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2009–2013 Reported Circulation/Suction Entrapment Incidents Associated with Pools, Spas, and Whirlpool Bathtubs, 2014 Report

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Executive Summary

This report characterizes information on circulation entrapment incidents associated with pools, spas,¹ and whirlpool bathtubs that were reported to the U.S. Consumer Product Safety Commission (CPSC) staff. A “circulation entrapment” is defined as an entrapment involving the water circulation system of a product. A multidisciplinary team of CPSC staff collaboratively developed this definition and determined the types of products that are of interest regarding circulation entrapments.

From 2009 through 2013, CPSC staff is aware of 33 victims of circulation entrapments. Highlighted findings include:

- Victims
 - Fatality (there were no fatalities during this time period)
 - Injury (28 victims, 85 percent)
 - 21 victims were children, younger than 15 years old
 - 7 victims were between the age of 15 and 49 years old
 - No injury (5 victims, 15 percent)
 - 2 were children, ages 5 to 13 years
 - 2 were adults, ages 21 to 50 years
 - 1 incident report did not record the victim’s age
 - Majority of the entrapment victims (24 victims, 73 percent) were individuals younger than 16 years of age
 - Majority of the victims were females (25 victims, 76 percent)
- Product
 - 45 percent of the victims (15 victims) were associated with a pool incident
 - 33 percent (11 victims) were associated with a spa incident
 - 21 percent (7 victims) were associated with a whirlpool bathtub incident
- Location
 - 64 percent of the entrapments (21 victims) occurred in public settings
 - 30 percent (10 victims) occurred in residential settings
 - 6 percent (2 victims) occurred in an unknown location
- Entrapment Type
 - 36 percent (12 victims) experienced body entrapment
 - 30 percent (10 victims) experienced limb entrapment
 - 18 percent (6 victims) experienced mechanical entrapment
 - 9 percent (3 victims) experienced hair entrapment
 - 6 percent (2 victims) experienced evisceration/disembowelment entrapment
- Hazard Scenario
 - 42 percent, or 14 of the 33 victims, were trapped in suction incidents
 - 33 percent, or 11 of the 33 victims, were involved in incidents involving missing or removed outlet covers
 - 15 percent (5 victims) were involved in incidents categorized as involving being caught on an outlet cover
 - 6 percent (2 victims) were involved in incidents that did not have sufficient details in the source document to classify the hazard scenario

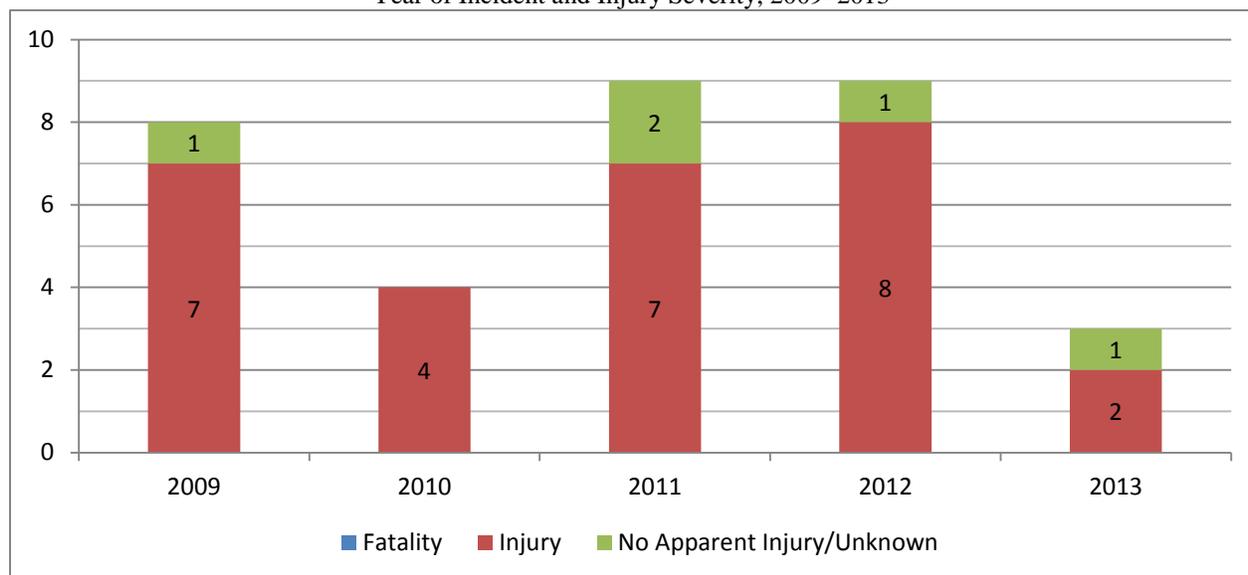
¹ The term “spa” is used to refer to spas and hot tubs.

- 3 percent (1 victim) were involved in an incident that had a known scenario that did not fit into the defined scenarios

Circulation Entrapment

CPSC staff received reports of 30 incidents involving 33 victims of circulation entrapments for the period 2009 through 2013. Of the 30 reports, three reports each involved two victims. Appendix A gives the methodology for data extraction and updating the database, and Appendix B gives a summary of the 30 reports. For this period, there were no fatalities, 28 injuries (12 pool, 10 spa, 6 whirlpool bathtub), and 5 were incidents with no apparent injury or unknown injury incidents (3 pool, 1 spa, 1 whirlpool bathtub). Figure 1 displays the yearly counts of reported victims based on severity (fatality, injury, and no apparent/unknown injury).

