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Submersions Related to Non-Pool and Non-Spa Products, 2008 Report

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Executive Summary

This report contains information on non-pool and non-spa product related submersion incidents of children younger than five years of age. The reported deaths occurred between 2003-2005 and the non-fatal reported incidents are for 2005-2007, in both cases using the latest available data. Injury and fatality years differ as a result of the lag in reporting fatalities. Unlike the 2007 memorandum¹, spa related injuries and fatalities are not included in the statistics in this report. Spa related injuries and fatalities are presented in the 2008 pool and spa report².

Highlighted findings include:

- There were, on average, 39 non-pool and non-spa product related submersion non-fatal incidents per year for 2005-2007 and 90 non-pool and non-spa product related submersion fatalities per year for 2003-2005 for children younger than five years of age.
- The majority of the reported non-fatal incidents for 2005-2007 and the reported fatalities for 2003-2005 were associated with bathing related products such as bathtubs and baby bath seats.
- 79 percent of the reported non-fatal incidents for 2005-2007 and 82 percent of reported fatalities for 2003-2005 for children younger than five involved children younger than two years of age.
- 91 percent of the reported non-fatal incidents for 2005-2007 and 89 percent of the fatalities for 2003-2005 for children younger than five occurred at a residence.

¹ Submersions related to Non-Pool Products, 2007 Memorandum, August 2007.

² Pool and Spa Submersion: Estimated Injuries and Reported Fatalities, 2008 Report, May 2008.

Reported Non-fatal Incidents

For 2005-2007, the CPSC staff has reports of 116 non-fatal non-pool and non-spa product related submersion incidents involving children younger than five years of age³. Table 1 shows the total number of reports received by CPSC staff by year and provides a breakdown by injury versus no injury for the reported incidents.

Table 1
Non-Fatal Non-Pool & Non-Spa Product Related Submersion Incidents for Children
Less than Five Years of Age Reported to CPSC Staff, 2005-2007

| Year | Injury | No Injury | Total |
|---------|--------|-----------|-------|
| Average | | | 39 |
| 2007 | 32 | 9 | 41 |
| 2006 | 33 | 4 | 37 |
| 2005 | 33 | 5 | 38 |

Source: U. S. Consumer Product Safety Commission: National Electronic Injury Surveillance System (NEISS), IPII (Injury and Potential Injury Incidents), and INDP (In Depth Investigations). IPII and INDP are updated on an on-going basis. Also note that NEISS data is being used in this report to count incidents and not to generate national estimates. There were too few NEISS incidents to generate national injury estimates.

Over the three year period, 53 percent of the reported incidents involved males, 41 percent involved females, and for the remaining 7 percent gender was not reported⁴. The age distribution of children in the reported incidents was as follows: 54 percent of the victims were younger than one year of age, 25 percent were one year or more but less than two years, nine percent were two years old, six percent were three years old, one percent was four years old, and five percent did not report an age.

The majority of the reported incidents (91 percent) occurred at a residence. One percent occurred in public places, and for the remaining nine percent of the incidents a location was not recorded⁴.

³ Non-fatal incidents extracted on June 12, 2008.

⁴ Percentages do not add up to 100 due to rounding.

Table 2
 Non-Fatal Non-Pool & Non-Spa Product Related Submersion Incidents for Children
 Less than Five Years of Age Reported to CSPC Staff by Product, 2005-2007⁵

| Product(s) | Percent |
|---|---------|
| Bathtub only | 61 |
| Bathtub and baby baths/bathinettes or bathtub seats/rings | 16 |
| Buckets/pails/containers | 8 |
| Baby baths or bathinettes only | 3 |
| Baby bathtub seats or rings only | 3 |
| Decorative yard equipment | 3 |
| Washing machines | 3 |
| Sinks and baby baths or bathinettes | 2 |

Table 2 above shows the products associated with the non-pool and non-spa submersion incidents. Notice that bathtubs and bathing related products accounted for 85 percent of the reported incidents to children younger than five years old. The baby baths or bathinettes only and the baby bathtub seats or rings only categories represent these products reported without identifying their use in a bathtub or sink.

