WATER-RELATED INCIDENTS IN MARICOPA COUNTY, 2006

Annual Report for the Drowning Prevention Coalition of Central Arizona

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WATER-RELATED INCIDENTS IN MARICOPA COUNTY, 2006

SUMMARY

This report describes water-related incidents that have activated the *9-1-1* emergency system. Data in this report are derived mainly from case reports submitted by fire departments in the Phoenix metropolitan area. In 2006 there were 95 serious water-related incidents that occurred in the metro area among persons of all ages. Children 0-4 years of age accounted for 53 of these incidents, 36 of which occurred in swimming pools. Of the 53 young children, 8 are known to have died (4 due to incidents occurring in pools). Of the remaining children, most survived the incident without apparent medical complications. Although there has been a 78% increase in the number of young children who live in the county since 1990, the count of incidents in swimming pools has remained fairly constant since 1990.

For the first time, in 2006 no young child deaths occurred in pools in the summer months. Similarly, the Maricopa drowning death rate for children 0-4 years of age in 2006 dropped to 3.2 deaths per 100,000 children (in all bodies of water), the lowest rate since we started tracking the problem. The rate of deaths in swimming pools dropped to 1.9 deaths per 100,000 children, the lowest rate on record. We believe that our combined, local, prevention efforts have led to this remarkable progress. **However, no single factor changed in 2006 that explains this continued progress.**

An absent or inadequate barrier (as opposed to lack of supervision) is the most commonly attributed cause of incidents in which the child dies. In contrast, a lapse of direct supervision is more prevalent in incidents in which the child has a presumed normal outcome. Emphasis on issues relating to supervision will have the greatest impact on nonfatal incidents, especially in the summertime. **But, to prevent child drowning deaths (in contrast to incidents in which the child survives intact) continued attention needs to be paid to the placement of pool barriers and their maintenance.**

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INTRODUCTION

In the mid-1980's the drowning death rate of Arizona's preschoolers ranked first in the nation.[1] Warm weather, long summers, and the presence of more than 300,000 residential swimming pools make Arizona prone to water-related incidents. Furthermore, death is just one outcome of water-related incidents: in about 9% of incidents the child survives, albeit with some degree of neurological impairment.[2]

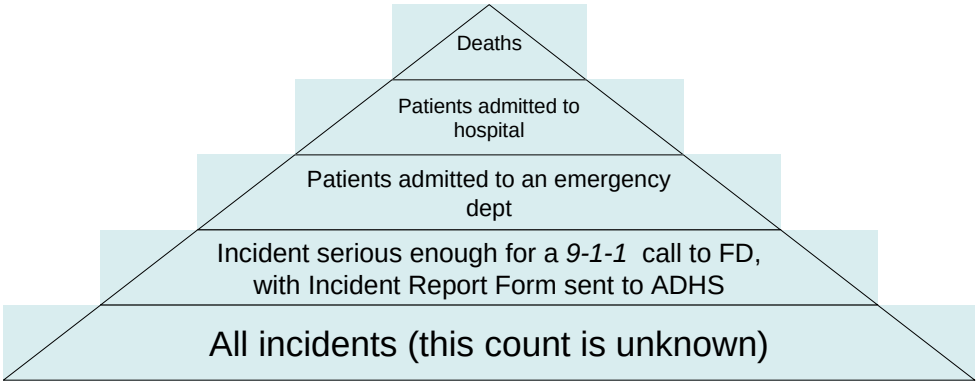
To address the problem of water-related incidents in the Phoenix metropolitan area (called "Maricopa County" in this report), the Drowning Prevention Coalition of Central Arizona was formed in 1988. This Coalition is comprised of municipal fire departments, hospitals, the state and county health departments, community organizations, pool builders, suppliers of pool safety equipment, parents of drowning victims, corporations, and others.

The following report presents the data collected for 2006, and compares the findings to those in previous years. Much of the report focuses on children under five years of age, and specifically on incidents occurring in swimming pools.

METHODS AND DATA SOURCE

The tracking of water related incidents occurs at several levels in the injury pyramid. This following report is based mainly upon incident reports submitted by responders at the local fire departments, shown as "FD" in the pyramid below.

Case Definition: In this report a water-related incident is defined as an incident in which a fire department responded to a *9-1-1* emergency call. We include in the analysis any incident in which the victim was given CPR, was not breathing, and was submerged or not struggling when retrieved from the water. (Some of these cases die



[1] Arizona Department of Health Services. Unintentional Drowning Deaths, Arizona, 1980-1989. Office of Planning & Health Status Monitoring, October 1990.
[2] Beyda, D. and Masuello, J. Phoenix Children's Hospital. Oral communication, July 1999.

the same day or at a later time; some fully recover.) We exclude from analysis any incident that did not appear to be life-threatening; for example, we exclude from analysis an incident in which a victim was struggling and did not require CPR.[3]

Procedures: Since 1988, the Arizona Department of Health Services (ADHS) has monitored water-related incidents as reported by local fire departments. The fire departments usually are first on the scene of *9-1-1* calls and are generally able to provide information about the event from information provided by witnesses. We assume that very few serious incidents occur without activation of *9-1-1*. The fire departments submit incident reports on a standard form (see Appendix) developed in conjunction with the Coalition. The reported data items include the age and gender of the victim, the location of the incident, and the apparent circumstances surrounding the event. The ADHS Bureau of Public Health Statistics receives and analyzes these case forms.

So far, the data has not consistently included the calls to the Maricopa County Sheriff's Office, which responds to incidents on the surrounding lakes, or the nearby Salt or Verde Rivers. These are popular recreational areas located just outside of the Phoenix metropolitan area.

For consistency, one person (S.B.) at ADHS receives and codes the forms of each reported incident. A second person (T.J.F.) reviews the data entries of each record. Usually, fewer than six incidents per year are questionable as to whether the incident was life-threatening. Calls to *9-1-1* that are canceled are not submitted to ADHS. The surveillance system relies upon fire departments to report all the cases occurring within their jurisdictions.

Validation: We search the local newspaper (the Arizona Republic) daily for reports of water-related incidents. When found, articles are clipped and attached to the fire department reports. Rarely, there is no associated fire department report. If a report is missing, then ADHS contacts the fire department to request a submission. If the fire departments do not submit a case report, then we use the information from the newspaper clipping to create a case report. We use death certificates to document the outcome status for incident cases reported by fire departments.[4]

Analysis: Analysis of data is performed using Microsoft Access on the database of the 2,500 records entered since 1988. The minor (non life-threatening) incidents,[3] also called "dunkings", are excluded from all subsequent analyses reported herein.

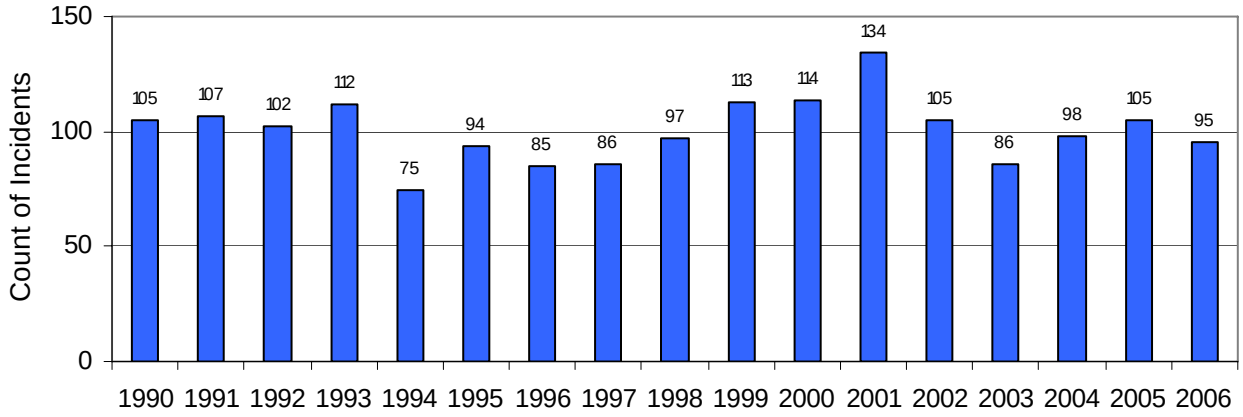
[3] These relatively minor *9-1-1* incidents that were excluded sometimes are called "dunkings, close calls, or near misses." In recent years, the count of these minor incidents ranged from 22 to 54. In 2006 there were 27 incidents. ADHS requests that fire departments submit all such incidents, but we exclude them from further analysis in the yearly reports. Obviously trivial incidents that would not even qualify as "dunkings" are not submitted by most fire departments.

