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Unintentional non-traffic injury and fatal events: Threats to children in and around vehicles

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ABSTRACT

Objective: There have been substantial reductions in motor vehicle crash–related child fatalities due to advances in legislation, public safety campaigns, and engineering. Less is known about non-traffic injuries and fatalities to children in and around motor vehicles. The objective of this study was to describe the frequency of various non-traffic incidents, injuries, and fatalities to children using a unique surveillance system and database.

Methods: Instances of non-traffic injuries and fatalities in the United States to children 0–14 years were tracked from January 1990 to December 2014 using a compilation of sources including media reports, individual accounts from families of affected children, medical examiner reports, police reports, child death review teams, coroner reports, medical professionals, legal professionals, and other various modes of publication.

Results: Over the 25-year period, there were at least 11,759 events resulting in 3,396 deaths. The median age of the affected child was 3.7 years. The incident types included 3,115 children unattended in hot vehicles resulting in 729 deaths, 2,251 backovers resulting in 1,232 deaths, 1,439 frontovers resulting in 692 deaths, 777 vehicles knocked into motion resulting in 227 deaths, 415 underage drivers resulting in 203 deaths, 172 power window incidents resulting in 61 deaths, 134 falls resulting in 54 deaths, 79 fires resulting in 41 deaths, and 3,377 other incidents resulting in 157 deaths.

Conclusions: Non-traffic injuries and fatalities present an important threat to the safety and lives of very young children. Future efforts should consider complementary surveillance mechanisms to systematically and comprehensively capture all non-traffic incidents. Continued education, engineering modifications, advocacy, and legislation can help continue to prevent these incidents and must be incorporated in overall child vehicle safety initiatives.

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Introduction

Motor vehicle crashes (MVCs) are the leading cause of death and acquired disability for children 5 years and older (Centers for Disease Control and Prevention [CDC] 2016). Though great progress has been made to reduce occupant-related injuries and fatalities in MVCs, less is known about non-traffic, non-crash and non-traffic crash incidents, which herein will be referred to as non-traffic injuries and deaths. Prior studies have focused on certain types of non-traffic mechanisms such as frontovers and backovers (Anthikkat et al. 2013; Fenton et al. 2005; Griffin et al. 2014; Mayr et al. 2001; Nadler et al. 2001; Pinkney et al. 2006; Rice et al. 2012; Shepherd et al. 2010; Stark et al. 2011), being left in the vehicle with resultant hyperthermia (Booth et al. 2010; Ferrara et al. 2013; Grundstein et al. 2011; Guard and Gallagher 2005; Kuska 2012; McLaren et al. 2005), drowning (Austin 2011), power windows/strangulation (Branco et al. 2006; Byard and James 2001), carbon monoxide poisoning (CDC 2008), car trunk entrapment (CDC 1998; McLoughlin and Fennell 2000), and underage drivers (Frisch et al. 2003; Lam 2003). However, in addition to focusing on a single mechanism, many of these studies have been limited by institutional or regional estimates or a narrow time period of case capture. The National Highway Traffic Safety Administration (NHTSA) has published recent periodic non-traffic incident summaries (NHTSA 2009a, 2009b, 2012, 2014a, 2014b, 2015a, 2015b), including those with child-specific data (NHTSA 2009a, 2012, 2014a, 2015b). However, these reports are limited by (1) the lack of mandate by the states to report non-traffic injuries and deaths, (2) the inconsistent detail provided in mechanism of injury and death recorded in medical records or death certificates, (3) the limited data collected about interactions of vehicles and people that take place off a public road or highway, and (4) the inconsistent use of *International Classification of Diseases* (ICD) coding for similar incidents. The objective of this study was to describe the various types of non-traffic incidents to children in the United States using a long-standing surveillance system and database.