Figure 1
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs By Year of Incident and Injury Severity, 2009–2013



Source: CPSC databases, including NEISS (National Electronic Injury Surveillance System), IPII (Injury and Potential Injury Incidents), DTHS (Deaths), and INDP (In-Depth Investigations). Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Of the 33 victims, 15 (45 percent) were associated with incidents (or entrapments) in pools, 11 (33 percent) were associated with spas, and 7 (21 percent) were associated with whirlpool bathtubs. Table 1 shows these counts.

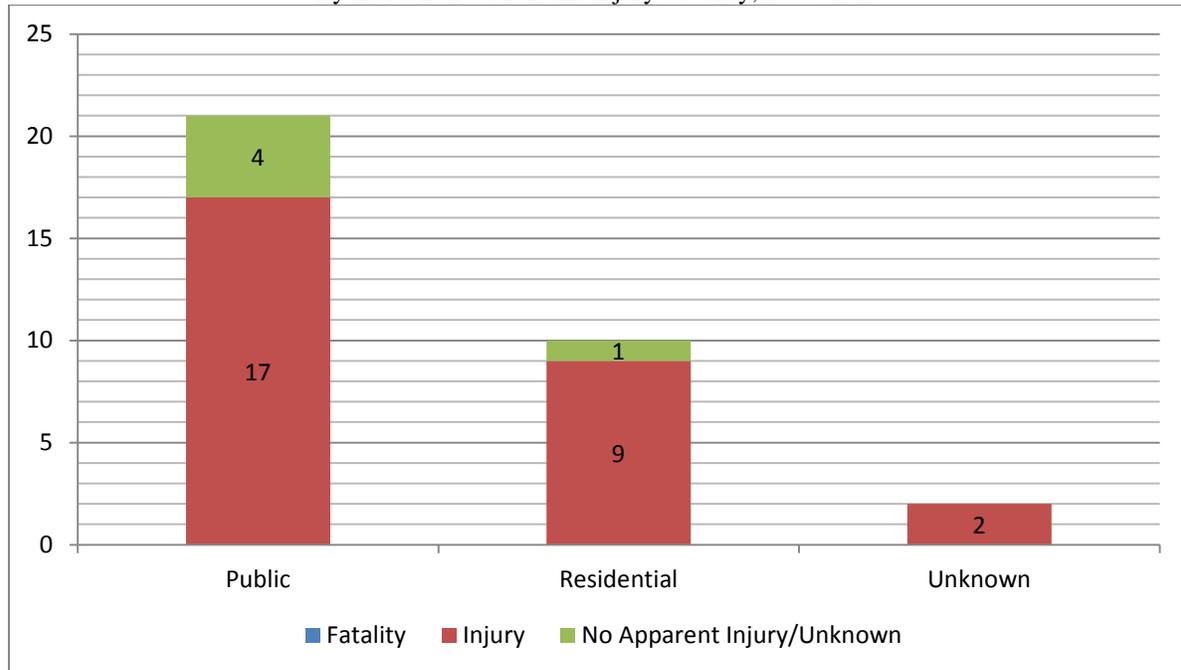
Table 1
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs By Year of Incident and Product Category, 2009–2013

Year	Pool	Spa	Whirlpool Bathtub	Row Total
2013	3	0	0	3
2012	4	3	2	9
2011	3	4	2	9
2010	1	2	1	4
2009	4	2	2	8
Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

The majority of the incidents (21 victims, 64 percent) occurred in public locations. Figure 2 presents the frequency of reported victims by location and severity.

Figure 2
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Incident Location and Injury Severity, 2009–2013



Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Of the 15 pool victims, most (80 percent) were in public pools. Of the 11 spa victims, the majority (64 percent) occurred at nonresidential locations, such as a hotel or motel. Whirlpool bathtub incidents were more evenly distributed among public, residential, and unknown locations. Table 2 gives the counts by incident location and product category.

