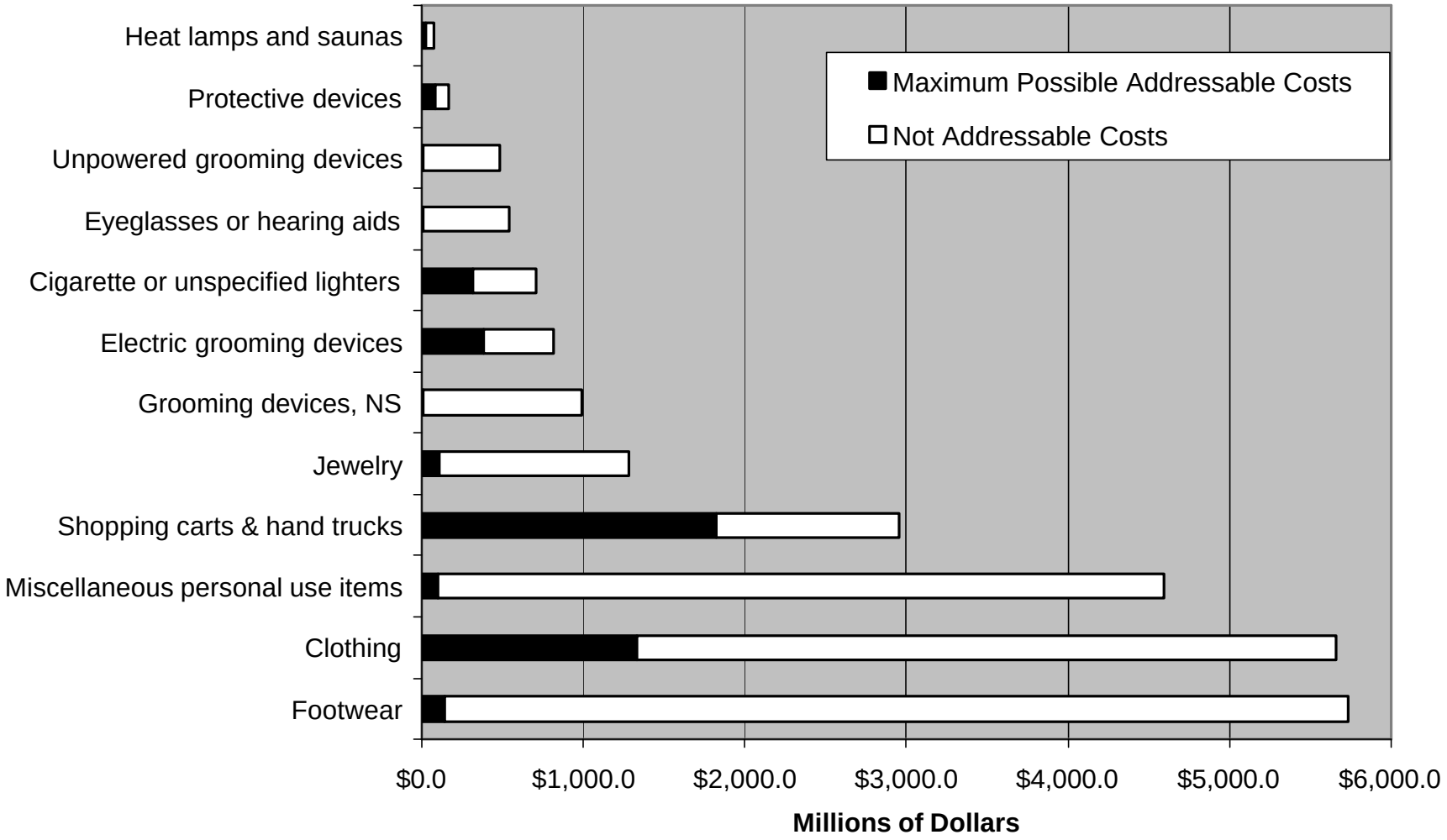
[9] May not include all products within each category.