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Methods

KidsAndCars.org, formerly Trunk Releases Urgently Needed Coalition (TRUNC), is a national, nonprofit child safety organization that has prospectively collected U.S.-based non-traffic vehicle-related incident, injury, and fatality data since 1995, with retrospective data collection from 1990 to 1995. Non-traffic is defined as any event involving a motor vehicle that happens off of public roads or highways, usually in parking lots or driveways. Table 1 lists the titles and brief descriptions for the various incident types. MVCs are not included in the non-traffic data. Additionally, incidents are excluded if there was an intentional attempt at harm, including assault, homicide, and suicide.

KidsAndCars.org gathers media reports involving non-traffic incidents through Internet searches, Google Alerts since 2003, and the media intelligence platform Meltwater. Over 100 keywords and search terms such as "child," "run over," and "driveway" are used to locate media reports providing information about non-traffic incidents. All media reports on a particular incident are collected and documented in a case file. Because many media reports lack the information needed for the database, follow-up investigation is conducted utilizing a variety of sources. These additional sources contacted include, but are not limited to, medical examiners, coroners, child death review teams, law enforcement, media reports, Internet searches, child death review teams, attorneys, and personal accounts from families of the children. Most of the information contained in the KidsAndCars.org database is publicly available, although there is some case information that is keep confidential by families' request. None of the aggregate data contain identifiers.

The database includes up to 75 data elements including information about the date and time of the incident, the location, city and state, type of incident, occupants and nonoccupants involved, vehicle information, any resulting injury or fatality, and any subsequent legal action. For the purposes of this study, we chose to look at data elements that were quantitative and/or frequently available. Data are maintained in a centralized database and are kept in multiple sources of secure, redundant storage. Summary statistics including means and proportions were used to describe the trends of the incident types, location, and vehicle types of incidents over time for children 14 years and younger from January 1990 to December 2014.

Although the KidsAndCars.org database is the most comprehensive non-traffic database available, it is still likely limited; that is, it does not capture all incidents. However, the data captured are routinely checked for accuracy and to ensure that there are no duplicate cases. Updates to the database are made on a daily to weekly basis. Only deidentified data were used for this current analysis, and the Institutional Review Board at Rhode Island Hospital/Hasbro Children's Hospital approved the study.

Table 1. Incident types and description of mechanisms.

Incident type	Mechanism
Backover	Child backed over by vehicle traveling in reverse
Car theft	Vehicle stolen with a child alone inside the vehicle, unbeknownst to the thief
Carbon monoxide	Carbon monoxide is emitted from a vehicle's exhaust system into the interior of the vehicle or into a home through the garage
Drowning	Trapped in vehicle originally on private property and then submerged in water, including vehicles set in motion and rolling in water
Fall	Falls out or off of a vehicle
Fire	Vehicle fire with child inside or child starts fire in vehicle
Frontover	Slow forward-moving vehicle running over child
Hyperthermia	Child left inside or entered vehicle on their own and succumbs to heat
Hypothermia	Child left inside or entered vehicle on their own and succumbs to cold
Kidnapping	Child abducted from vehicle
Left alone	Unattended child in vehicle
Left vehicle	Child leaves the vehicle
Power windows	Crush, amputation, or other injury from vehicle's power window
Seat belt	Seat belt strangulation
Trunk entrapment	Child trapped inside trunk of vehicle
Underage driver	Child under the legal driving age driving vehicle
Vehicle in motion	Vehicle inadvertently knocked into gear and vehicle moves and/or child is run over

Results

There were 11,759 distinct incidents in a variety of venues and vehicles to 14,568 children 14 years and younger, 47% of whom were male, with an average age of 3.7 years (Appendix 1, see online supplement). The majority of children with hyperthermia and seat belt strangulation were younger than 3 years old, and the majority of those with car trunk entrapment or who were underage drivers were older than 7 years old. Most incidents occurred in the child's driveway (17%) or other driveway (9%), in a shopping center parking lot (11%), a parking lot (10%), or parked on a street (11%). When the information was reported, the most common vehicles involved were 2- to 4-door cars/sedans (45%) and light trucks (35%; which included SUVs, 13%; pickup trucks, 12%; or minivans, 10%). Figure 1 shows the annual number of incident types. Figure 2 and Appendix 2 (see online supplement) show the number of fatal incidents among children 14 and younger, with an average of 227 annual deaths from 2005 to 2014. Fatal injuries were predominantly due to backovers (36%), hyperthermia (21%), and frontovers (20%).