[4] We do not use death certificates to supplement the count of incidents reported by fire departments. However, as explained in a later section, we use death statistics as an independent method of tracking drownings.

FINDINGS

In 2006, fire departments and the newspaper reported 95 serious water-related incidents in Maricopa County among persons of all ages. Six incidents in 2006 were reported only in the newspaper. The count of 95 serious incidents in 2006 was similar to the annual counts reported since 1990 (see **Figure A**).

Figure A. Count of serious water-related incidents among persons of all ages in all bodies of water. An incident may lead to an outcome of death, or survival with impairment or no impairment.



The distribution of the 95 incidents in 2006 according to the city and age of the victim is shown in **Table 1**.

Table 1. Water-related incidents in 2006 according to age group and city of incident in Maricopa County. Only life threatening incidents are included in the analysis.

	Years of Age of the Victim						
City of Incident	0-4	5-14	15-34	35-64	65+	UNK	Total
Avondale	1			1			2
Chandler	3	1					4
El Mirage	2		1				3
Gilbert	1	1		3			5
Glendale	5						5
Goodyear	1						1
Mesa	5	3	1				9
Other & Unknown			3		1		4
Peoria	1		1				2
Phoenix	33	4	5	7	2	2	53
Queen Creek			2				2
Surprise	1						1
Tempe			2	2			4
All Areas	53	9	15	13	3	2	95

The body of water of the incidents according to age group is presented in **Table 2**. Most incidents took place in pools. Pools, either above ground or in ground, were involved in 64 (67.4%) of the 95 events. Thirty-six of the 64 incidents in pools involved children aged 0-4 years. Bathtubs (10 incidents), rivers and lakes (8 incidents), and canals (8 incidents) were the next most common places for water-related incidents among all ages. Three incidents occurred in buckets, and one in a spa. Nine incidents in 2006 involved preschoolers who were trapped in bathtubs.

Table 2. Water type by age group, 2006. Only life threatening incidents are included in the analysis.

	Years of Age of the Victim						
Water type	0-4	5-14	15-34	35-64	65+	UNK	Total
Bathtub	9			1			10
Bucket	3						3
Canal/Irrigation Ditch	2		3	1		2	8
Fish/Decorative Pond							
Other							
Pool, in ground	36	9	8	9	1		63
Pool, above ground					1		1
River/Lake	1		4	2	1		8
Spa	1						1
Toilet							
Unknown	1						1
Missing							
All water bodies	**53**	**9**	**15**	**13**	**3**	**2**	**95**

Young Children

Children, ages 0-4 years, comprised the largest group experiencing a water-related incident. Although older individuals are equally important to consider in terms of loss of life, society generally feels a greater sense of responsibility to prevent injury to persons in the youngest, highly vulnerable, age group. The remainder of this report analyzes the findings among the 0-4 year old age group.

Some data elements were not collected in the early years of our surveillance. For that reason, the graphs that follow may display a variety of time periods. For a few, selected graphs we display data according to the child's outcome: died; survived but with impairment; and survived in apparently normal condition.

The distribution of cases among single ages of the 0-4 year old group is shown in **Figure 1**. Among children 1-4 years old, the count of incidents in swimming pools far overshadows the count in all other bodies of water combined. Among infants (i.e., under one year of age) bathtubs are the most common water body in which incidents occur.

Figure 1. Count of incidents according to the body of water in which life threatening incidents occurred, by single age category, reported in Maricopa County, 1990-2006. Outcome status: all.

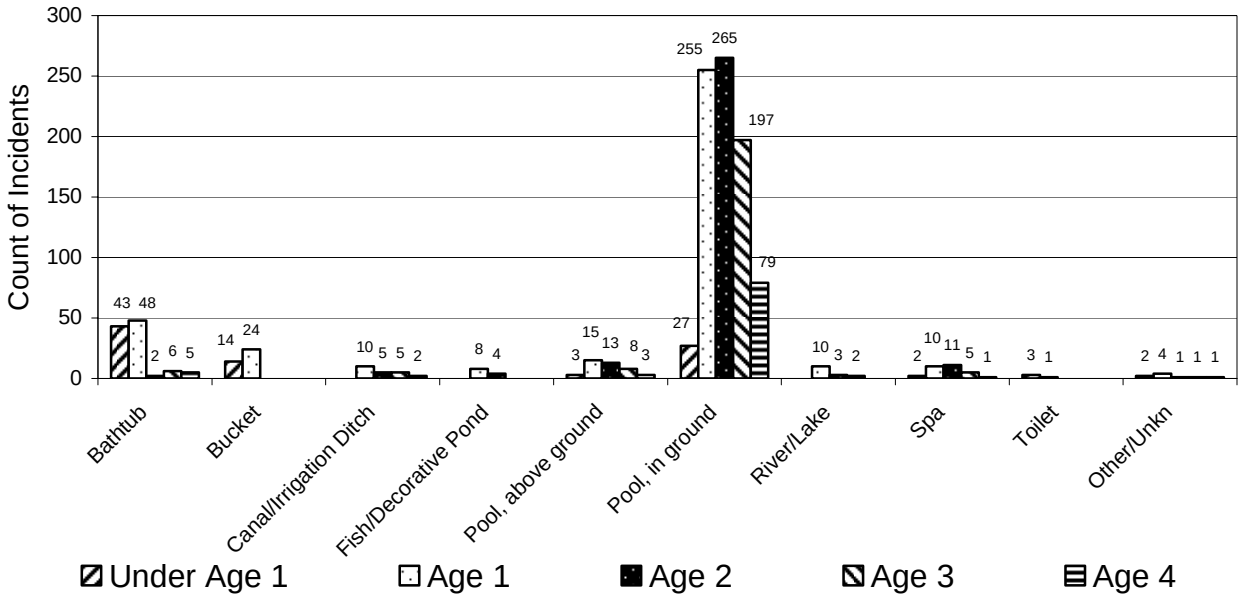
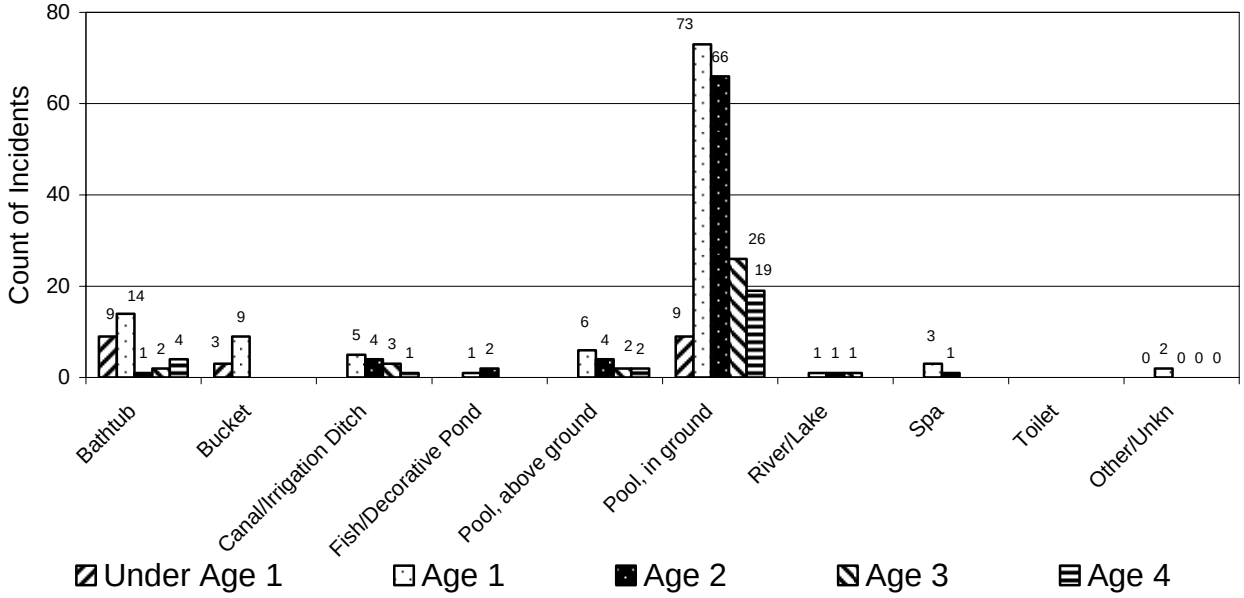


Figure 1b. Count of incidents according to the body of water in which the incident occurred, 1990-2006, where the child's outcome was death or impairment.