⁵ Tabulated percentages do not add up to 100 due to rounding.

Reported Fatalities

Table 3 shows the number of non-pool and non-spa product related submersion deaths reported to CPSC staff. As of June 12, 2008, CPSC staff received reports of 270 fatalities of children less than five years of age during 2003-2005⁶.

Table 3
Non-Pool & Non-Spa Product Related Submersion Fatalities for Children
Less than Five Years of Age Reported to CPSC Staff, 2003-2005

| Year ⁷ | Deaths |
|-------------------|--------|
| Average | 90 |
| <i>2005</i> | 83 |
| <i>2004</i> | 101 |
| 2003 | 86 |

Source: CPSC databases including NEISS, IPII (Injury and Potential Injury Incidents), DTHS (Deaths) and INDP (In Depth Investigations). Italics denote period for which reporting is incomplete.

Of the reported fatalities of children younger than five years of age during 2003-2005, 56 percent were males, 43 percent were females, and one percent did not have the gender recorded. The age distribution was as follows: 49 percent were less than one year, 33 percent were one year or more but less than two years, 11 percent were two years, three percent were three years, and three percent were four years of age⁸. The pattern for age distribution is similar to that observed with non-fatal incidents. That is, the majority of fatalities involve children less than two years of age.

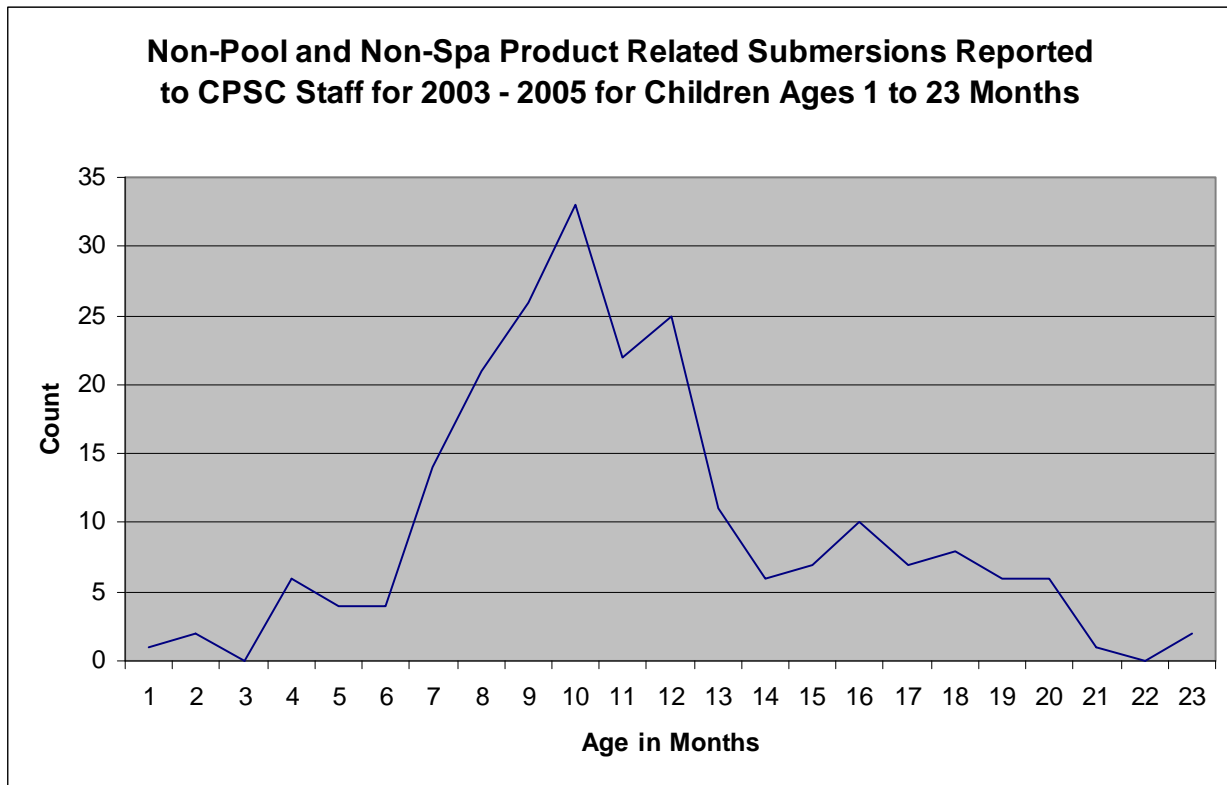
Figure 1 is a graph of the number of reported fatalities by the age of the victim in months for children younger than two years of age. Notice that the seven to thirteen months age categories are where many of the reports are concentrated.

