



DATA BRIEF

MASSACHUSETTS

Special Emphasis Report: Infant and Early Childhood Injury, 2013

Injury Surveillance Program, Massachusetts Department of Public Health

August 2016

Early Childhood Injury in Massachusetts

Massachusetts has had the lowest rate of unintentional child injury deaths in the United States for nearly a decade.¹ Despite this achievement, injuries remain the leading cause of death among Massachusetts (MA) children over age one. This bulletin provides data on fatal and nonfatal injuries among MA children ages 0-5 and strategies being used by the MA Department of Public Health to reduce rates of early childhood injury even further.

In 2013, a total of 18 MA children ages 0-5 died as a result of an injury. In addition to these deaths, there were 737 injury-related hospitalizations, a rate of 168 per 100,000 children in this age group and 50,692 injury-related emergency department (ED) visits, a rate of 11,533 per 100,000 children ages 0-5.² These numbers do not include outpatient observation stays at acute care hospitals or children treated in a physician's office or at home.

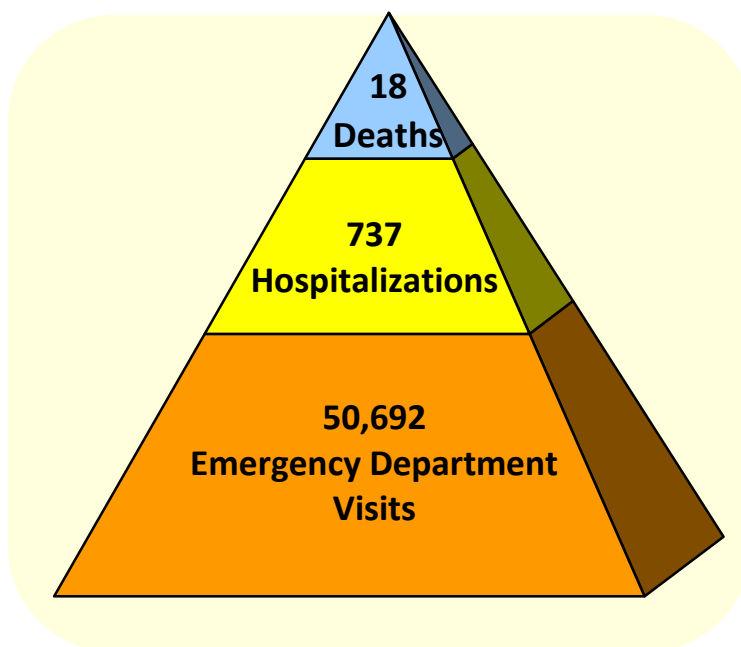


Figure 1: Annual Injuries among Children Ages 0-5 Years, Massachusetts, 2013

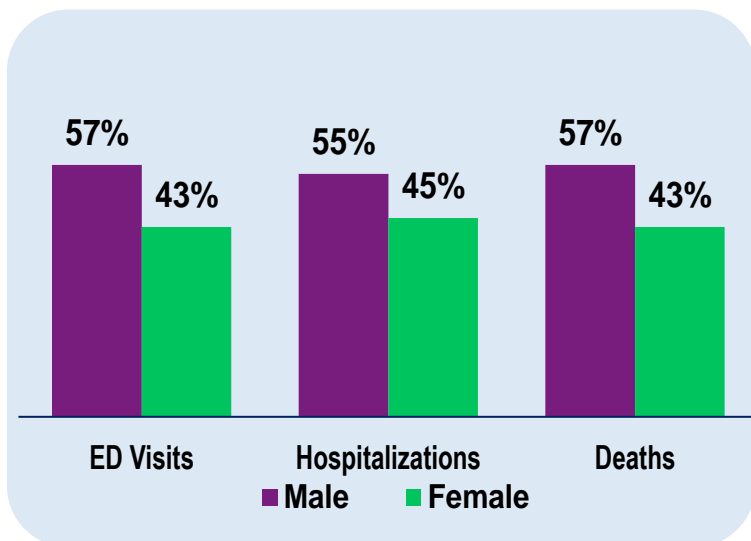


Figure 2: Percent of Injury ED Visits (2013), Hospitalizations (2013) & Deaths (2009-2013³) by Sex, Children Ages 0-5 Years, Massachusetts

Childhood Injury by Sex

Males account for a slightly greater percentage of injuries among MA children ages 0-5 than females. In 2013, males ages 0-5 accounted for 57% of injury ED visits and 55% of injury hospitalizations. Males also accounted for 57% of injury deaths in this age group between 2009 and 2013³.