The following tables and figures provide information about incidents occurring in swimming pools for this age group. **Figure 2** shows the count of pool-related incidents reported over the previous 19 years. In 2006, the count (36) decreased to the lowest yearly total on record. Because of the increasing population of children residing in the metro area (from 170,182 children in 1990 to 309,093 in 2006 – an 82% increase), **Figure 3** displays the rate of pool incidents, expressed per 100,000 children residing in Maricopa County. The rate of 11.6 is the lowest rate on record. The inverse of this rate for 2006 (100,000 / 11.6) reveals that for every 8,620 children, one child experienced a life-threatening pool incident in Maricopa county.

Figure 2. Count of life-threatening incidents in pools, by year, among 0-4 year olds. Outcome status: all.

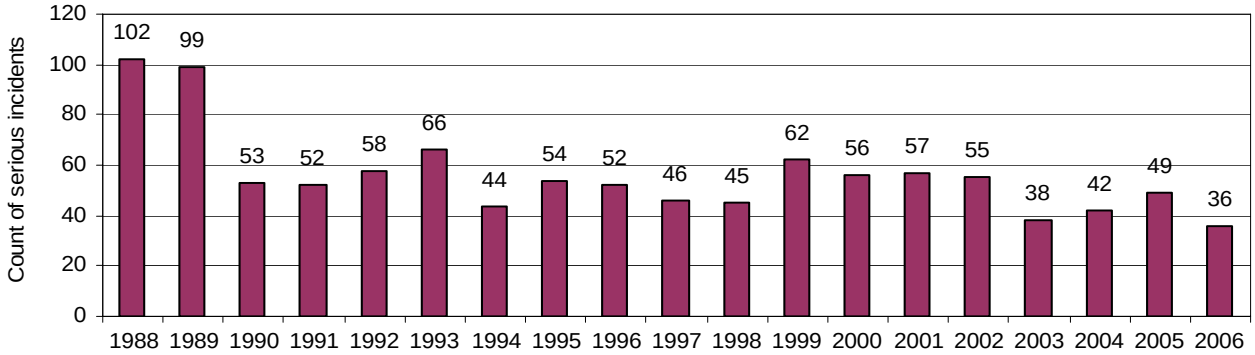
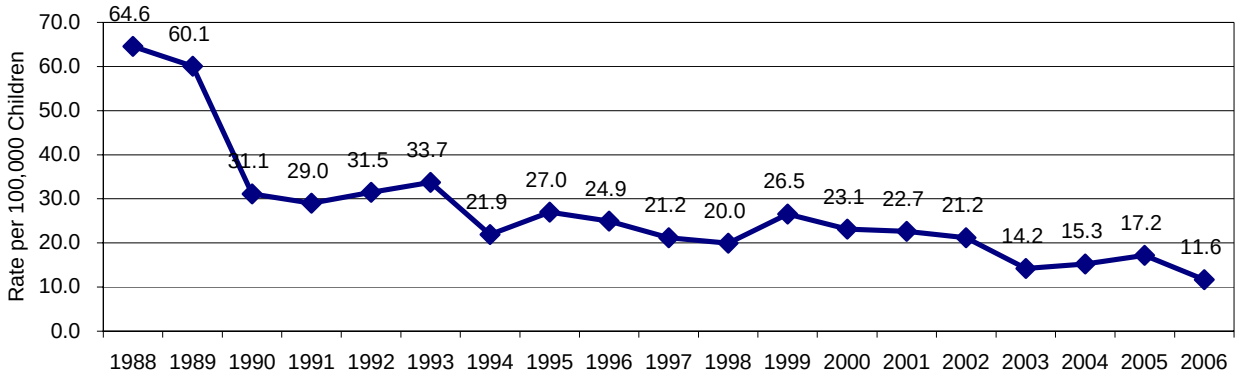


Figure 3. Rate (per 100,000 children aged 0-4) of life threatening pool incidents occurring in Maricopa County. The rates consider the increasing population of children in the county. The numerators for the rates are the counts of incidents (shown in Figure 2 above) without regard to the county in which the child resided. Outcome status: all.



The occurrence of incidents by month is shown in **Figure 4**. We note the typical pattern seen in previous years, with the number of pool-related incidents peaking somewhat during the summer months of June, July, and August. However, in 2006 the counts in June and July were well below of our short-term goal of fewer than 10 incidents every month. In fact, the fire departments reported not a single pool-related death all summer. The data in **Figure 4b** reveal this remarkable achievement for 2006.

Figure 4. Monthly sum of life-threatening swimming pool incidents, 0-4 year olds, Maricopa County. Outcomes: all.

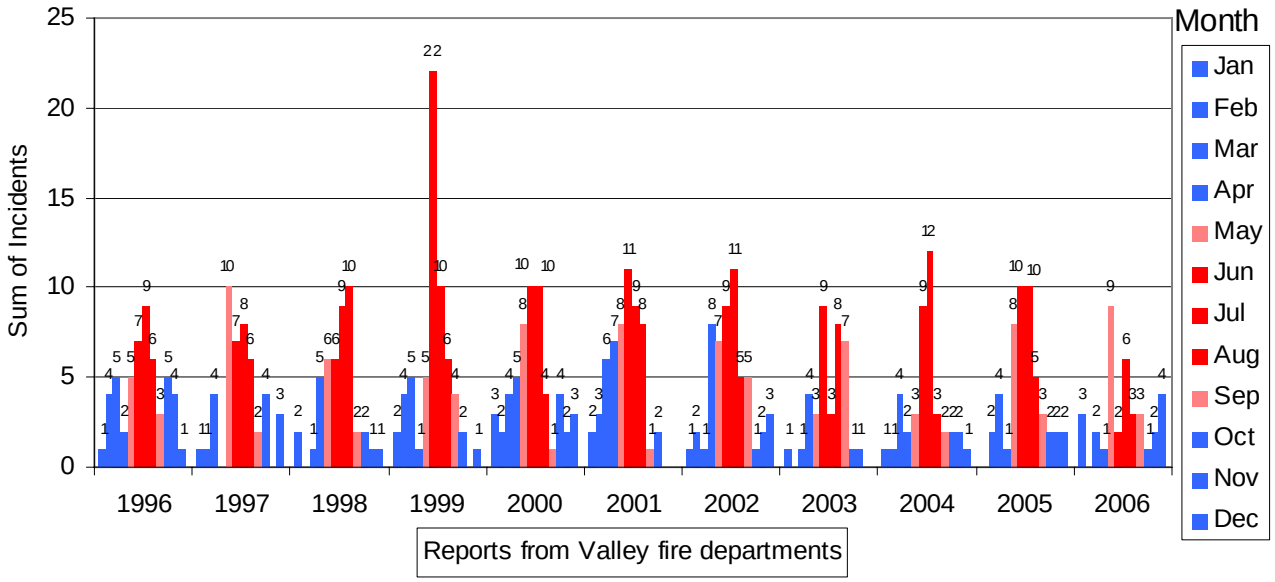
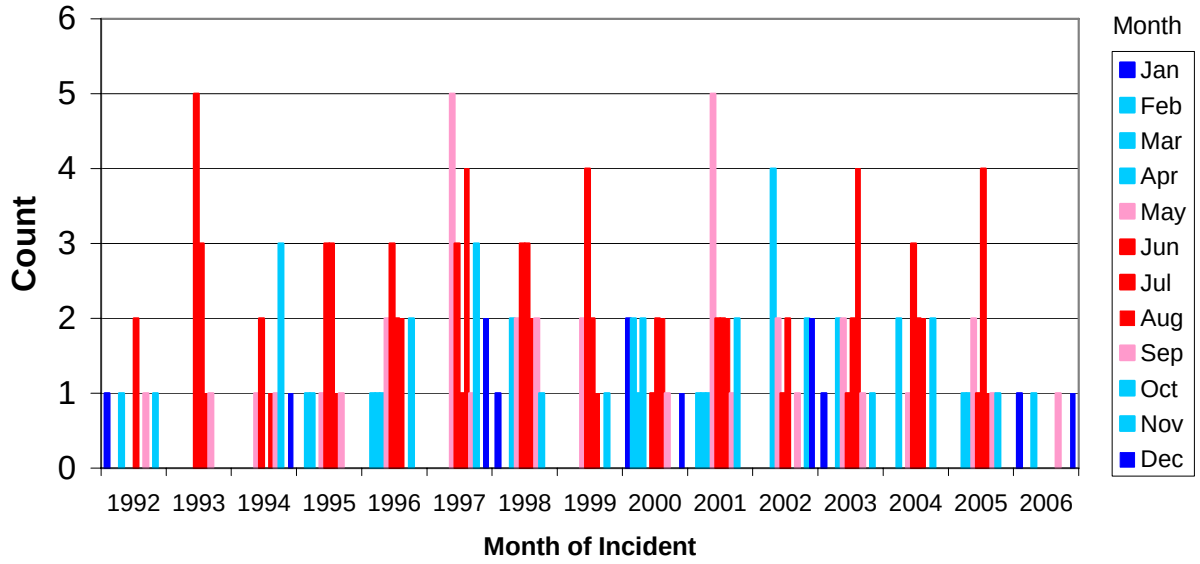