⁶ Total reports include 6, 1, and 5 deaths reported in NEISS during 2003, 2004, and 2005 respectively.

⁷ DTHS and IPII are updated on an ongoing basis.

⁸ Tabulated percentages do not add up to 100 due to rounding.

Figure 1⁹
 Non-Pool & Non-Spa Product Related Submersion Fatalities for Children
 Less than Two Years of Age Reported to CPSC Staff, 2003-2005



Source: CPSC databases including NEISS (National Electronic Injury Surveillance System), IPII (Injury and Potential Injury Incidents), DTHS (Deaths) and INDP (In Depth Investigations).

Based on examination of fatality reports it was determined that, like non-fatal incidents, most of the deaths (89 percent) occurred at a residence. Two percent occurred at public places, and the remaining nine percent of the deaths did not record a location.

Bathtubs and bathing related products were associated with 207 of the 270 reported deaths (77 percent) of children younger than five years of age for non-pool and non-spa submersions in the period 2003-2005. Sixty-two percent of the deaths involved a bathtub only while 15 percent involved a bathtub and another bathing aid such as a bathinette or a bath seat. This is followed by buckets, pails and containers which were involved in 30 submersion related deaths (11 percent). Fifteen deaths (6 percent) involved decorative yard equipment. This includes products such as decorative ponds and fountains. Table 4 summarizes the results for the products involved in the submersion deaths.

⁹ CPSC databases code 1 to 23 months. After 23 months ages are coded in years. A child reported as a 1 year old is coded in the data as a 12 month old.

Table 4
 Non-Pool & Non-Spa Product Related to Submersion Deaths for Children
 Less than Five Years of Age Reported to CPSC Staff by Product, 2003-2005¹⁰

| Product(s) | Percent in Category |
|---|---------------------------|
| Bathtub only | 62 |
| Bathtub and baby baths/bathinettes or bathtub seats/rings | 15 |
| Buckets/pails/containers | 11 |
| Decorative yard equipment | 6 |
| Other products | 4 |
| Unknown | 2 |

Analyzing the narratives of records involving bathtubs and bathing related products for reported deaths during 2003-2005 allows common scenarios to be classified:

- There was a lapse of supervision for a child in a bathtub in 137 deaths (51 percent). Many of these incidents involved caregivers temporarily leaving the room for an activity such as answering the phone or to retrieve an item.
- In six deaths (2 percent), the children managed to get into the bathtub on their own. Some of these cases involved a child finding their way into a bathtub that had standing water in it while others managed to turn the water on themselves.
- In three deaths (1 percent), there was another child involved in the victim getting into the bathtub or turning on the water. There were cases where an older child put a younger child in the bathtub.
- In two deaths (1 percent), the child was being supervised by an older child. In these cases, an older sibling was left to watch a younger sibling.
- For 60 deaths (22 percent), the submersion occurred in a bathtub with little or no further information.

The remaining 62 non-pool and non-spa submersion fatalities (23 percent) for 2003-2005 were classified as well by common scenarios. In 25 deaths (9 percent), the child was found in other products outside the home such as decorative yard equipment or buckets containing liquid. The child was found in other products inside the home in 12 deaths (4 percent) such as toilets and containers. The child was found in a bucket/container or trash basket that was being used for cleaning for 11 deaths (4 percent). Many of these cases involved some type of cleaning solution in the container. A child was found in other products with few details concerning the exact scenario for the remaining 14 deaths (5 percent)¹⁰.