[10] Some cases appear in more than one category. Thus, numbers may not add to totals.

Table 3 lists the product groups ranked in descending order by the Total Injury and Death Costs Index. This table also shows the total maximum addressable cost for each product group. For those product groups where there was an estimate of number of products in use, the maximum addressable cost per unit was calculated by dividing the maximum addressable cost estimate by the number of products in use. Rankings of the product groups on totals costs, maximum addressable costs, and maximum addressable cost per unit are also provided.

There were no products or hazards identified in this report for which a new activity is recommended.

Figure 3. Estimated Cost Index, in Millions of Dollars, Personal Use Items, by Total Costs



Source: National Electronic Injury Surveillance System (NEISS), 2003, Death Certificate database (DCRT), 2000
NOTE: This estimate of maximum addressability does not necessarily represent the number of injuries or deaths or costs that the CPSC might actually be able to prevent each year through some type of action. It represents only a target population from which any successful prevention will have to come.

The data presented in this graphic are also contained in Table 3 under the headings “Total injury and death costs” and “Total maximum addressable costs”

Table 2: Product Hazard Addressability

Product	Codes	Percentage of injuries included in Maximum Addressable	Maximum Number of Addressable Deaths/ Total Deaths Reported
Electric grooming devices	1602, 1608, 1610, 1613, 1637, 1664, 1682, 1683	40.8%	2/4
Clothing	1644, 1645, 1646, 1647, 1677, 1658	3.6%	213/273
Shopping carts & hand trucks	1679, 1680, 1684	47.4%	0/2
Protective devices	1607, 1617, 1618	65.6%	0/2
Cigarette or unspecified lighters	1604, 1687	24.8%	53/76
Heat lamps and saunas	1612, 1609, 1634, 1681	**	3/7
Miscellaneous personal use items	1605, 1619, 1623, 1625, 1643, 1650, 1660, 1654, 1669, 1671, 1685, 1686	2.3%	2/5
Jewelry	1616, 1622	8.9%	2/2
Unpowered grooming devices	1629, 1638, 1641, 1651, 1678, 1661	1.3%	0/1
Grooming devices, NS	1659, 1662, 1666, 1667	0.6%	0/0
Eyeglasses or hearing aids	1606, 1620	**	0/0
Footwear	1615	3.8%	1/9
Total		**10.2%**	**265/370[11]**

** Sample size too small to provide an estimate.

The percentages presented in this table are the percents of injuries, not costs, included in the maximum addressable category. These percentages cannot be directly compared to maximum addressable costs because the costs, while derived from the same cases, take into account a number of variables, not just case weight. For more information on how these cost estimates are derived, refer to the Methodology Section at the end of this report.

In the two pages that follow, the maximum addressable definitions for each product category are presented. While reading the injury/death narratives to determine addressability, hazard patterns were also coded. The hazard patterns determined to be not-addressable were removed and those that remained make up the maximum addressable definitions.

[11] Numbers may not add to total because some of the deaths fell in more than one product group. Thus, they are listed in two groups but only counted once in the total.

Maximum Addressability Definitions Used for Each Class of Products - Injuries

Electric grooming devices: injury from broken product; contact burn (child under 5, mostly curling irons); electric razor cut or spark; hair dryer burns, fire or shock; burns sustained using a massager; sharp edge; other assorted injuries without a consistent hazard pattern

Clothing: clothing fire ignited by a candle, while cooking, by a grill, by a heater, by a lighter, or by an unspecified ignition source

Shopping carts & hand trucks: caught in shopping cart; child fell out of shopping cart; pinch; tip-over; unspecified hazard

Protective devices: ear plug stuck or caused pain; foreign body in eye while wearing safety glasses/goggles (mostly while grinding metal); chemical in eye while wearing safety glasses/goggles; wearing safety goggles and goggles broke; burn to eye while welding, and wearing face shield or goggles