Figure 4b. Monthly count of incidents in pools in which the child's outcome was "died."

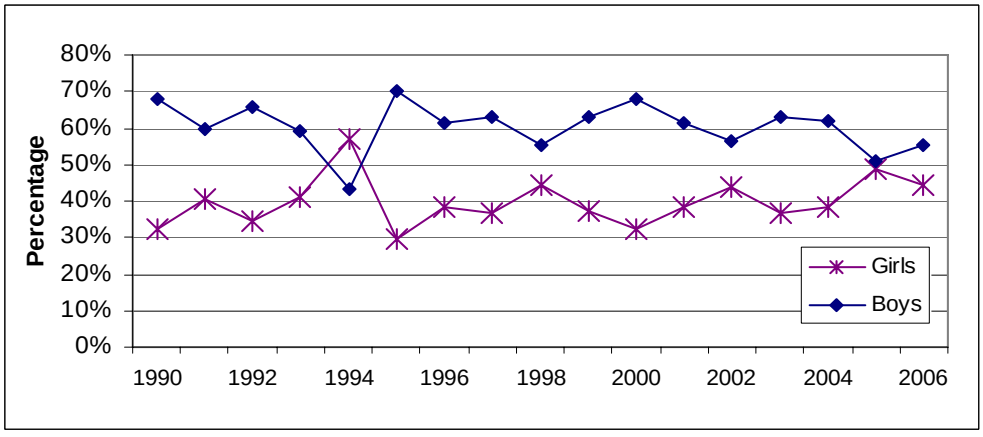


Source: DPCCA Fire Depts and newsclippings.

As shown in **Table 3**, boys comprised a slight majority of the pool-related victims in 2006. No clear trend is evident in a graph of these data over time.

Table 3. Gender of 42 children, 0-4 years old, involved in pool-related incidents, 2006. Outcome: all.

Gender	Number	(%)
Male	20	56%
Female	16	44%



Race and ethnicity are difficult variables to analyze because of the way that Hispanic ethnicity is often mistakenly considered a race group. Currently, most demographers consider Hispanic as an ethnic group, not a race group. For analysis

here, we count Whites, unless the report from the firefighter specified otherwise, as non Hispanic. And to comply with local custom we count "Hispanic" by disregarding the race field. A tabulation of the available data is presented in **Table 4**.

The 2000 Census found that 40.1% of children age 0-4 residing in Maricopa County were Hispanic.[5] Furthermore, starting in 2003 the number of births to Hispanic mothers has exceeded that of Whites.[6] The proportion of Hispanic families that actually have pools is not known, but is probably less than the population as a whole.

Table 4. Race and ethnic characteristics of children, 0-4 years of age, involved in water-related incidents in pools in 2006. Outcome: all.

Race/Ethnicity	Count	%
Asian	1	2.8%
Amer Indian	0	0.0%
Black	3	8.3%
Hispanic	13	36.1%
White, non Hispanic	13	36.1%
Other	1	2.8%
Unknown	5	13.9%
TOTAL	36	100.0%

[5] To calculate the percentage of Hispanic children in Maricopa County, the numerator was derived from the U.S. Census Bureau at http://factfinder.census.gov/ and the denominator was derived from the Arizona Department of Economic Security's Population Statistics at http://www.de.state.az.us/

[6] Arizona Health Status and Vital Statistics, 2005. page 10. ADHS, Sept 2006.

Table 5 presents the incidents according to the body of water and the site of the 53 incidents involving children between the ages of 0 and 4. The most common site of incidence was a pool located at the victim's home (23 incidents). Four incidents occurred at a relative's pool. Three incidents occurred in the pool at a friend's home, and in four incidents it was unknown whose home it was. Eight bathtub incidents occurred at the victim's home. Two incidents occurred in a bucket at the victim's home. The two canal incidents occurred at a friend's home.

Table 5. The body of water according to the site of incident for children, 0-4 years of age. Life-threatening incidents only, Maricopa County, 2006. Outcomes: all.

Body of Water	Friend's Home	Neighbor's Home	Public & Semi-pub	Relative's Home	Victim's Home	Other / Unknown	All Sites
Bathtub					8	1	**9**
Bucket					2	1	**3**
Canal/Irrigation Ditch	2						**2**
Fish/Decorative Pond							**0**
Pool, above ground							**0**
Pool, in ground	3	1	1	4	23	4	**36**
River/Lake						1	**1**
Spa					1		**1**
Toilet							**0**
Other/ Unknown/ Missing						1	**1**
TOTAL	**5**	**1**	**1**	**4**	**34**	**8**	**53**

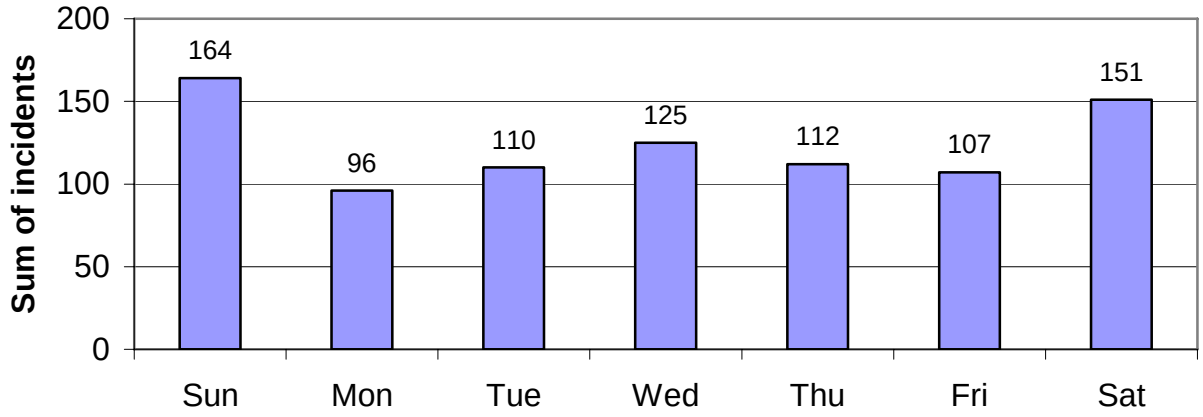
Table 6 presents the type of dwelling where the incidents took place. Thirty (83%) of the 36 pool incidents occurred at a single family home. Just one of the 36 pool incidents occurred in apartments or condominiums in 2006. In past years, apartments were the location of most bathtub incidents, but this year five of the nine bathtub incidents occurred in single homes.