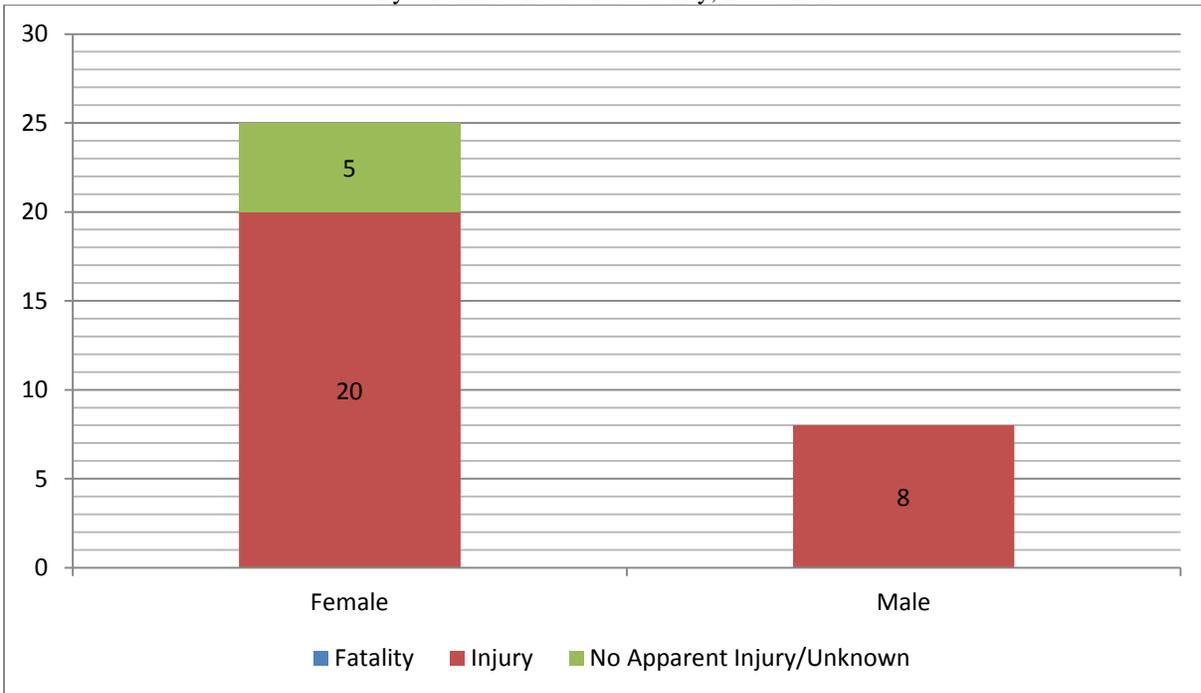
Table 2
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Incident Location and Product Category, 2009–2013

Location	Pool	Spa	Whirlpool Bathtub	Row Total
Public	12	7	2	21
Residential	3	3	4	10
Unknown	-	1	1	2
Column Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

More females (25 victims, 76 percent) were involved in these incidents compared to males (8 victims, 24 percent). Figure 3 displays circulation entrapment counts for reported entrapments by gender and severity.

Figure 3
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Victim Gender and Severity, 2009–2013



Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Most of the victims (67 percent for pool, 73 percent for spa, 100 percent for whirlpool bathtub) for each product category were female. Table 3 illustrates these counts.

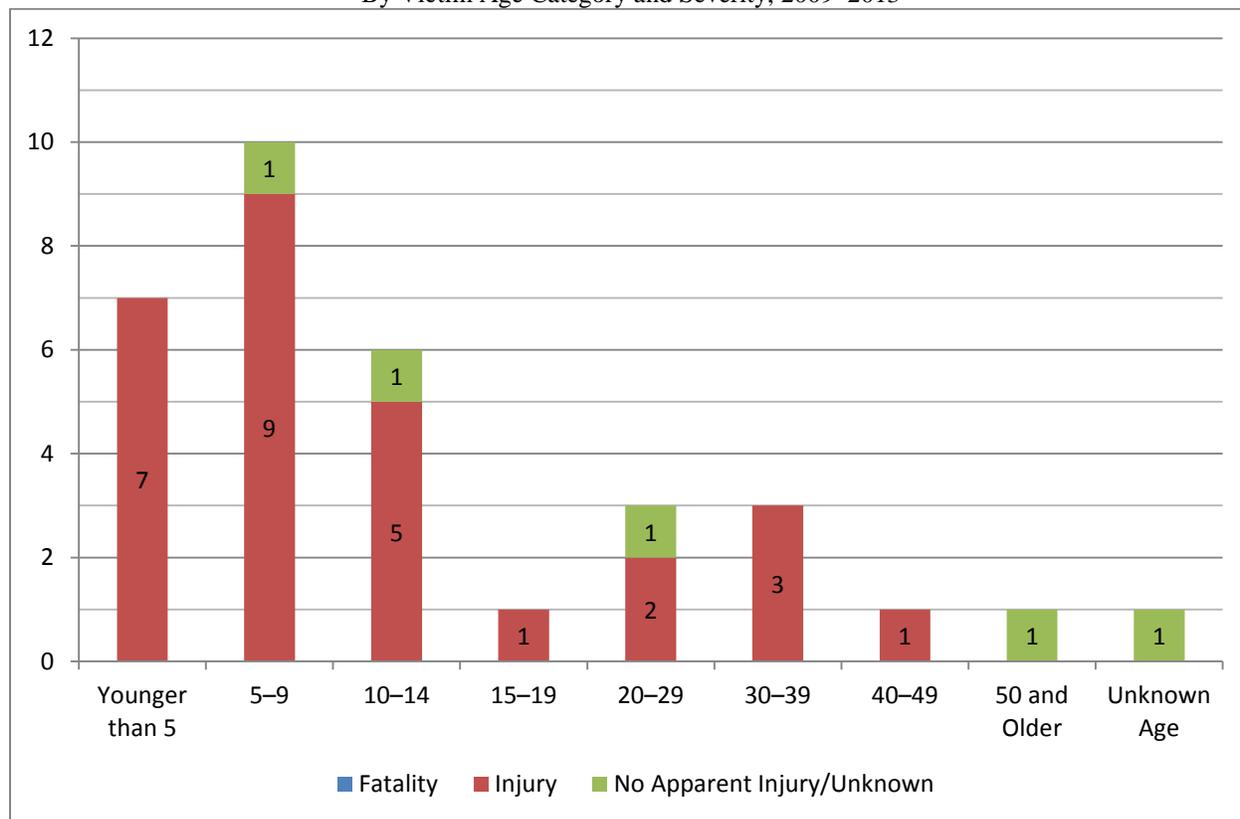
Table 3
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Victim Gender and Product Category, 2009–2013

Gender	Pool	Spa	Whirlpool Bathtub	Row Total
Female	10	8	7	25
Male	5	3	-	8
Column Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data extracted and entrapment database updated in February 2014. Reporting is ongoing for all of these years.