1. Centers for Disease Control and Prevention. *Vital signs: unintentional injury deaths among persons aged 0-19 years – United States, 2000-2009*. Morbidity and Mortality Weekly Report, April 2012, Vol.61.

2. This report uses CDC injury definitions, therefore injury counts may differ from counts in other MA data reports. See Data Notes on page 7 for further details.

3. Given the low number of such deaths, data for the most recent 5-year period were combined to increase the stability of rates.



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Infant Deaths

Sudden Unexpected Infant Death

Sudden Unexpected Infant Death (SUID) is a leading cause of infant death.¹ Between 2009 and 2013, deaths of 182 MA infants under one year of age were attributed to SUID.² Some of these deaths were classified as unintentional suffocation in bed. Other SUID cases were classified as “sudden infant death” or “undetermined cause”. Although these latter categories are not defined as “injuries” some of these deaths are associated with external risk factors, such as unsafe sleep positions or bedding, which may be amenable to injury prevention methods.

Infant Injury Deaths

During the same 5-year time period (2009 – 2013), 37 deaths of MA infants under one year of age were classified as injury deaths. Fourteen (38%) of these deaths were unintentional, 14 (38%) were homicides and 9 (24%) were of other or undetermined intent. (Fig. 3)

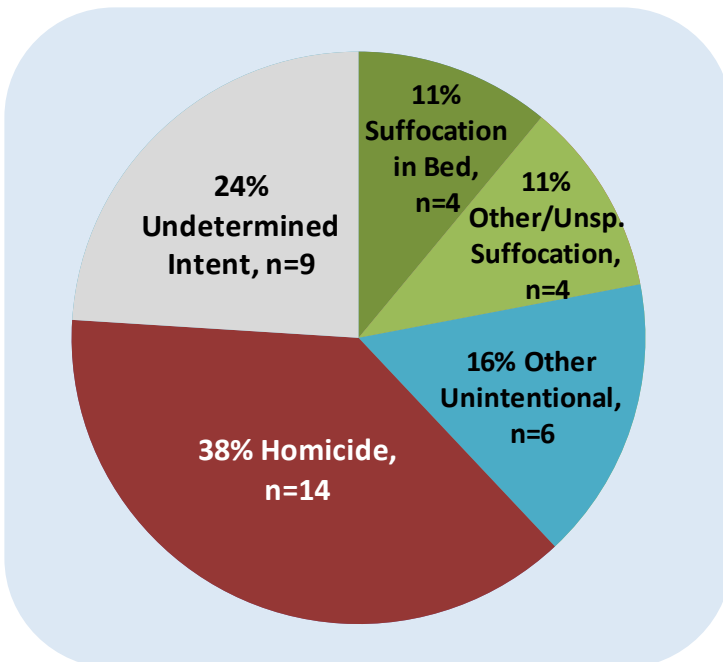


Figure 3: Injury Deaths among Infants Less than One Year, Massachusetts, 2009-2013^{2,3} (N = 37)