Table 6. The body of water according to the type of dwelling for children, 0-4 years of age, who experienced a water-related incident in 2006. Outcomes: all.

Body of Water	Apt/ Condo	Hotel/ Motel	Single Home	Multiple Units	Trailer/ Mobile	Unknown/ Other/NA	Total
Bathtub	1	1	5			2	**9**
Bucket			1			2	**3**
Canal/Irrigation Ditch			2				**2**
Fish/Decorative Pond							**0**
Pool, above ground							**0**
Pool, in ground	1		30			5	**36**
River/Lake						1	**1**
Spa	1						**1**
Toilet							**0**
Other/Unknown						1	**1**
Total	3	1	38	0	0	11	53

Figure 5 displays the occurrence of pool-related incidents by day of week. Incidents occurred on every day of the week, and there was no day when vigilance would not have been important. The graph shows that pool incidents tend to occur more often during the weekend.

Figure 5. Day of the week of life-threatening pool incidents among children 0-4 years old, Maricopa County, 1990-2006. Outcomes: all.



The distribution of pool incidents by hour of the day is shown in Figure 6. Not surprisingly, the incidents occurred when children were likely to be awake. The peak time for an incident in the 0-4 year old age group was in the mid to late afternoon.

Figure 6. Life threatening pool-related incidents by hour of the day among children 0-4 years of age. Cumulative count, 1990-2006, Maricopa County. Outcomes: all.

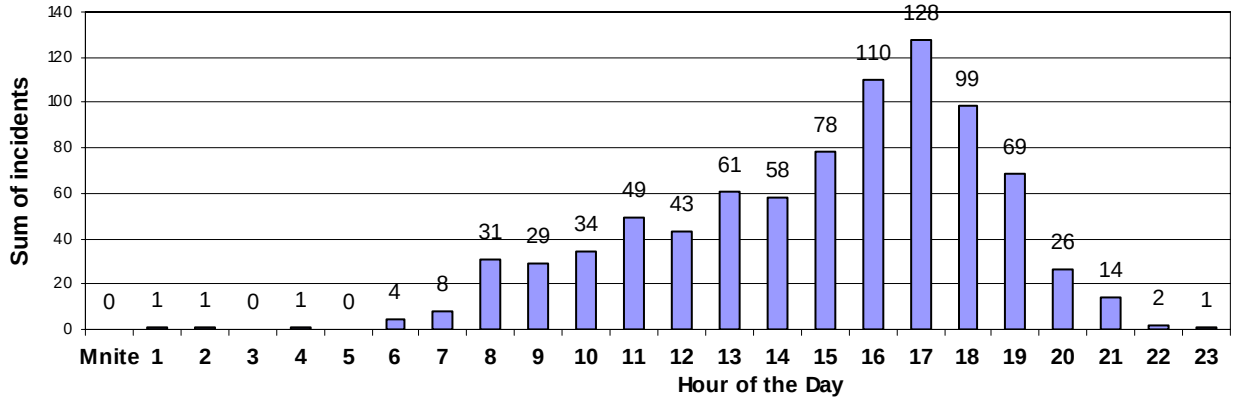


Table 7 presents information about the type of clothing worn at the time of a pool-related incident. In at least 67% of the cases, the children were not wearing swimming attire. These incidents did not occur in a swimming situation; rather, they occurred at a time when the children were not expected to be in or near the pool.

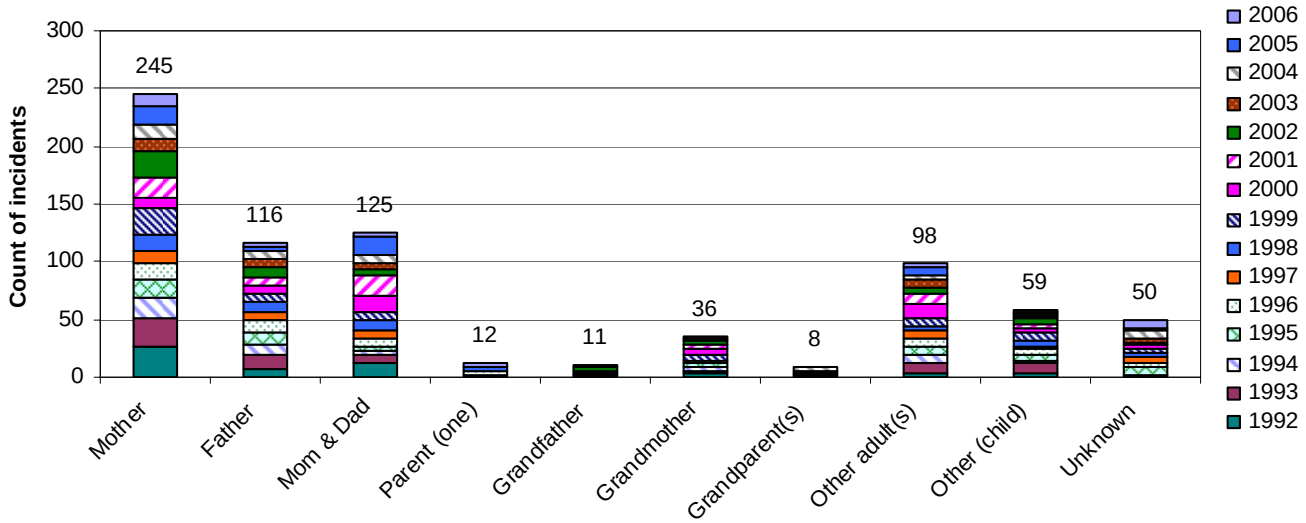
Table 7. Clothing worn by children ages 0-4 who experienced a life threatening water related incident in a pool, 2006. Outcomes: all.

None	0	0.0%
Swimwear	7	19.4%
Other clothes	24	66.7%
Unknown	5	13.9%
Total	36	100.0%

A major purpose of this surveillance system is the identification of the factors surrounding water-related incidents in young children. To assist in this effort, the personnel from the responding fire departments attempt to determine the apparent circumstances surrounding each event. In gathering this data, a firefighter asks about supervision at the time of the incident and looks for breaches in layers of protection that likely allowed a young child to access the pool.

Information about the supervisor of the victim at the time of incident is shown in Figure 7. Over the past 15 years, a mother or father or both was supervising the child in 498 (66%) of the 760 life-threatening incidents involving children 0-4 years old. In 262 (34%) incidents, the supervisor was someone other than the child's parent. This seems to be a higher proportion than the amount of time that children in this young age group spend outside the supervision of a parent. Thus, babysitters, grandparents, and other supervisors also need to be even more alert to the potential for a pool-related incident to occur.

Figure 7. Cumulative count of presumed supervisor in life-threatening pool incidents involving children, age 0-4, 1992-2006. Outcomes: all.



Outcomes

To determine outcomes, we used data from fire departments, and supplemented it with data from death certificates and other sources. We documented that at least 8 of the 53 young children (0-4 years old) who experienced a serious water-related incident in 2006 have died (see **Table 8**). Four children died from incidents in pools, two died in bathtubs, one is an irrigation canal, and one in an another of water. Of the 53 children, 11 had no reported impairment when released from the hospital. There were two documented cases of neurological impairment in this age group in 2006.

Table 8. Outcome status of children less than 5 years of age reported as having a life-threatening water related incident in 2006.

	Outcome Status				
Water type	Unknown	Died	Impairment	No Impairment	**Total**
Bathtub	5	2		2	9
Bucket	1			2	3
Canal/Irrigation Ditch	1	1			2
Fish/Decorative Pond					
Other & Unknown		1			1
Pool, above ground					
Pool, in ground	23	4	2	7	36
River/Lake	1				1
Spa	1				1
Total	**32**	**8**	**2**	**11**	**53**

Concerns about confidentiality are making it more difficult to document the outcome of cases that enter the medical care system. The outcome status of 23 (63%) of the 36 children in pools was unknown, a higher proportion of "unknowns" than the 28% of unknowns during the period 1996-2005. Since firefighters try to obtain the follow-up status on cases which have not responded to their resuscitative efforts, we speculate that in most cases a follow-up status of "unknown" means that the child probably recovered well. Currently, we are considering alternative ways to improve the process of documenting the children's outcome status.