Discussion

This study is the first to describe a broad spectrum of non-traffic events, injuries, and deaths in children over a 25-year period in the United States. There was a predominance of backovers, hyperthermia, and frontovers as the incident types and fatalities found in these data. Most incidents occurred in cars/sedans or various types of light trucks and in driveways or parking lots. Vehicle fleet changes from sedans to SUVs, trucks, and minivans, all with larger blind zones, and redesign of vehicles with higher back ends and smaller rear windows may have contributed to the rise in fatal frontovers and backovers seen over time. Collecting these surveillance data is critical to creating and implementing various types of injury prevention interventions, including changes in continued education/advocacy, engineering, legislation, and policy. Non-traffic data have been useful to help influence various federal policy and legislation in order to prevent non-traffic incidents, including prohibiting leaving children alone in vehicles (KidsAndCars.org 2016a,

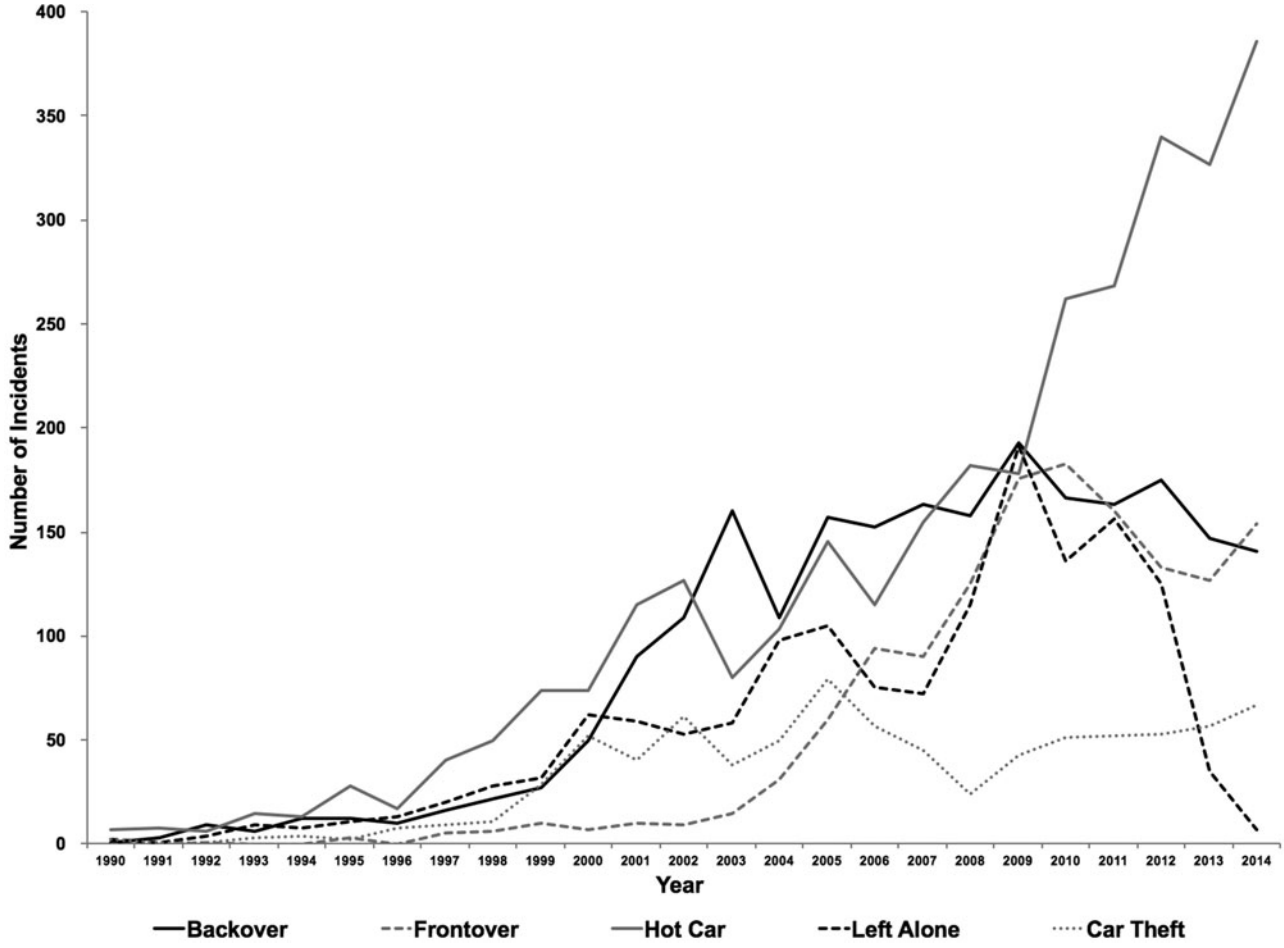

Figure 1. Number of incidents by year. Any incident type with <800 total cases for the time period studied was not included for clarity of the graph.

2016b); enhancing power window safety and rearward visibility in motor vehicles (Federal Register 2016c); public education directive with comprehensive consumer information about and prevention strategies for non-traffic incidents (NHTSA 2016b); requirements for rearview backup cameras in vehicles (Federal Register 2016c, 2016e); mandate of internal trunk release mechanisms in all vehicles (Federal Register 2016a); and measures to help prevent rollaway vehicles by locking the gear unless the driver's foot is on the brake (Federal Register 2016d); and injuries from power windows (Federal Register 2016b). Surveillance of non-traffic events has been essential to inform these various efforts.