Cigarette or unspecified lighters: lighter accidentally ignited; lighter exploded, child (<5) playing with lighter; unspecified hazard (mostly burn injuries)

Miscellaneous personal use items: sharp edge; stun gun injury; swallowed button

Jewelry: magnetic jewelry stuck in ear or nose; other assorted injuries without a consistent hazard pattern

Unpowered grooming devices: allergic reaction; toothbrush battery choking hazard; toothbrush bristles broke off (choking hazard); toothbrush stuck in teeth

Grooming devices, Not Specified: razor came loose while shaving

Eyeglasses or hearing aids (only injuries sustained by children)[12]: allergic reaction to glasses (dermatitis); hearing aid stuck in ear; swallowed nose piece from glasses

Footwear: shoe broke, tripped; child's shoe caught in slide; poked by sharp point in shoe; slip and fall

Heat lamps and saunas had too few emergency room treated injuries to determine addressability.

[12] The Consumer Product Safety Commission (CPSC) has jurisdiction over eyeglasses and hearing aids intended for use by children. The Food & Drug Administration (FDA) has primary authority over these items when intended for use by adults.

Maximum Addressability Definitions Used for Each Class of Products – Deaths

Electric grooming devices: curling iron ignited clothing; hair dryer electrocution

Clothing: clothing ignited by a candle, cooking appliance, electrical product, open fire, fireplace, fire from a flammable chemical, heater, lamp, matches, smoking materials, propane/welding torch, wood stove, and an unspecified source; a child under 5 playing with a lighter ignited clothing; child clothing was caught on something and child asphyxiated; stove fire ignited clothing, unspecified fire ignited clothing

Cigarette or unspecified lighters: child under 5 playing with a lighter ignited a fire; a leaking lighter caused a fire; a child under 5 playing with matches or a lighter (unsure which) ignited a fire; smoking materials ignited clothing; child of unknown age playing with a lighter ignited a fire; a lighter was involved in a fire but how the lighter was involved is not stated

Heat lamps and saunas: fire ignited by a heat lamp [13]

Miscellaneous personal use items: a child choked on a pencil sharpener; hanging- caught lanyard on bed

Jewelry: hanging- caught necklace on doorknob

Footwear: death from chemical exposure to shoe cleaner in bathroom

Grooming devices, not specified and Eyeglasses and hearing aids did not have any reported deaths in 2000. Those two groups are not included in the list above.

None of the deaths associated with Shopping carts & hand trucks, Protective devices, and Unpowered grooming devices were included in the maximum addressable category. These groups are not included in the list above.

[13] Health and safety issues related to the light emitted by the heat lamp are regulated by the Food & Drug Administration (FDA), not the Consumer Product Safety Commission (CPSC). In these cases, it was undetermined how the heat lamp started the fire.

Table 3 – Calculation of Indices using cost estimates from Injury Cost Model, Death Certificates File, and Estimates of Number of Products in Use.

Title	Medically Attended Injury Costs (Millions)	Total Death Costs (Millions)	**Total Injury and Death Costs (Millions)**	**Total Maximum Addressable Costs (Millions)**	Rank on Total Costs	Rank on Maximum Addressable Costs	Products in Use (Millions)
Footwear	$5,693.1	$45	$5,738.1	$144.3	1	5	not available
Clothing	$4,293.8	$1,365	$5,658.8	$1,330.0	2	2	not available
Miscellaneous personal use items	$4,572.8	$25	$4,597.8	$101.0	3	7	not available
Shopping carts & hand trucks	$2,942.9	$10	$2,953.9	$1,825.0	4	1	1.4[14]
Jewelry	$1,271.2	$10	$1,281.2	$111.6	5	6	not available
Grooming devices, NS	$991.5	$0	$991.5	$5.3	6	11	not available
Electric grooming devices	$793.6	$20	$813.6	$380.0	7	3	285.5[15]
Cigarette or unspecified lighters	$326.6	$380	$706.6	$318.2	8	4	195[16]
Eyeglasses or hearing aids	$536.6	$0	$536.6	$7.8	9	10	not available
Unpowered Grooming devices	$475.1	$5	$480.1	$4.9	10	12	not available
Protective devices	$152.6	$10	$162.6	$85.6	11	8	not available
Heat lamps and saunas	$37.5	$35	$72.5	$24.3	12	9	not available
Total	$21,885.0	$1,850	$23,735.0	$4,288			