The narrative section of the incident report form often provides additional information concerning the incident. This narrative section reveals that a family member or other person often resuscitated the child at the scene by promptly administering CPR when the child was pulled from the water source. It is our belief that this immediate resuscitation is a vital step in stabilizing the child and counteracting the detrimental effects of the submersion. However, we cannot determine whether prompt CPR leads to the survival in a vegetative state of some children who otherwise would have died.

Attributed Cause

Upon review of the incident form, we assign a single, "attributed cause" of each pool incident to one of the following six categories:

- No barrier to pool
- Inadequate fence
- Gate or latch failed or was propped open
- Back safety door or latch failed
- Supervision issue
- Other or unknown.

This information is further classified into events that occurred during the seven "cold" months, October through April, and the five "warm" months, May through September.

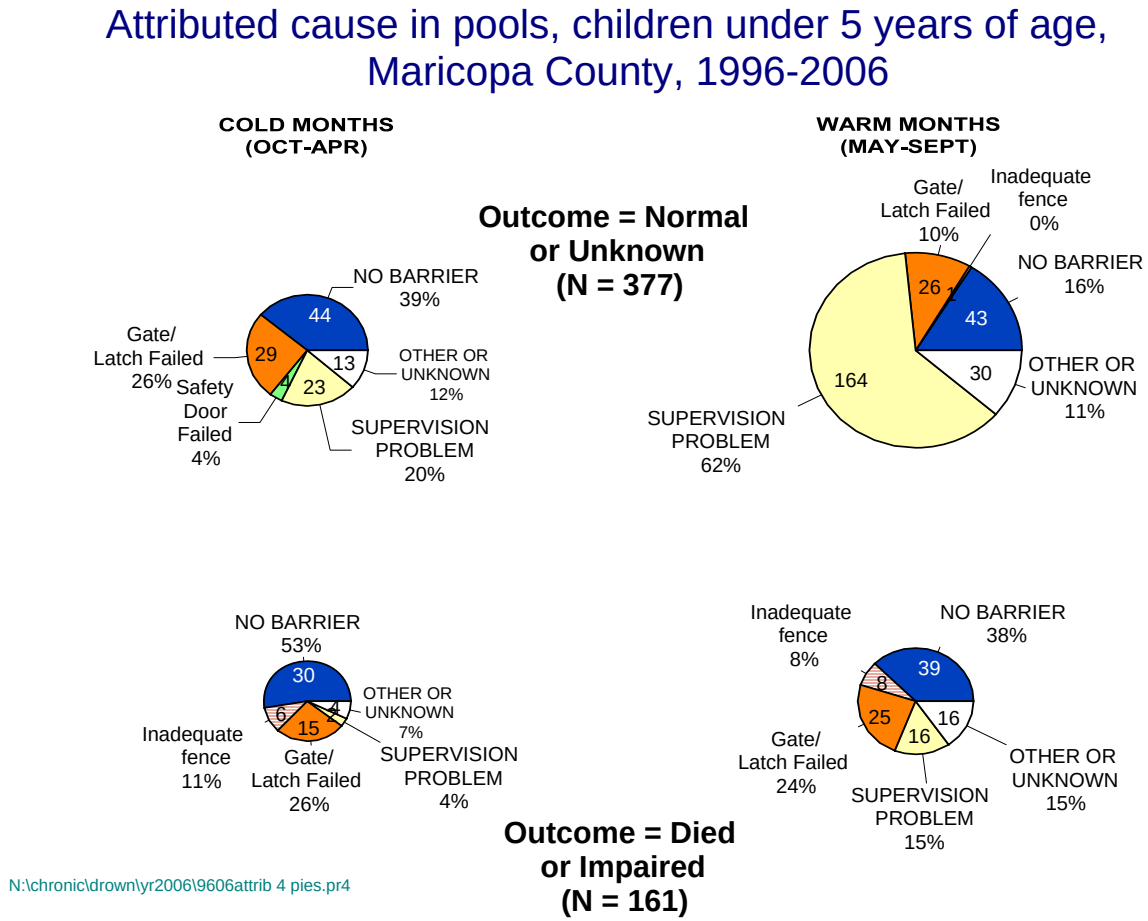
Comparison To Child Fatality Review Data

The findings in our analysis are similar to that of the Arizona Child Fatality Review (CFR) Program. The CFR program has published their findings of drowning of young children, 1995-1999, and reported that only 4 of 81 drowning **deaths** of children less than 5 years of age occurred in backyard pools in which it was known that there was an adequate pool fence that had a properly functioning locked gate.[7]

A comparable analysis of our data, looking specifically at the children who died or were impaired, yields similar findings. To relate the incidence data reported by fire departments to the mortality data from CFR, we combined the categories of the 161 incidents occurring between 1996 and 2006 where the child's outcome was "died (146) or impaired (15)." For additional comparison, we also analyzed the combined category of 377 incidents where the outcome was "normal (211) or unknown (166)." As in previous reports, we display the findings according to season (warm or cold). The results are shown in the four pie charts of **Figure 8**.

[7] Rimza ME, Schackner RA, Bowen KA, Marshall W. Can Child Deaths Be Prevented? The Arizona Child Fatality Review Program Experience. Pediatrics. 2002; 110(1). www.pediatrics.org/cgi/content/full/110/1/e11

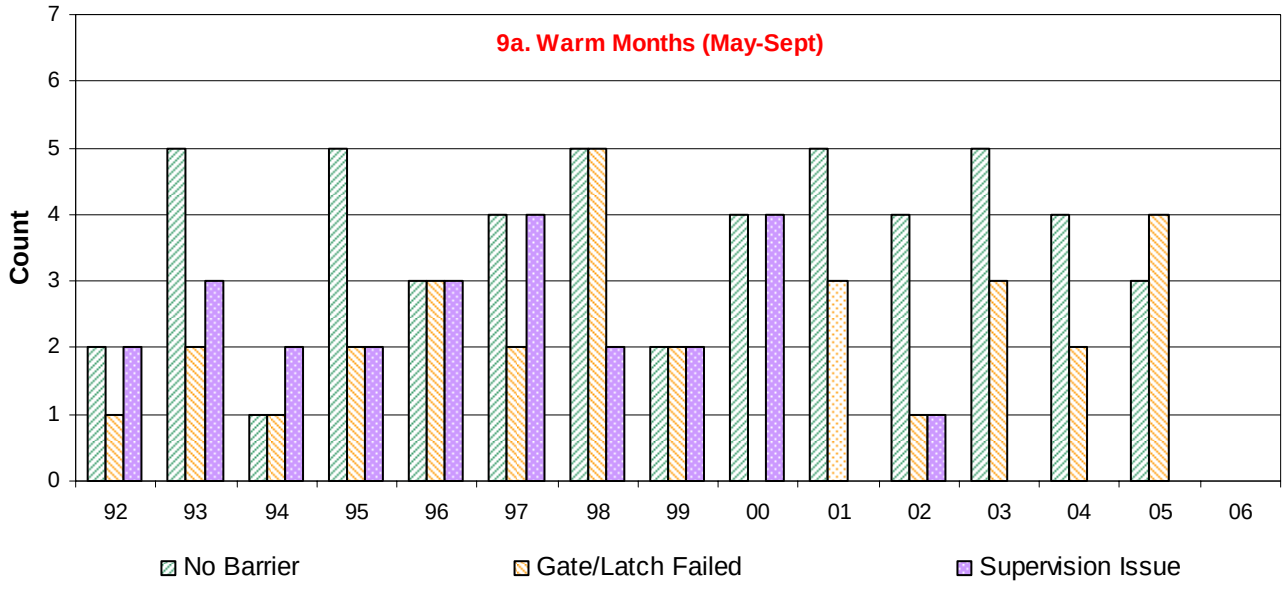
Figure 8. Comparison of the single attributed cause of incidents in pools, according to time of year (cold vs warm months) and outcome of the child (normal and unknown vs. died and impaired). This figure analyzes cases occurring in 1996-2006. Data are derived from reports submitted by fire departments in Maricopa County.