Figure 4 gives the counts of reported victims by victim age category and injury severity. Children in the 5- to 9-year-old category had the highest frequency (10 victims, 30 percent) of circulation entrapments. This is followed by the younger than 5-year-old (7 victims, 21 percent) and 10- to 14-year-old (6 victims, 18 percent) categories. Children 14 years of age or younger were involved in 23 (70 percent) of the reported circulation entrapments.

Figure 4
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Victim Age Category and Severity, 2009–2013



Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Among children 14 years of age or younger, more were involved in entrapments associated with pools and spas (87 percent of pool victims, 64 percent of spa victims) compared to whirlpool bathtubs (43 percent of the victims). Table 4 gives these counts.

Table 4
Number of Victims of Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Victim Age Category and Product Category, 2009–2013

Victim Age Category (years)	Pool	Spa	Whirlpool Bathtub	Row Total
Younger than 5	5	2	-	7
5-9	6	1	3	10
10-14	2	4	-	6
15-19	-	1	-	1
20-29	1	2	-	3

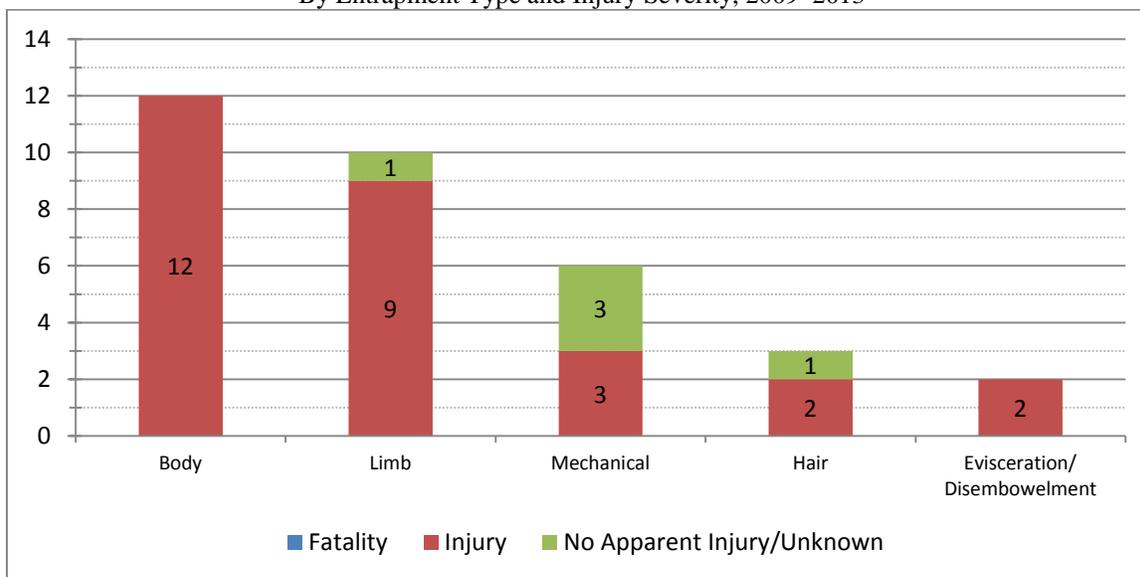
30-39	-	1	2	3
40-49	-	-	1	1
50 and Older	-	-	1	1
Unknown Age	1	-	-	1
Column Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Using definitions developed by the Association of Pool and Spa Professionals (APSP), there are five types of circulation entrapment: (1) body, (2) limb, (3) evisceration/disembowelment, (4) hair, and (5) mechanical.² “Limb entrapment” happens when a limb is sucked or inserted into an open sump or pipe. If only a limb was involved in the entrapment, then the incident was coded as “limb entrapment” (*i.e.*, arms, hands, legs, or feet). “Evisceration/disembowelment” concerns suction applied directly to the intestines, such as when a child sits on an open sump. “Hair entrapment” occurs when hair becomes caught in an outlet cover. Incidents involving hair were coded as “hair entrapments.” “Mechanical entrapment” involves articles of clothing, jewelry, or appendages caught in an outlet cover. “Appendages” refer to digits (*i.e.*, fingers or toes). Incidents involving appendages only were coded as “mechanical entrapments.” Finally, “body entrapment” occurs when suction is applied to a large portion of the body or limbs. For purposes of this report, incidents were coded as a “body entrapment” if the entrapment involved a portion of the body not covered by the other types of entrapment. Examples of body entrapment include suction to areas such as: the shoulder and upper arm, abdomen, back, or hip.

The incidents reported to CPSC staff identified body (12 victims, 36 percent) and limb (10 victims, 30 percent) entrapment as the most frequent type of entrapment. This is followed by mechanical (6 victims, 18 percent) and hair (3 victims, 9 percent) entrapment, and finally eviscerations/disembowelments³ (2 victims, 6 percent). Figure 5 displays circulation entrapment victim data by entrapment type and injury severity.