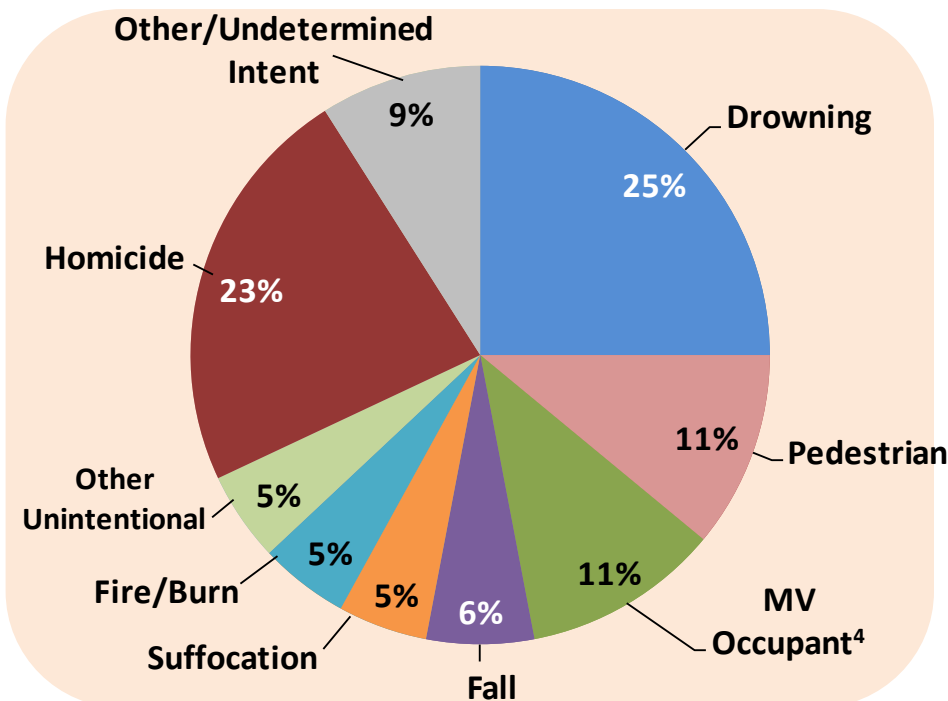


Figure 4: Injury Deaths among Children Ages 1 – 5 Years, Massachusetts, 2009-2013² (N = 64)

Injury Deaths in Children Ages 1 to 5

From 2009 through 2013², 64 Massachusetts children ages 1-5 died as a result of injuries. Two-thirds (67%) of these injuries were unintentional (n = 43). Drowning, pedestrian and MV occupant injuries were the leading causes of unintentional injury death in this age group.

Of the 16 drowning deaths of children in this age group, ten occurred in swimming pools (63%), four in natural water (25%) and two in bath tubs.

Homicides accounted for nearly one-quarter (23%) of injury deaths among MA children ages 1-5 during this time period (n = 15). The majority (64%) of these young victims were ages one and two years old (n = 9).

1. Sudden Unexplained Infant Death includes deaths of infants under one year of age that are classified as Sudden Infant Death Syndrome (SIDS) or Accidental Suffocation in Bed or have an undetermined cause of death.
2. Data for the most recent 5-year period were combined to increase the stability of rates. Percentages may not total 100% due to rounding.
3. Causes with less than 3 deaths are not shown as separate pie slices.
4. Motor Vehicle (MV) occupants include MV-unspecified persons.



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Injury-Related Hospitalizations