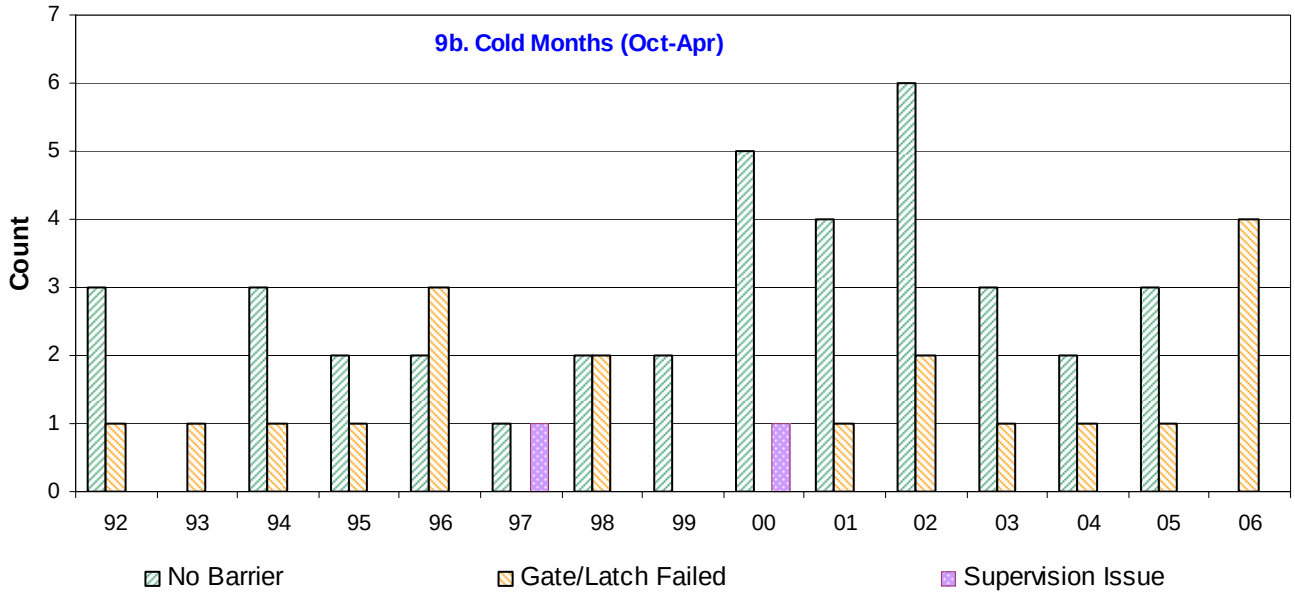


This approach reveals a notable finding for incidents that occurred during the warm months. The roles of supervision and barriers differ for the outcome categories. The role of barriers (absent or failed) for cases whose outcome is “died or impaired” markedly differs compared to those cases whose outcome is “normal or unknown.” Absent barriers appear to be a significantly more prominent factor in cases where the child died or was impaired than is supervision. On the other hand, supervision is the predominant factor in warm month incidents in which the child survived with normal or unknown outcome. In cold months, **Figure 8** shows that a barrier is the major factor regardless of outcome. The data here support the findings of the CFRT regarding the role of inadequate barriers as a major factor that contributes to child drownings in swimming pools.

Figures 9a and **9b** presents data on the trend of the attributed cause of pool-related incidents over the 15 year period. As noted above, the attributable cause is best analyzed by excluding cases in which the outcome is "normal" or "unknown." A interesting and probably more relevant pattern is noted by analyzing the cases where the child's outcome is death or impairment. Approximately 10 deaths occurred annually from pool incidents in warm months, and about 5 deaths annually from incidents that occurred in cold months (see Figure 4b). The counts swing widely from year-to-year because the counts are relatively small. Nevertheless, the charts suggest a decrease in the count of cases attributed to supervision problems in warm months during the most recent 4 years. For events occurring in cold months (see next page) we hesitate to draw conclusions about a time trend because the counts are so small and year-to-year variability so great.

Figures 9a (warm) and 9b (cold). Trend of attributed causes (expressed as the count of all cases in the warm or cold season) of pool incidents in Maricopa County involving children 0-4 years of age in which the outcome of the incident was death or impairment. The graphs do not show the counts of cases attributable to "Inadequate barrier" and "Other/Unknown."





LIMITATIONS OF INCIDENCE DATA

Our surveillance system relies mainly upon voluntary reporting by fire departments and is subject to underreporting if they reduce their participation in submitting the report forms. We have begun discussions with fire departments about revising the content of the report form and creating an electronic input system.

Our assumption that few serious water-related incidents occur without the activation of the *9-1-1* system has not been rigorously tested. In a future reporting period we intend to compare our findings to the counts of cases seen at hospital emergency departments. Cases that tend to lack a fire department report include those that are obviously dead when the law enforcement responders arrive on scene, crime scene cases, and cases under the jurisdiction of the sheriff's office or a tribal government. Information from death certificates (described below) reveals that two deaths of children 0-4 years of age in 2006 (in a river and a swimming pool) were not included in the reports we received from fire departments.[8]

[8] For consistency with previous year's procedures, we did not add these cases to this surveillance database.

DEATH CERTIFICATE DATA

Death certificates provide an independent data source to measure the counts and rates of child drownings. While we use information from death certificates to supplement the outcome status of cases identified through fire department reports (described above), we do not add otherwise unreported drowning cases to the incidence database. This allows mortality data to serve as a validation of the completeness of the surveillance system.

Customarily, mortality data show deaths of the resident population during a given year. However, for this report we present an unconventional analysis that more precisely reflects the local, year-to-year findings. In this section we present the analysis of a detailed review of the death certificates of children who died in Maricopa County, regardless of where they resided. We include only the cases whose incident and death occurred in Maricopa County. In addition, because some deaths occur months or years after a near-drowning injury, this special analysis displays information about the decedents according to the year of their injury (not the customary year of death). Thus, we present the local rates of drowning deaths, regardless of residency, according to the year of the incident, divided by the estimated number of children age 0-4 each year residing in Maricopa county.

Figure 10 shows these drowning death rates for children under five years of age.[9] The data are shown for drownings in all bodies of water, and separately for drownings that occurred in swimming pools, and in bodies of water other than pools.

In 2006, the Maricopa drowning rate for all bodies of water decreased to 3.2 deaths per 100,000 resident children. This is the lowest drowning rate since we began tracking the rates. Similarly, the death rate for pools decreased to 1.9 per 100,000 children, also the lowest rate in the past 27 years. The decline in the death rate looks generally similar to the decline in the rate of pool incidents reported by the fire departments shown previously in **Figure 3**. For comparison, the goal *of Healthy Arizona 2010* is to reduce drowning fatalities to no more than 0.9 deaths per 100,000 young children.[10,11]