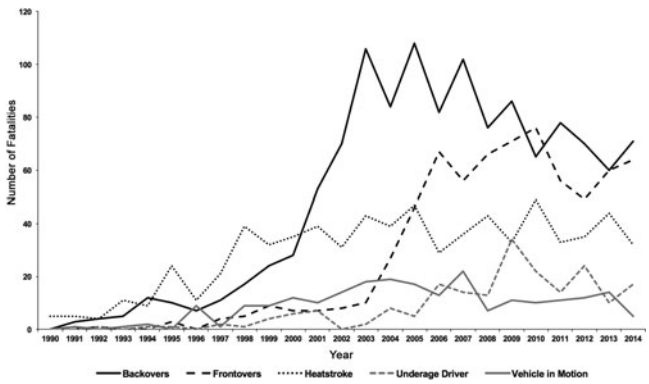

Figure 2. Number of fatalities by year. Any incident type with <100 total cases for the time period studied was not included for clarity of the graph.

This is not the only non-traffic data collection system in the United States. NHTSA has a number of robust data sources about traffic safety (NHTSA 2016a). The Fatality Analysis Reporting System (FARS) captures data about incidents (1) that take place on a public road or highway, (2) that involve a crash, or (3) in which the person dies within 30 days of when the incident took place. Though it may occasionally include events that occurred on private property—for example, a backover or frontover that is coded as "pedestrian versus automobile"—in general, FARS only captures those incidents that take place on public roads. Another NHTSA data set, the Non-Traffic Surveillance system (NTS), exclusively captures non-traffic incidents from a very limited number of states (NHTSA 2016c). NHTSA began collecting non-traffic data based on a mandate from Congress initiated by KidsAndCars.org. NHTSA created the NTS database to satisfy these requirements and issued their first report about non-traffic incidents in January 2009. The NTS system is a virtual data collection system designed to provide counts and details of fatalities and injuries that occur in non-traffic crashes and non-crash incidents. NTS non-crash injury data are based on emergency department visits from the Consumer Product Safety Commission's National Electronic Injury Surveillance System All Injury Program. NTS non-crash fatality data are also captured from the CDC's National Vital Statistics System death certificates.