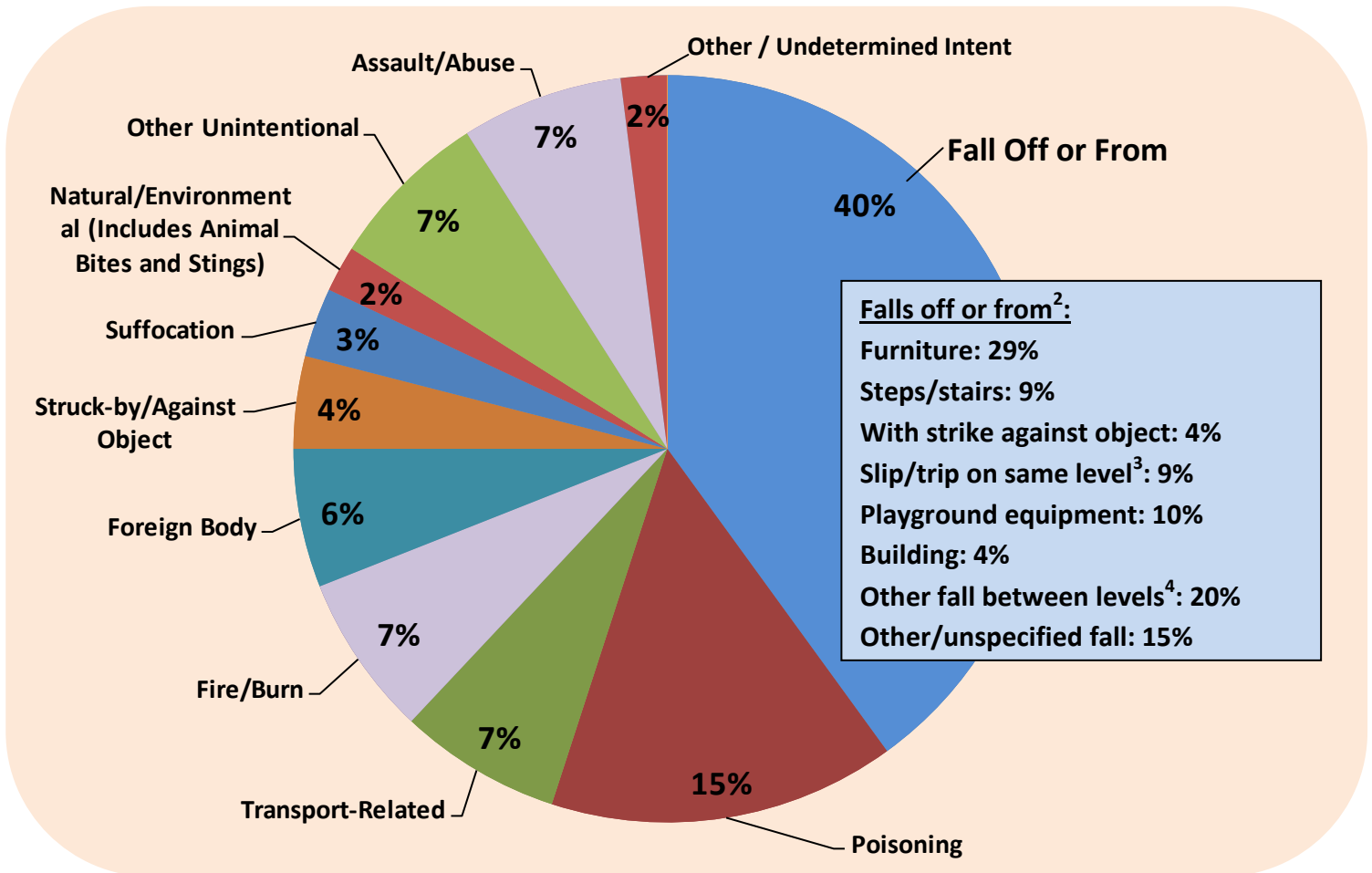


Figure 5: Injury-Related Hospitalizations among Children Ages 0 – 5 Years, Massachusetts, 2013 (N = 737)

- In 2013, there were 737 injury-related hospitalizations of Massachusetts infants and children ages 0-5 years, of which 90% were unintentional (n = 664). The leading causes of injury-related hospitalizations in this age group were unintentional falls (40%, n = 292) and poisoning (15%, n = 114).
- One in four (25%) or 185 of these hospitalizations involved a traumatic brain injury (TBI). Infants under age one were more than twice as likely as children ages 1-5 to have sustained a TBI (45% vs. 18%). Of the 91 TBI-related hospitalizations of infants, 73% were due to unintentional falls (n = 66). Most of these 66 falls were from furniture (38%, n = 25) or other falls between levels⁴ (41%, n = 27). (Data not shown)
- Of the 114 hospitalizations of children ages 0-5 for poisoning, 82% were due to medications/drugs (n = 93) and 18% were due to household items or other non-drugs (n = 21). Medication/drug poisonings involved a broad range of drug types, including opioids, tranquilizers, stimulants, cardiovascular drugs, anti-depressants, etc. The majority (81%) of young children hospitalized due to medication/drug poisoning were between one and three years old (n = 75).

1. Includes objects accidentally entering an eye, ear, nose or other orifice, excluding inhalation of a foreign body, which is included in suffocation.

2. Percentages may not total 100% due to rounding.

3. Includes falls from skateboards, skis, snowboards, etc.

4. Includes falls from one level to another *other than* falls from furniture, steps/stairs, playground equipment or buildings.



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Injury-Related Emergency Department Visits

- In 2013, there were 50,692 injury-related ED visits of Massachusetts children ages 0-5 years, of which 92% were unintentional. The leading causes of ED visits in this age group were unintentional falls (39%, n = 19,533), being struck by or against an object (14%, n = 7,318) and natural/environmental causes (7%, n = 3,340).
- One in six injury-related ED visits among children ages 0-5 involved a traumatic brain injury (TBI; 16%, n = 7,960). The leading causes of TBI among children ages 0-5 were unintentional falls (71%, n = 5,656) and being struck by or against an object (17%, n = 1,371). Only 3% of such cases were transport-related (n = 225). (Data not shown.)
- Of injury-related ED visits in 2013, infants under age one were nearly three times as likely as children ages 1-5 to have sustained a TBI (37% vs. 13%). Of the 1,949 ED visits for TBI-related injuries among infants, 78% were due to a fall (n = 1,528), half of which involved falls from furniture (50%, n = 759). (Data not shown.)
- Of the 3,340 ED visits of children ages 0-5 for natural/environmental injuries, 20% (n = 666) involved dog bites and 74% (n = 2,464) involved other bites or stings. About 1% (n = 21) of such ED visits involved excessive heat. (Data not shown.)