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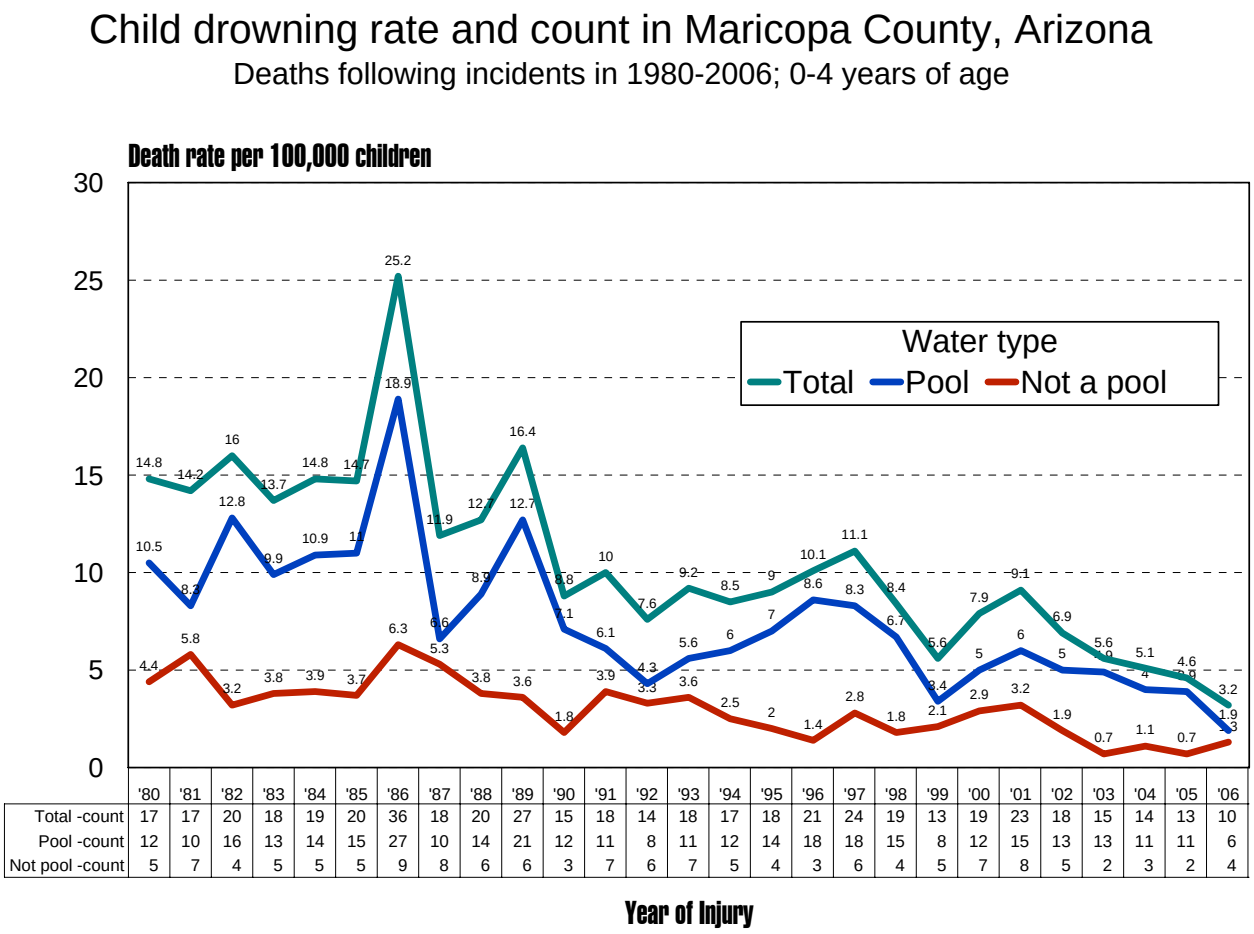
[9] To calculate this rate, the numerator includes non-residents and Arizona residents, age 0-4 years old, whose death occurred in Maricopa County. The denominator, however, is the Maricopa County population of children 0-4 years old. We chose this unconventional method for calculating the rate because we occasionally encounter nonresident visitors whose incident and death occurred in Maricopa county. We count these cases because the Drowning Prevention Coalition is focused on reducing the local incidents regardless of whether the child is a county resident or a visitor.

[10] U.S. Department of Health and Human Services. *Healthy People 2010*, 2nd ed., Volume 2. Injury Prevention, Section 15-29: Reduce Drownings, page 15-40. U.S. Government Printing Office, November 2000.

[11] http://www.azdhs.gov/bems/trauma-pdf/injuryprevplan.pdf ADHS Injury Surveillance and Prevention Plan, 2002-2005.

Figure 10. Drowning death rate for children, 0-4 years of age, where the occurrence of the death and the incident was in Maricopa County. [Data Source: ADHS, Vital Statistics, death certificates coded with underlying cause of death as: E830, E832, or E910 (prior to year 2000); or W65-W74, V90-V92, or Y21 (year 2000 and later). Manner of death: accidental or undetermined].



	'80	'81	'82	'83	'84	'85	'86	'87	'88	'89	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05	'06
Total -count	17	17	20	18	19	20	36	18	20	27	15	18	14	18	17	18	21	24	19	13	19	23	18	15	14	13	10
Pool -count	12	10	16	13	14	15	27	10	14	21	12	11	8	11	12	14	18	18	15	8	12	15	13	13	11	11	6
Not pool -count	5	7	4	5	5	5	9	8	6	6	3	7	6	7	5	4	3	6	4	5	7	8	5	2	3	2	4

DISCUSSION

The rates of incidents and deaths in pools have continued to fall in Maricopa county. The rate for 2006 was the lowest on record. Furthermore, this recent rate continues the decreasing trend noted over the past 5 years. Informal conversations with the Board of the Drowning Prevention Coalition of Central Arizona have not identified any specific factors leading to this favorable trend. But, the Coalition is most encouraged by this year's findings.

APPENDIX A. Incident Report Form

(See next page – Drowning or Near-Drowning Incident Report Form)

REPORT OF DROWNING OR NEAR-DROWNING IN ARIZONA -- 2006

_____ **DATE OF INCIDENT** (MM/DD/YR)
_____:_____ **HOUR** (24:00)
_____ **AGE** (yrs)
____ **SEX**

INCIDENT # _____

PLAT # or ZIPCODE: _____

_____ **Fire Dept.**
(Reporting agency)

CITY OF INCIDENT:
( ) Chandler ( ) Mesa ( ) Rural area
( ) Gilbert ( ) Peoria ( ) Scottsdale
( ) Glendale ( ) Phoenix ( ) Tempe
( ) Other:_____

HISPANIC: ( ) Yes ( ) No ( ) Unk.

RACE: ( ) White ( ) Amer. Indian
( ) Black ( ) Unknown
( ) Other: _____

WATER TYPE:
( ) Pool--in ground ( ) Spa
( ) Pool--above ground ( ) Bathtub
( ) Canal or Irrig. Ditch ( ) Toilet
( ) Other: _____

SITE OF INCIDENT: (at whose home?)
( ) Victim's Home ( ) Neighbor's "
( ) Relative's " ( ) Friend's "
( ) Other: _____

TYPE OF DWELLING:
( ) Single Home ( ) Apt/Condo
( ) Hotel/Motel ( ) Other: _____

ATTIRE OF VICTIM: ( ) Swimwear
( ) None ( ) Other Clothes

ACTIVITY AND LOCATION OF VICTIM IMMEDIATELY PRIOR TO INCIDENT:
_____
_____

SUPERVISOR(s) AT TIME OF INCIDENT:
( ) Mother ( ) Father ( ) N/A
( ) Other (Specify) _____
Age of this person _____

ACTIVITY AND LOCATION OF SUPERVISOR IMMEDIATELY PRIOR TO INCIDENT:
_____
_____

STATUS OF VICTIM WHEN FOUND IN WATER:
( ) Submerged ( ) Floating
( ) Struggling ( ) Unknown
( ) Other: _____

RESPIRATORY EFFORT WHEN PULLED FROM WATER:
( ) Present ( ) Absent

ESTIM. DURATION OF ANOXIA: _____

DID RESCUER/ BYSTANDER(S) PERFORM CPR?
( ) Yes ( ) No ( ) Unknown
Done right? Comment: _____
_____

LENGTH OF RESIDENCE AT THIS HOUSE (if applicable)? _____

IS THERE A FENCE OR BARRIER?
( ) Yes ( ) No ( ) Unknown
Describe:_____

METHOD OF ACCESS TO POOL OR SPA:
( ) Supervisor allowed child into pool or deck area
( ) No barrier -- child wandered in
( ) Climbed (specify): _____
( ) Child entered unsecured gate
( ) Child entered secured gate
( ) Other: _____

WOULD AN <u>INNER FENCE</u> AROUND THE POOL HAVE PREVENTED THIS INCIDENT?
( ) Yes ( ) No
( ) Unknown ( ) N/A

DISPOSITION:
( ) DOA ( ) Died in E.R.
( ) Treated As Outpatient
( ) Admit to: _____

FOLLOW-UP: (Date pt was last seen)
( ) Died _____ / _____ / _____
( ) No Impairment _____ / _____ / _____
( ) Impairment _____ / _____ / _____

DESCRIBE THE APPARENT CIRCUMSTANCES (how/why it happened; how child was found & revived): _____
_____
_____
_____
_____

(Initials) _____

(Today's Date)
_____

Fax completed forms to ADHS (602)-364-0082. Additional forms available www.azdhs.gov/phs/phstats/meddir/