There are several differences in non-traffic event estimates between NTS and our current study. For example, the NTS reported an average of 19 child vehicular hyperthermia deaths

each year for 2005–2007 (NHTSA 2015a) and 27 deaths for 2003–2004 (NHTSA 2009a), whereas our data demonstrated an annual average of 38–40 deaths for the same time periods. Similarly, the most recent NTS report from March 2015 (NHTSA 2015a) lists heat exhaustion as a type of injury but did not quantify it for children younger than 14 years. This indicates that there may be opportunities to enhance the NTS methodology to ensure a more comprehensive capture of these cases and to accurately track trends and effects of injury prevention efforts over time. One significant limitation of the NTS data is that there are a very limited number of states that report state non-traffic data to the federal level. Though a correction based on expected number of fatalities based on death certificates and the number of fatalities registered in NTS is used, it is concerning that it inaccurately captures likely underreports the true incidence of these cases (NHTSA 2014b). Additionally, relying solely on death certificates may be more limited than the multimodal data acquisition from various sources. Finally, NHTSA could consider collecting information on non-traffic crashes in one consolidated database/mechanism; for example, add all vehicle-related incidents to FARS similar to how the Consumer Product Safety Commission collects data. Though the database provides good information about the overall issue and contains some specifics, the level of granular detail is not available for comprehensive analyses.

NTS uses emergency department–based records from the National Electronic Injury Surveillance System All Injury Program for their nonfatal injuries, and other research has also used hospital-based records to track non-traffic incidents. When comparing data sources, a prior study (Rice et al. 2012) identified 94 non-traffic incidents (9 fatal and 85 nonfatal) from 8 trauma centers in California, and KidsAndCars.org identified 58 incidents (41 fatal and 17 nonfatal) incidents during the same time period. Only 5 incidents (4 fatal and 1 nonfatal) identified by KidsAndCars.org were also identified by the trauma registry. Therefore, relying on hospital and trauma registry data may lead to missing many cases because many patients may not be brought to medical care or there may be inadequate coding mechanisms to capture the etiology of the injury. For example, the *International Classification of Diseases*, Ninth Revision, Clinical Modification (ICD-9-CM; World Health Organization 2016) injury diagnoses codes or E-codes for mechanism would not capture specific non-crash injuries such as being locked in a trunk or hyperthermia from being left in a vehicle (McKenzie et al. 2009). In addition, not all states mandate the documentation of E-codes for mechanism of injury. One strategy to identify these injuries is to search text of electronic health records for keywords relevant to these mechanisms. Although the recent U.S. implementation of ICD-10-CM has made many more injury and mechanism codes available (McKenzie et al. 2012), it is unclear whether they will be used or validated, particularly for these specific mechanisms. When using large or shared data sets, injuries can be more easily compared with the use of categorization schemes such as the Barell injury diagnosis matrix, which categorizes injury mechanism (CDC 2013), and the Abbreviated Injury Scale, which categorizes injury anatomy and severity (Association for the Advancement of Automotive Medicine 2008). Similar considerations need to be made when categorizing these non-traffic incidents in national summaries by injury type. Though non-traffic fatalities among the toddler age group are most certainly in the top 5 causes of preventable deaths, non-traffic fatalities are not included in their own category in the most frequent injury fatalities by the CDC (CDC 2016). Given that the average age of this sample was 3.7 years, most interventions would be applicable to the older toddler to young preschool age group.

Our data set overcomes some of the limitations of existing NTS methods to collect these incidents by including a more comprehensive surveillance approach. Specifically, because our data include incidents from all 50 United States and all non-traffic incidents—that is, not just those that result in a fatality or injury—they can be more useful in understanding the scope of these events.