These "total injury and death costs" estimates and "total maximum addressable costs" estimates are indices, not actual estimates of cost and expected injury cost reduction. This is because injury cost estimates and addressability estimates are based on 2003 emergency room-treated injury reports, and death cost estimates are based on deaths reported which occurred in 2000. Some cases appear in more than one category; numbers may not add to total. Estimates of number of products in use are also imprecise estimates. These cost figures were developed, using the data available, to provide indices for the purpose of comparison. They do not represent an actual estimate of the costs associated with any of the product groups for a specific year.

[14] Only includes shopping carts.

[15] Includes: hair dryers, electric toothbrushes, massagers or vibrators, electric shavers/razors, hair curlers, curling irons, and hair clippers or trimmers.

[16] Refillable lighters account for about 7% of lighters, but have a longer expected product life. If refillable lighters experience a useful life of 1 to 2 years, the total number of lighters in use would be 160 to 230 million units available for use at any given time (the midpoint of this range is used in the figures above). This includes refillable lighters (65-130 million) and disposable lighters (95-100 million) in use at a given time; disposable lighters are estimated to experience a useful life of 1.5 months.

Methodology

NEISS

The Commission operates the National Electronic Injury Surveillance System (NEISS), a probability sample of 98 U.S. hospitals with 24-hour emergency rooms (ERs) with more than six beds. These hospitals provide CPSC with data on all consumer product-related injury victims seeking treatment in the hospitals' ERs. Injury and victim characteristics, along with a short description of the incident, are coded at the hospital and sent electronically to CPSC.

Because NEISS is a probability sample, each case collected represents a number of cases (the case's *weight*) of the total estimate of injuries in the U.S. The weight that a case from a particular hospital carries is associated with the number of hospitals in the U.S. of a similar size. NEISS hospitals are stratified by size based on the number of annual emergency-room visits. NEISS comprises small, medium, large and very large hospitals, and includes a special stratum for children's hospitals.[17]

CPSC's Death Certificate Database

CPSC purchases death certificates from all 50 states, New York City, the District of Columbia and some territories. Only those certificates in certain E-codes (based on the World Health Organization's International Classification of Diseases ICD-10 system) are purchased. These are then examined for product involvement before being entered into CPSC's death certificate database. This is not a statistical sample and therefore cannot be used to estimate the number of deaths in the U.S. associated with each product. The number of deaths for each product is at least a minimum count. To obtain a count of fatalities associated with each product category, the death certificate data was combined with the deaths found in the IPII database (discussed below). The cases were then reviewed to eliminate duplicates and determine addressability.

Death certificate collection from the states takes time. Data for 2001 and 2002 were not complete when this report was prepared.

CPSC's Injury or Potential Injury Incident File (IPII)

IPII is a CPSC database containing reports of injuries or potential injuries made to the Commission. These reports come from news clips, consumer complaints received by mail or through CPSC's telephone hotline or web site, Medical Examiners and Coroners Alert Program (MECAP) reports, letters from lawyers, and similar sources. While the IPII database does not constitute a statistical sample, it can provide CPSC staff with guidance or direction in investigating potential hazards. Since cases in this database may come from a variety of sources, some cases may be listed multiple times. To obtain a more accurate count of the number of reported incidents associated with each product, they were reviewed to eliminate duplicates.

[17] Kessler, Eileen and Schroeder, Tom. The NEISS Sample (Design and Implementation). U.S. Consumer Product Safety Commission. October 1999.