Figure 5
Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Entrapment Type and Injury Severity, 2009–2013



Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

² ANSI/APSP-7 2006, *American National Standard for Suction Entrapment Avoidance in Swimming Pools, Wading Pools, Spas, Hot Tubs, and Catch Basins*, p. viii.

³ Evisceration or disembowelment involves suction applied directly to the rectum with injuries ranging from prolapse of the rectum to small intestine removal. Incidents involving prolapsed rectums that retracted and required no further medical attention are now classified as eviscerations or disembowelments. They were previously counted as body entrapments.

All but one of the 15 pool entrapment victims experienced limb (5 victims, 33 percent), mechanical (5 victims, 33 percent), or body (4 victims, 27 percent) entrapment; the one remaining pool entrapment victim experienced evisceration/disembowelment. The 11 spa victims experienced more body entrapments (5 victims, 45 percent) than other kinds of entrapment, and all of the hair (3 victims, 28 percent) entrapments for all products combined were associated with spas. The 7 whirlpool bathtub victims experienced mostly body (3 victims, 43 percent) and limb (3 victims, 43 percent) entrapments. Table 5 gives the counts by entrapment type and product category.

Table 5
Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Entrapment Type and Product Category, 2009–2013

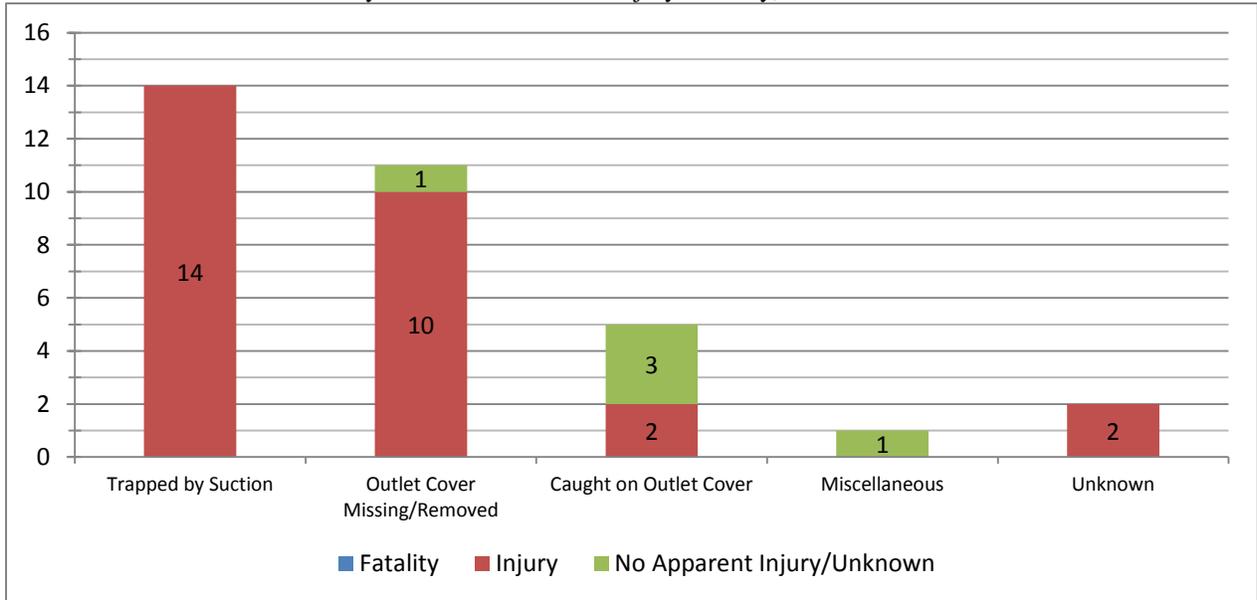
Circulation Entrapment Type	Pool	Spa	Whirlpool Bathtub	Row Total
Body	4	5	3	12
Limb	5	2	3	10
Mechanical	5	-	1	6
Hair	-	3	-	3
Evisceration/ Disembowelment	1	1	-	2
Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Hazard scenarios for the reported incidents fall into one of the following categories: trapped by suction; outlet cover missing/removed; caught on outlet cover; miscellaneous; and unknown. The incident scenarios were categorized by reviewing the report narratives and coding the incidents based on the following hierarchical categories. If the report indicates that an outlet cover was missing or removed, then the incident was assigned to that respective category. If the report states that the individual was caught on the outlet cover, but there is no further description of the status of the cover, the incident was characterized as “caught on outlet cover.” If the report indicates that the suction was holding the individual down, but there is no further mention of the outlet, then the incident was classified as “trapped by suction.” An incident in which neither the outlet/outlet cover nor, suction was mentioned was categorized as “unknown.” An incident was classified as “miscellaneous” if the scenario was known but did not fit into the other categories.

Many of the incidents (14 victims, 42 percent) involved scenarios where the victim was being held to the drain by the suction force. Another large portion (11 victims, 33 percent) involved issues with missing or removed outlet covers. An additional set of incidents (5 victims, 15 percent) involved the victim being caught on the outlet cover. One incident was classified as “miscellaneous” because although the scenario was known, the scenario did not fit into the other categories. The remaining incidents (2 victims, 6 percent) did not provide sufficient details to categorize the hazard scenario. Figure 6 enumerates the results of the hazard scenario categorizations for circulation entrapments related to pools, spas, and whirlpool bathtubs.