These data have limitations that should be described. First, not every case of these various non-traffic incidents was captured, particularly for individuals with minor or no injury or near-misses or due to patient privacy restrictions about sharing data. The noninclusion of more near-misses may be particularly applicable to some of the older data, such as children being left in vehicles, because current 24-h news coverage may more frequently capture these media stories, even if an injury or death does not occur. Similarly, patients with minor injuries or no injuries who are treated and discharged from a trauma center may not be captured in our data set. However, our approach to identifying cases likely captures many, although not all, incidents resulting in serious injury or fatality. The retrospectively collected data from 1990 to 1995 may be subject to bias in identification of all incidents and details. Additionally, there was no standardized collection of specific injury type and severity, such as the ICD or the Abbreviated Injury Scale. Finally, there was no consistent documentation of detailed demographics such as race, ethnicity, and proxies of socioeconomic status, which could be helpful to understand potential disparities in risk for these incidents.

This study is the first to describe a comprehensive and broad range of non-traffic incidents and deaths among children age 14 and younger using an ongoing national surveillance system. These non-traffic incidents present an important threat to the safety and lives of very young children and are likely underestimated when using traditional road traffic safety surveillance systems. Future efforts should consider complementary surveillance mechanisms that utilize police records, electronic health data, and media reports in order to ensure a comprehensive capture of all non-traffic incidents. Furthermore, continued education/advocacy including public campaigns, engineering modifications including integrated interior and exterior sensors, and legislation including federal mandates for vehicles can help mitigate these predictable and preventable incidents.

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Appendix 1: Age and sex of the victim, incident location, and vehicle type for the January 1990- December 2014 sample by mechanism of incident

	ALL incidents	ALL victims	Back-over	Front-over	Cold Car	Hot Car	Left Alone	Car Theft	Power Windows	Car Trunk Entrapment	Underage Drivers	Set into Motion	Carbon Monoxide	Drowning	Falls	Fire	Seat Belt	Kidnapping	Got out of vehicle	Other
Total	11759	14568	2346	1640	968	4099	1847	976	205	95	663	1035	72	68	145	135	21	32	89	132
Percentage of total victims	-	-	16.1%	11.3%	6.6%	28.1%	12.7%	6.7%	1.4%	0.7%	4.6%	7.1%	0.5%	0.5%	1.0%	0.9%	0.1%	0.2%	0.6%	0.9%
Age in Years (mean)	-	3.7	3.0	5.1	3.5	2.8	3.6	3.2	3.6	7.3	10.3	3.9	5.7	4.3	5.3	3.7	2.6	4.8	4.2	4.4
Sex (% Male)	-	43.2	57.3	53.9	35.7	36.2	30.4	47.3	39	43.2	46.6	41.7	34.7	51.5	64.1	43.7	57.1	34.4	56.2	46.2
Site/Location (n)																				
Driveway of Victim	1992	2182	920	266	17	355	71	90	23	16	51	293	7	1	27	21	3	2	4	15
Shopping Centers	1299	1795	39	64	238	935	367	63	1	5	10	34	2	-	3	18	1	2	6	7
Street	1279	1717	148	258	77	201	188	107	6	29	455	99	14	16	48	18	4	8	13	28
Parking Lot	1232	1538	120	115	140	623	271	87	21	7	30	67	1	-	7	18	1	5	17	8
Driveway	1002	1128	514	114	15	94	37	80	23	2	20	181	1	-	12	18	-	1	4	12
Store	567	827	12	44	126	478	123	16	1	3	2	6	-	-	2	3	1	3	1	6
Apartment Complex	440	499	133	109	17	93	28	48	2	1	6	32	3	2	11	6	-	-	2	6
Grocery Store/Market	364	504	14	19	48	271	75	42	2	4	3	12	-	2	1	-	2	5	-	4
Convenience Store/ Gas Station	352	419	10	23	28	25	39	237	1	-	4	31	-	-	1	3	-	3	1	13
School	316	380	33	149	24	76	41	8	3	1	11	14	-	-	4	3	1	-	6	6
Day Care Center	211	236	22	16	13	97	45	27	1	-	1	11	-	-	-	-	-	-	1	2
Restaurant	203	260	14	29	7	88	46	45	4	2	6	10	-	2	2	-	-	1	2	2
Bar, Pub, Strip Club, Night Club	184	241	1	1	49	91	84	3	-	1	-	-	-	1	-	-	-	1	9	-
Casino	162	249	1	1	37	131	71	1	-	-	-	2	-	-	-	2	-	-	3	-
Sidewalk	136	210	39	158	-	-	3	-	-	-	3	6	-	-	-	-	-	-	-	1
Bus yard, lot, barn	132	136	1	3	29	53	43	-	-	-	-	-	-	-	-	-	-	-	7	-
Trailer Park/Mobile Home	114	126	48	38	1	24	2	1	1	-	-	7	-	-	3	-	1	-	-	-