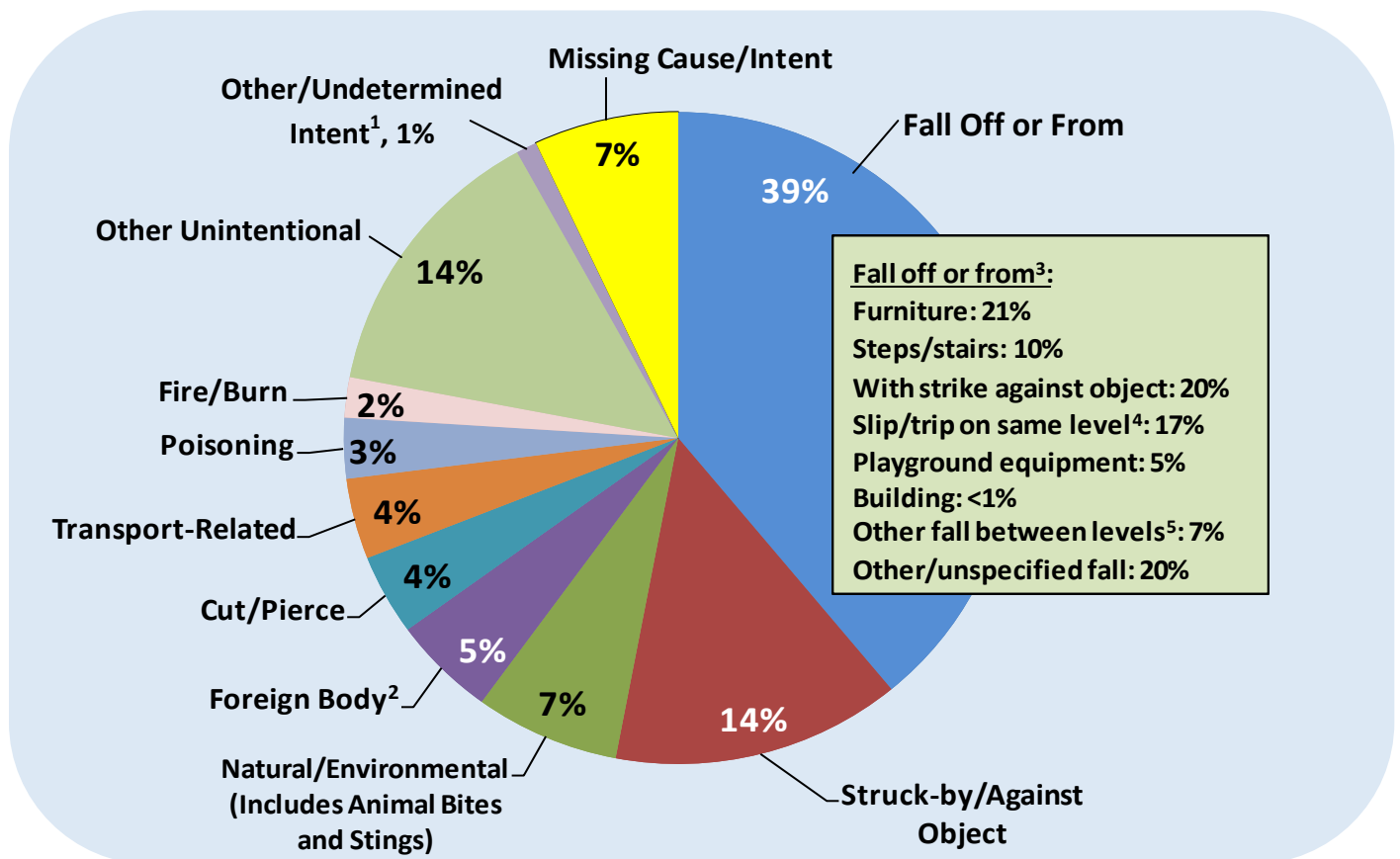


Figure 6: Injury-Related Emergency Department Visits among Children Ages 0 – 5 Years, Massachusetts, 2013 (N = 50,692)

- Includes assault, self-inflicted, legal/war-related and injuries of undetermined intent.
- Includes objects accidentally entering an eye, ear, nose or other orifice, but excludes inhalation of a foreign body.
- Percentages may not total 100% due to rounding.
- Includes falls from skateboards, skis, snowboards, etc.
- Includes falls from one level to another *other than* falls from furniture, steps/stairs, playground equipment or buildings.