Figure 6
Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Hazard Scenario and Injury Severity, 2009–2013



Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the database was updated in February 2014. Reporting is ongoing for all of these years.

Most of the pool victim scenarios (9 victims, 60 percent) were related to a missing or removed outlet cover. The spa victims were mainly trapped by suction (7 victims, 64 percent) or caught on an outlet cover (3 victims, 27 percent). The majority of the whirlpool bathtub victims were trapped by suction (5 victims, 71 percent). Table 6 shows these counts.

Table 6
Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs
By Hazard Scenario and Product Category, 2009–2013

Hazard Scenario	Pool	Spa	Whirlpool Bathtub	Row Total
Trapped by Suction	2	7	5	14
Outlet Cover Missing/Removed	9	1	1	11
Caught on Outlet Cover	2	3	-	5
Miscellaneous	1	-	-	1
Unknown	1	-	1	2
Column Total	15	11	7	33

Source: CPSC databases, including NEISS, IPII, DTHS, and INDP. Data were extracted and the entrapment database was updated in February 2014. Reporting is ongoing for all of these years.

Appendix A

Methodology for Extracting Reported Circulation Entrapments Associated with Pools, Spas, and Whirlpool Bathtubs

Data were extracted on February 4, 2014, from the National Electronic Injury Surveillance System (NEISS), Injury and Potential Injury Incidents (IPII), Deaths (DTHS), and In-Depth Investigations (INDP) databases for the product codes enumerated in Table A for data entered in 2013, and merged with data from last year’s memorandum (2008–2012) to update the data for the 2009 through 2013 timeframe. The period was adjusted from last year’s report to focus on recent incidents.

Table A–Product Codes Used in Extracting Circulation Entrapment Data

Product Code	Description
3221	Above-ground swimming pools
3251	Built-in swimming pools
3262	Swimming pool equipment
5043	Portable swimming pools
1246	Wading pools
1284	Swimming pools, not specified
3274	Swimming (activity)
698	Hot tubs or home spas
609	Glass bathtub or shower enclosures
610	Non-glass bathtub or shower enclosures
611	Bathtubs or showers
4030	Bathtub or shower enclosures, not specified

Within these product codes, suction/entrapment incidents were identified using the following keyword search terms: “SUCTION,” “SUCK,” “STUCK,” “TRAP,” “CAUGHT,” “HELD,” “TANGLE,” “UNDER,” “WEDGE,” “JAMM,” “DRAIN,” “PUMP,” “FILTER,” “PIPE,” “INTAKE,” “GRATE,” “COVER,” “HAIR,” “LIMB,” “ARM,” “HAND,” “FINGER,” “THUMB,” “LEG,” “FOOT,” “FEET,” “TOE,” “BRUISE,” “DROWN,” or “SUBMER.” Also, all NEISS cases were reviewed that had a diagnosis of “submersion (69).” NEISS data are from a probability-based sample. Sampling weights are used to project the cases from NEISS hospitals to national estimates, provided the sample counts are large enough. Due to the small number of suction/entrapment cases in NEISS, these cases were used in the case count and not projected nationally.

Reports were reviewed to eliminate cases that did not involve circulation entrapments. It should be noted that, for a given year, incidents are included on an ongoing basis for IPII and DTHS. In particular, additional reports generally continue to be received for the most recent years. Information from these cases was extracted into an Excel spreadsheet and sorted by incident state and date. Source documents were checked to eliminate duplicate incident reports. Fatal incidents are notable events in the community where they occur; often, for a single incident, there were multiple news reports (IPII); a medical examiner’s report (IPII); a death certificate (DTHS); an In-Depth Investigation (INDP) report; and, less frequently, a hospital emergency department report (NEISS). IPII is a mixture of various types of information, including newspaper clippings, consumer complaints, and reports from other state and local

government agency personnel, such as medical examiners/coroners. Information is submitted voluntarily to IPII, so staff cannot be sure that information on all of the deaths has been received. Once the incident set was established, the incident reports were examined to code the additional characteristics of circulation entrapment type and hazard scenario.

Appendix B - Summary of 30 Reported (33 victims) Circulation/Suctions Entrapment Incidents for Pools, Spas, and Whirlpool Bathtubs, 2009–2013