Park/Camp Ground	96	115	35	28	-	23	3	6	1	-	-	12	-	1	2	-	-	-	1	3
Hospital/Medical Facility	95	116	4	7	7	59	24	11	2	-	-	1	-	-	-	-	-	-	-	1
Yard	92	118	30	49	-	7	3	-	1	-	7	11	-	2	-	2	-	-	-	6
Church Parking Lot	88	94	19	15	4	27	7	7	2	1	3	7	-	-	2	-	-	-	-	-
Hotel/Motel Parking Lot	51	67	12	3	12	13	12	10	-	2	1	2	-	-	-	-	-	-	-	-
Garage of Home	50	66	9	-	-	4	4	1	3	1	5	7	30	-	-	1	1	-	-	-
Alley	45	50	15	15	3	6	3	3	-	-	-	3	-	-	-	-	-	-	1	1
Court House	35	49	2	-	2	32	13	-	-	-	-	-	-	-	-	-	-	-	-	-
Post Office	28	35	1	1	-	13	10	5	2	1	-	-	-	-	-	1	-	-	1	-
Parking Garage	27	32	-	1	5	15	8	-	-	-	-	-	-	-	-	1	-	-	-	2
Laundry Mat/ Dry Cleaners	24	27	4	1	-	8	2	12	-	-	-	-	-	-	-	-	-	-	-	-
Car Wash	23	29	10	9	-	2	1	3	-	-	-	3	-	-	1	-	-	-	-	-
Bank	19	23	1	-	-	10	4	7	-	-	-	-	-	1	-	-	-	-	-	-
Library	15	16	2	2	-	8	2	-	-	-	2	-	-	-	-	-	-	-	-	-
Jail/Prison Parking Lot	14	24	-	-	-	13	5	1	-	-	-	-	3	-	-	-	-	-	2	-
Garage	12	12	-	4	2	4	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Liquor Store	12	14	-	-	-	7	1	5	-	-	1	-	-	-	-	-	-	-	-	-
Tanning Salon	10	16	-	-	3	10	3	-	-	-	-	-	-	-	-	-	-	-	-	-
Movie Theater	9	10	-	-	3	4	2	-	-	-	-	1	-	-	-	-	-	-	-	-
Gym Parking Lot	8	9	-	-	-	4	5	-	-	-	-	-	-	-	-	-	-	-	-	-
On Beach	7	7	-	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other	238	311	34	61	10	25	31	5	8	8	30	27	3	40	12	8	-	-	4	5
Unknown	776	881	99	30	51	170	169	45	96	11	12	156	8	-	7	12	6	1	4	4
Type of Vehicle (n)																				
2-4 Door Car/Sedan	5267	6771	717	541	542	2326	910	525	99	88	363	384	37	37	35	41	10	13	42	61