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Table 1: Injury-Related Hospital Discharges and ED Visits among Children Ages 0 -5 Years, by Cause, Intent and Age Group, Massachusetts, 2013

Cause and Intent	Infants less than 1 Year		Children Ages 1-5 Years	
	HD & ED Total Count ¹	Percent	HD & ED Total Count ¹	Percent
Unintentional Injuries	4,981	92%	42,462	92%
Cut/pierce	140	3%	2,000	4%
Drowning/submersion	0	0%	24	<1%
Falls (<i>off/from</i>):	2,638	49%	17,187	37%
<i>Furniture</i>	1,245	23%	2,995	7%
<i>Steps/stairs</i>	206	4%	1,712	4%
<i>With strike against object</i>	259	5%	3,657	8%
<i>Slipping/tripping/stumbling</i>	142	3%	3,213	7%
<i>Playground equipment</i>	--- ²	--- ²	981	2%
<i>Building</i>	--- ²	--- ²	32	<1%
<i>Other fall from one level to another</i>	426	8%	1,079	2%
<i>Other/unspecified fall</i>	360	7%	3,518	8%
Fire/burn	164	3%	944	2%
Foreign body	215	4%	2,332	5%
Natural and environmental	123	2%	3,233	7%
<i>Excessive heat</i>	--- ²	--- ²	13	<1%
<i>Dog bites</i>	16	<1%	656	1%
<i>Other bites/stings/animal injury</i>	77	1%	2,394	5%
<i>Other natural/environmental</i>	30	1%	170	<1%
Poisoning	172	3%	1,476	3%
Struck-by/against object	492	9%	6,853	15%
Suffocation	42	1%	121	<1%
Transport-related	320	6%	1,860	4%
<i>Motor vehicle (MV)-occupant</i>	308	6%	1,296	3%
<i>Bicycle/tricycle (MV & non-MV)</i>	0	0%	323	1%
<i>Pedestrian (MV & non-MV)</i>	--- ²	--- ²	96	<1%
<i>Other transport</i>	12	<1%	145	<1%
All other unintentional causes	675	12%	6,423	14%
Assault/Abuse	49	1%	160	<1%
Other/Undetermined Intent	47	1%	211	<1%
Missing Cause or Intent	347	6%	3,172	7%
Total Injury-Related Cases	5,424	100%	46,005	100%

1. Hospital discharges and emergency department visits. Counts of less than 11 are suppressed due to data confidentiality guidelines.
2. Subcategories with less than 11 cases were combined with the "other" category for that injury type.



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Massachusetts Child Injury Prevention Activities

The mission of the MA Injury Prevention and Control Program (IPCP) is to reduce the rates of injuries at home, at school, in the community, on the road, and at play, and to improve emergency medical services for children. Childhood injury prevention has long been a focus of the IPCP and Massachusetts has the lowest rates of childhood death from injury of any state in the country. Working with the *Massachusetts Prevent Injuries Now Network* (MassPINN), the IPCP has identified childhood injury prevention as one of the four priority areas of its strategic plan.

Two areas of major focus in this plan are infant safe sleep/addressing Sudden Unexpected Infant Death (SUID) and sports-related head injuries. The IPCP is also working with the Massachusetts Home Visiting Initiative to develop and implement an injury prevention training curriculum for all home visitors. This training focuses on preventing injuries among children ages 0-5 and covers a range of injury prevention topics including: poisoning, drowning, choking, fire and burns, falls and safe sleep.



Massachusetts Home Visiting Initiative

The Massachusetts Department of Public Health (DPH) is the lead agency for the Maternal, Infant and Early Childhood Home Visiting Program, known in Massachusetts as the MA Home Visiting Initiative (MHVI). DPH works in collaboration with state partners to implement evidence-based home visiting programs in 17 high risk communities. These communities were identified based on indicators of maternal and infant health, child development and school readiness, family economic self-sufficiency, child maltreatment, domestic violence and substance use.

Table 2 shows the number of injury-related hospital discharges and ED visits in 2013 in the 17 communities participating in the MA Home Visiting Initiative. The vast majority of these injuries were unintentional.