¹⁰ Tabulated percentages do not add up to 100 percent due to rounding.

Appendix
Methodology for Submersions Related to Non-Pool and Non-Spa Products

In previous memoranda, the term drowning was used to refer to the hazard (incident). This year, the term submersion is used to more accurately reflect the event that occurred. Drowning is defined as suffocation and death resulting from filling of the lungs with water or other substances or fluid, so that gas exchange becomes impossible. A near drowning is survival for any length of time after submersion in water and temporary suffocation. Submersion is defined as the act of placing or the condition of being under the surface of a liquid¹¹. For this reason and since a considerable number children are injured or do not die immediately, the term submersion better encompasses the various events that have occurred.

All numbers in this report are rounded to the nearest integer.

Data were extracted on June 12, 2008 from NEISS, IPII, DTHS and INDP for submersion deaths involving children younger than five years of age or unknown age¹² for the years 2003 to 2007. Table 5 gives the product codes of interest in the data extraction based on products found in last year's data extraction for non-pool submersions.

Table 5
Product Codes of Interest for Potential Submersion

| Product Code | Category | Description |
|--------------|-----------|--|
| 611 | Bathing | Bathtubs or showers |
| 648 | Bathing | Sinks |
| 1544 | Bathing | Baby baths or bathinettes |
| 1557 | Bathing | Baby bathtub seats or rings |
| 4030 | Bathing | Bathtub or shower enclosures, not specified |
| 413 | Container | Waste containers, trash baskets or refuse bins |
| 1123 | Container | Plastic containers |
| 1141 | Container | Containers, not specified |
| 1143 | Container | Buckets or pails |
| 1413 | Container | Greenhouse or gardening supplies |
| 1715 | Container | Pet supplies |
| 140 | Other | Washing machines, other or not specified |
| 276 | Other | Refrigerators |
| 649 | Other | Toilets |
| 1417 | Other | Decorative yard equipment |
| 1548 | Other | Baby carriers, not specified |
| 1549 | Other | Other baby carriers |
| 1597 | Other | Non-poisoning death of victim under age 5 |
| 1818 | Other | Cisterns, cesspools or septic tanks |

¹¹ *Dorland's Illustrated Medical Dictionary*, 30th Edition, Saunders, 2003.

¹² Cases where an age was not given but the narrative used terms such as "toddler", "infant", "baby", or "preschooler" that indicated a young child were included.

For NEISS and INDP databases, the diagnosis of submersion (69) or the narrative containing the term “drown” or “submer” or the diagnosis of anoxia (65) or aspirated on foreign object (42) or other/not stated (71) in conjunction with any of the product codes in Table 5 were used to extract data. For IPII, the hazard type of submersion (C) or the narrative containing the term “drown” or “submer” or the hazard type of suffocation or strangulation (8) or falls (9) or other (F) or unknown (G) used in conjunction with any of the product codes in Table 5 were used to extract data. For the DTHS database, the ICD10 codes related to submersion (W16, W29, W65, W66, W73, W74, Y21) or the narrative containing the term “drown” or “submer” or Table 5 product codes were used to extract data.

Each individual database (NEISS, INDP, IPII, and DTHS) was then merged into one database. Cases were screened to remove all pool and spa product codes (698, 1246, 1284, 3221, 3251). Cases were marked as fatality, injury or no injury, and questionable cases were flagged for team review¹³. Records were then associated and duplicates were removed. Cases were compared against existing databases from last year to ensure all incidents had been captured. Fatalities for 2003 to 2005 and injuries or unknowns for 2005 to 2007 were then selected to be analyzed. Once the incident set was established, the incidents were examined to code the additional characteristics of the scenario.

¹³ The data review team consisted of Kevin Gipson (Hazard Analysis), Sandra Inkster, PhD (Health Sciences) and Suad Wanna-Nakamura, PhD (Health Sciences).