Sports Utility Vehicle	1554	1905	427	352	44	394	103	193	40	-	116	131	16	19	18	24	1	7	6	14
Pickup Truck	1376	1589	571	317	25	167	80	78	27	-	65	165	8	7	43	8	2	4	9	13
Minivans	1146	1497	201	112	65	466	158	109	22	-	51	217	7	5	13	43	4	5	8	11
Bus	507	549	5	90	121	147	145	-	-	-	3	20	-	-	4	-	-	-	11	3
Child Care Van	195	207	3	8	20	88	74	9	-	-	2	-	-	-	-	-	-	-	1	2
Delivery, Construction, Garbage Trucks	98	117	52	30	-	6	5	-	-	-	8	4	-	-	3	-	-	-	-	9
Station Wagon	60	68	11	4	4	17	4	2	5	-	10	7	-	-	1	2	1	-	-	-
Motor Homes, 18 Wheelers, Semi, or other heavy equipment	20	31	6	8	2	2	-	-	-	-	-	10	-	-	2	1	-	-	-	-
Delivery, Conversion, Commercial	16	20	7	2	-	5	4	1	-	-	-	1	-	-	-	-	-	-	-	-
Other	83	102	22	17	3	12	8	4	-	-	7	3	-	-	14	6	-	-	-	6
Unknown	1437	1712	324	159	142	469	356	55	12	7	38	93	4	-	12	10	3	3	12	13

Appendix 2. Fatalities by year and incident type

	All (N)	All (%)	‘90	‘91	‘92	‘93	‘94	‘95	‘96	‘97	‘98	‘99	‘00	‘01	‘02	‘03	‘04	‘05	‘06	‘07	‘08	‘09	‘10	‘11	‘12	‘13	‘14
Back-overs	1232	36%	-	3	4	5	12	10	7	11	17	24	28	53	70	106	84	108	82	102	76	86	65	78	70	60	71
Carbon Monoxide	29	1%	-	-	-	-	-	-	-	3	-	1	1	2	1	5	-	7	3	-	-	5	-	-	-	1	-
Drowning	36	1%	-	-	-	-	-	-	-	2	-	-	-	-	-	-	1	1	-	2	3	10	4	5	3	2	3
Falls	54	2%	-	-	-	-	-	-	1	-	1	1	1	2	2	2	1	3	4	-	2	11	6	5	4	7	1
Fire	41	1%	-	-	-	1	-	-	3	-	3	2	3	3	3	4	-	3	2	6	-	2	1	3	2	-	-
Front-overs	692	20%	-	-	1	-	-	3	-	4	5	9	7	7	8	10	27	46	67	56	66	71	76	56	49	60	64
Hypothermia	4	0.1%	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	1	-	-	1	-	-	-	-	-
Hyperthermia	729	21%	5	5	4	11	9	24	11	21	39	32	35	39	31	43	39	47	29	36	43	33	49	33	35	44	32
Power Window	61	2%	-	-	3	1	1	1	1	5	5	2	2	3	4	5	9	3	3	1	3	2	1	1	2	1	2
Roll-over un-known direction	22	2%	-	-	-	-	-	-	-	-	-	-	-	1	-	2	2	2	3	1	2	5	-	-	-	2	2
Seat Belt Strangulation	10	0%	-	-	-	-	-	1	-	1	1	-	-	3	1	1	-	2	-	-	-	-	-	-	-	-	-
Underage Driver	203	6%	-	-	1	-	1	1	-	2	1	4	6	7	-	2	8	5	17	14	13	34	22	14	24	10	17
Vehicle in Motion	227	7%	-	1	-	1	2	-	9	1	9	9	12	10	14	18	19	17	13	22	7	11	10	11	12	14	5
Other	56	2%	-	-	1	1	-	-	-	-	2	-	3	1	-	3	5	4	6	7	5	6	3	3	5	-	1
Total	3396	--	5	9	14	20	25	40	32	50	83	84	99	132	134	201	195	248	230	247	220	277	237	209	206	201	198