Report #	Year	Product type	Severity	Age (yrs.)	Sex	Entrapment type	Scenario	Narrative
1	2013	Pool	No App/Unk Injury	29	F	Mechanical	Caught on outlet cover	This incident involved an in-ground pool drain entrapment, where body jewelry became stuck in a drain in the zero depth area of a public swimming pool. This indoor swimming pool is located inside a recreational center. This incident was not a suction-type entrapment. The 29-year-old female, who became stuck in the drain, was uninjured as a result of this incident. The local fire department that responded to this incident helped free the victim from the drain cover by removing the drain cover from the bottom of the pool. After the drain cover was removed, a fire fighter was able to manipulate the victim's navel ring so that the navel ring was released from the drain and the victim was freed.
2	2013	Pool	Injury	2	F	Body	Outlet cover missing/removed	The consumer stated that her 2-year-old daughter (25 lbs.) lifted up the lid of the pool skimmer, stepped into it and squatted down when it sucked her into the intake. The consumer stated that the child's front vaginal region had some tears, severe bruising, and swelling.
3	2013	Pool	Injury	5	M	Limb	Outlet cover missing/removed	A 5-year-old male spent several days in the hospital following a near-drowning experience. The victim was being supervised by his aunt while swimming in a residential in-ground swimming pool. The victim attempted to retrieve a toy that was lodged in the pool's main drain and his arm became entrapped in the drain. It is suspected that the drain lacked a cover. After several attempts, he was successfully extracted and resuscitative measures were taken. The victim was conscious and alert by the time emergency personnel arrived and transported him to the hospital.
4	2012	Spa	Injury	31	F	Limb	Trapped by suction	A 31-year-old female was lounging in a hot tub/bathtub in her hotel bathroom where the hot tub/bathtub drain on the side of the bathtub pulled the right side of her leg into the drain. She had to have her husband help her pull her leg off the drain. She suffered a bruise that was red and purple and was the size of about two to three inches in diameter. She did not seek medical treatment. The injury took about a week to heal.
5	2012	Pool	Injury	3	F	Eviscerate/ Disembowel	Outlet cover missing/removed	A 3-year-old female was entrapped on an uncovered single drain inside a wader pool. The drain cover came off the drain. It was determined that only two screws instead of four secured the drain cover to the drain. The safety vacuum release system (SVRS) did not activate. The owner of the pool shut off the SVRS and pump using a secondary on/off switch and the child was immediately released. The child was taken to a hospital where she was treated for a prolapsed rectum. She was released the next day.
6	2012	Pool	Injury	4	F	Limb	Outlet cover missing/removed	A 4-year-old female stuck her arm and hand into the open vacuum port hole in the side of the swimming pool where she became stuck. She received only a couple of scratches to her lower left arm. The vacuum pump was not operating at the time of the incident.
7	2012	Pool	Injury	10	M	Limb	Trapped by suction	A 10-year-old boy suffered bruising on both thighs when he became trapped on a lily pad skimmer in a condominium pool. Bystanders broke the skimmer to release suction from the pump and release the victim's legs. The pool pump was on direct suction without a secondary anti-entrapment system.
8	2012	Pool	No App/Unk Injury	Unk	F	Mechanical	Caught on outlet cover	A woman's belly button ring became entangled with a drain cover in a shallow pool but she was freed without injury. She became stuck as she floated on her stomach with her child in the pool. Firefighters tried to turn the ring to free her but then started to drain the pool.
9	2012	Spa	Injury	3	F	Eviscerate/ Disembowel	Trapped by suction	3-year-old female Patient was home sitting in hot tub when she got stuck onto a vent. The patient's mom pulled her out. Diagnosis rectal prolapse.
10	2012	Spa	Injury	21	F	Hair	Caught on outlet cover	21-year-old female got her hair caught in hot tub drain and went under nearly drowning.

11a	2012	Whirlpool bathtub	Injury	6	F	Limb	Trapped by suction	Two girls, ages 6 and 7, became suctioned to the intake grate cover in a whirlpool bathtub while taking a bath together. The children sustained bruises on their legs. No additional medical treatment was sought, and the bruising subsequently healed without further complications or injuries.
11b			Injury	7	F	Limb	Trapped by suction	
12	2011	Pool	Injury	4	M	Body	Outlet cover missing/removed	A 4-year-old male received severe bruising to the rectal area when he was entrapped on an uncovered drain in an in-ground wading pool. There were no other injuries in this incident.
13	2011	Pool	No App/Unk Injury	5	F	Mechanical	Miscellaneous	A metal charm hanging from a string in the hip area of a 5-year-old girl's one-piece bathing suit became snagged on the plastic grate that covered a gutter-style trench around a public pool. The girl's legs and torso entered the water while her hip was stuck against the side of the pool. Her 8-year-old sister assisted her before the metal charm broke off and freed her. The girl was not injured.
14	2011	Pool	Injury	8	F	Limb	Outlet cover missing/removed	An 8-year-old female was swimming in an in-ground pool at her apartment complex. She attempted to get out of the deep end of the pool by sticking her left arm in a pool vacuum line for leverage. Her arm became stuck in the pipe. Emergency personnel extricated the pipe from the pool deck and the victim was transported to the hospital emergency room where the pipe was cut off of her arm. She sustained minor bruises and is still experiencing cold chills said to be caused by trauma. Treated and released the same day from a local hospital.
15a	2011	Spa	Injury	10	M	Body	Trapped by suction	A 10-year-old male and a 12-year-old female sustained lacerations, contusions, and abrasions to their backs after becoming entrapped on the drain cover and submerged while in a 25 person hot tub/spa of an in-door water park facility. Both victims, who are cousins, received first aid at the scene of the incident but no outside medical treatment was sought at the time of the incident.
15b			Injury	12	F	Body	Trapped by suction	
16	2011	Spa	No App/Unk Injury	13	F	Hair	Caught on outlet cover	A 13-year-old female's hair became entangled in the skimmer of a hotel hot tub. A guest was able to extract the girl's hair from the drain cover before any serious injury occurred.
17	2011	Spa	Injury	13	F	Hair	Caught on outlet cover	13-year-old female was in hot tub under H2O to retrieve bracelet; hair caught into filter 1 min; now left eye pain. Diagnosis-near drowning/left eye hemorrhage.
18a	2011	Whirlpool bathtub	Injury	38	F	Body	Trapped by suction	A 38-year-old white female and a 49-year-old white female became stuck to the suction intake cover of the whirlpool bathtub they were using in separate incidents. Both women were staying at a hotel room equipped with the tub. Each victim suffered minor skin injuries.
18b			Injury	49	F	Body	Trapped by suction	
19	2010	Pool	Injury	9	F	Mechanical	Unknown	The 9-year-old female victim was diagnosed with a fractured toe. The victim was taking swimming lessons in an in-ground, indoor pool, at a recreation center. The victim went to turn around. As she turned, she got her toe caught in a small drain at the bottom of the pool. The victim's toenail was caught. She fractured her toe and lost her toenail at the ER. The victim's mother called her doctor and was told to take the victim to the hospital. The victim was taken to the ER where she was treated and released.
20	2010	Spa	Injury	4	F	Body	Trapped by suction	A 4-year-old female sat on the intake for a spa filter at a motel and became entrapped. The victim was pinned in a sitting position on the drain which was lacking a cover. The water was four inches deep and her head was not submerged. She was treated and released from a local hospital with bruises on her lower body. She has recovered without complications. The spa pump was not equipped with a vacuum safety release system.
21	2010	Spa	Injury	15	M	Body	Trapped by suction	A 15-year-old boy sustained abrasions and deep bruising to his back from an entrapment incident after coming in contact with the skimmer opening of a hotel hot tub. His mother and sister managed to pull him off the skimmer opening. The hot tub was equipped with an SVRS. The victim was taken