MHVI Communities	Number of Injury Cases ¹	
	Hospital Discharges	ED Visits
Boston	83	4,917
Brockton	19	1,155
Chelsea	11	316
Everett	<11	426
Fall River	<11	1,212
Fitchburg	<11	320
Holyoke	<11	671
Lawrence	30	1,299
Lowell	30	1,261
Lynn	18	923
New Bedford	<11	1205
No. Adams/Pittsfield	<11	676
Revere	11	373
Southbridge	<11	256
Springfield	38	2,210
Worcester	39	1,838
MA Total	737	50,692

1. Counts less than 11 suppressed due to confidentiality guidelines.

Table 2: Injury-Related Hospital Discharges and ED Visits, Children Ages 0-5, MHVI Communities, 2013



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Massachusetts Home Visiting Initiative (cont.)

The Massachusetts Home Visiting Initiative is implementing interventions at the individual/family, community and state levels. At the individual and family level, the 17 MHVI communities have expanded their home visiting services using one or more of the following evidence-based programs:

- **Healthy Families America** (ages prenatal-3) is designed to help families manage life's challenges by building on their strengths. The program model offers weekly home visits, screenings and assessments, parent support groups, father involvement programs, and other services. The Healthy Families program in Massachusetts primarily serves first-time teen/young adult parents ages 20 and under. However, through the MHVI program, some participating communities are serving first-time parents of any age.
- **Early Head Start** (ages prenatal-3) is a multi-service early childhood program that provides home visiting to income eligible families (many of whom have multiple risk factors) to promote school readiness and enhance children's physical, dental, nutritional, social/emotional and cognitive development.
- **Parents as Teachers** (ages prenatal-5) provides family-centered home-based services to promote child health, development and school readiness through an evidence-based parent education curriculum, annual health and developmental screening, and referrals to support parents in their role as teachers.

The Massachusetts Home Visiting Initiative also works with local partners in each of the 17 high risk communities to develop a comprehensive, coordinated system of early childhood services. At the state level, MHVI is engaging civic leaders, leveraging fiscal resources, and building relationships with a broad array of service providers to provide a continuum of high quality early childhood care for all Massachusetts families.

Data Notes

All data in this report are based on the CDC injury definition, whereby injury cases are selected based on ICD-10 underlying cause codes (deaths), ICD-9-CM primary diagnosis codes (hospitalizations), or either an ICD-9-CM primary diagnosis code or an external cause of injury code (ED visits). Transfers and in-hospital deaths are included in hospitalization and ED visit data. Results may therefore differ from those in reports that use Massachusetts criteria to define injury cases. Observation stays are also not included with hospitalization data. All data in this report are based on calendar rather than fiscal year. All injuries are considered unintentional unless otherwise specified.

Data Sources

Deaths: MA Registry of Vital Records and Statistics, MA Department of Public Health

Hospitalizations: MA Inpatient Hospital Discharge Database, Center for Health Information and Analysis

ED Visits: MA Emergency Department Discharge Database, Center for Health Information and Analysis

Population: Missouri Census Data Center, Population Estimates by Age Query System, accessed 10/22/15



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Resources

Injury Surveillance Program (ISP)

Massachusetts Department of Public Health
Bureau of Community Health and Prevention
250 Washington Street, 4th Floor
Boston, MA 02108
Phone: (617) 624-5648; Email: MDPH-ISP@state.ma.us
www.mass.gov/dph/isp

Injury Prevention and Control Program (IPCP)

Massachusetts Department of Public Health
Bureau of Community Health and Prevention
250 Washington Street, 4th Floor
Boston, MA 02108
(617) 624-5413
www.mass.gov/dph/injury

MA Home Visiting Initiative (MHVI)

Massachusetts Department of Public Health
Bureau of Family Health and Nutrition
250 Washington Street, 5th Floor
Boston, MA 02108
(617) 624-5976
Email: Claudia.Catalano@state.ma.us
www.mass.gov/dph/homevisiting

Regional Center for Poison Control and Prevention

Boston Children's Hospital
300 Longwood Avenue, Ida C. Smith Building
Boston, MA 02115
Emergency line: 1-800-222-1222
Business line: (617) 355-6609
www.maripoisoncenter.com

Children's Safety Network

www.childrenssafetynetwork.org

Safe Child Program

www.cdc.gov/safechild

Safe Kids Worldwide

www.safekids.org

This report and other MA injury data are available online at the Injury Surveillance Program website. Custom data analysis can also be requested by contacting the Injury Surveillance Program directly.



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