CPSC's Injury Cost Model

The Injury Cost Model (ICM) is a computerized analytical tool designed to measure the direct and indirect costs associated with consumer product-related injuries. In addition to providing a descriptive measure of injury hazards in monetary terms, the ICM is also used to estimate the benefits of regulatory actions designed to reduce consumer product injuries and to assist the Commission in planning, budgeting, and evaluating projects.

The ICM is structured to measure the four basic categories of injury costs: medical costs, work losses, pain and suffering, and product liability and legal costs. Medical costs include doctor and hospital-related costs as well as costs for diagnostic procedures, prescription drugs, equipment, supplies, emergency transportation, follow-up care, and administrative costs. Both the initial treatment costs and the costs of long term care are included in the medically-treated injury costs.

Work-related losses represent the value of lost productivity, the time spent away from normal work activities as the result of an injury. Work-related losses include both the short-term losses resulting from being absent from work and the long-term losses resulting from permanent partial or total disability and their impact on lifetime earnings. They also include the value of work lost as a result of caring for injured children, the value of housework lost due to an injury, and the loss to the employer resulting from the disruption of the workplace.

Pain and suffering represents the intangible costs of injury, and is based on jury verdicts for consumer product-related injuries. Product liability and legal costs represent the resources expended in product liability litigation. These costs include the costs of administering the product liability insurance system (including the plaintiff's legal costs and the costs of defending the insured manufacturer or seller), the costs of claims investigation and payment, and general underwriting and administrative expenses; however, medical, work loss, and pain and suffering compensation paid to injury victims and their families is excluded, thus avoiding double counting.

The ICM estimates the costs of injuries reported through the NEISS, a national probability sample of hospital emergency departments. The injury cost estimates depend on a number of factors, and vary by the age and sex of the injured person, the type of injury suffered, the body part affected, and whether or not the victim was hospitalized, held for observation, transferred, or treated and released. The ICM also uses empirically derived relationships between emergency department injuries and those treated in other settings (e.g. doctor's offices, clinics) to estimate the number of injuries treated outside hospital emergency departments and the costs of those injuries.

A number of databases are used to calculate the four cost categories. National discharge data and discharge data from six states are used to estimate the costs of hospitalized injuries. Data from the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS) (which includes medical records from almost two million retirees and civilian dependents of military personnel) and several National Center for Health Statistics surveys dealing with costs of treatment in different medical settings are used to calculate medical costs for injuries where the victim is treated and released from the emergency department or treated in a clinic or doctor's office. Other major data sources include the Annual Survey of Occupational Illnesses and Injuries and the Detailed Claims Information (DCI) database for work loss estimates; and the Jury Verdicts Research data for pain and suffering estimates. Product liability and legal costs are derived analytically from insurance industry information and several studies of product liability.

To determine the maximum addressable cost estimate, the injury narratives were read to determine which would not be addressable[18]. Maximum addressable costs were then generated by the Injury Cost Model using the remaining injuries.

Variables Associated with Products in Use Estimates

Inputs needed for number of products in use estimates include: annual sales and expected useful life.

Annual Sales: The annual sales data are from trade sources, from published information and association estimates. Economic Analysis staff used the average of unit sales as reported by appropriate industry sources.

Retail Price Range: The retail price range was reported by industry trade groups for some categories. For others Economic Analysis Staff used information from retail stores and information developed from internet searches.

Expected Useful Life: The useful life was reported by industry sources for some products. Available studies are also used, if no industry sources are found. In some cases, Human Factors staff was consulted to determine appropriate age groups, and thus, the length of time a product may remain in use.

Expected Number in Use: There is often not sufficient data available to conduct a Product Population Estimate for a class of products. As a surrogate in these cases, Economic Analysis staff used average sales multiplied by the useful life estimate. This will understate the number of products in use for products that have seen substantial growth in sales, and overstate the number in use for products that have seen substantial decreases in sales in recent years.

[18] See page 6, the discussion on addressability for more information on this process.