								to the hospital and treated and released.
22	2010	Whirlpool bathtub	Injury	37	F	Mechanical	Unknown	37-year-old female got toe caught in whirlpool tub jet, suffered a toe fracture.
23	2009	Pool	Injury	3	F	Limb	Outlet cover missing/removed	A 3-year-old girl was entrapped above water in a swimming pool after her left arm became stuck inside a vacuum port opening located on one of the pool's walls. The child was able to breathe as her head remained above water. Local fire rescue was forced to breach the wall with power tools in order to free the child from the pipe. The child was transported to an area hospital in stable condition.
24	2009	Pool	Injury	7	F	Body	Trapped by suction	The 7-year-old female victim sustained a large bruise to her inner left thigh when the suction from a 1.5" suction outlet serving a 1.5 HP pump, sucked her left leg up against the wall of a lazy river at a public water park. She was pulled under water for several seconds. Her 11-year-old female cousin helped free the victim from the suction of the pipe. The victim's mother took her to her physician the next day to document her injury.
25	2009	Pool	Injury	14	M	Mechanical	Outlet cover missing/removed	A 14-year-old male victim nearly drowned when he became entrapped in the drain area of a large waterfall at a swimming pool of a family member's apartment complex. The victim, wearing a t-shirt and swimming suit, was taking his turn backing up the drain for the waterfall and letting the suction hold him to the side of the pool- which many of his family members had done before him. Four adults tried to pull the victim out of the water, but he was retrieved from the entrapment only after the water pumps to the waterfall were turned off. The victim was revived at the scene.
26	2009	Pool	Injury	8	M	Body	Outlet cover missing/removed	An 8-year-old male was swimming in a metal frame above-ground pool when he suddenly became entrapped at the suction filter opening. His mother was able to pull the victim free. Inspection of the pool showed that the protective cap over the filter opening had come off. The victim suffered a 5" bruise to his left shoulder area.
27	2009	Spa	Injury	27	F	Body	Trapped by suction	27 year-old female got caught in a suction in a hot tub, Diagnosis: back contusion
28	2009	Spa	Injury	5	M	Limb	Outlet cover missing/removed	A 5-year-old boy nearly drowned after his right arm became entrapped in the suction drain of the spa in his home's in-ground pool. Police reportedly arrived and attempted to pull the child, who was totally submerged, from the drain. Minutes passed before the child's 6-year-old brother found the shut-off button for the suction. The boy was revived on scene and transported to an area hospital by fire rescue. The child is said to be in excellent condition with no permanent injuries from the incident. A drain cover was found detached and at the bottom of the spa.
29	2009	Whirlpool bathtub	Injury	6	F	Body	Trapped by suction	A 6-year-old female sustained significant bruising over a large portion of her back and arms after being suctioned to the intake grill of a whirlpool bathtub in her home. Her mother had been bathing her, along with two siblings, when she stepped out of the bathroom for a moment. The mother then heard the victim's strained voice and found her stuck to the grate. The victim's older sibling had shut the water off. The female was taken to an emergency room where she was treated and released, and has since fully recovered.
30	2009	Whirlpool bathtub	No App/Unk Injury	50	F	Limb	Outlet cover missing/removed	A 50-year-old female was in a whirlpool tub when a washcloth broke the tub's suction cover and her leg became trapped against the broken cover. The whirlpool's pump shut off after the washcloth was drawn into it. There was no injury. The consumer later discovered that the suction cover had been recalled in 1994 by the manufacturer because it did not meet the voluntary standard. When the consumer attempted to obtain a replacement cover he was told that the suction cover was no longer covered by the recall and he would have to purchase a new cover for \$40.00.