



MASSACHUSETTS

Special Emphasis Report: Infant and Early Childhood Injury, 2011

Childhood Injury is a Major Public Health Problem

Injuries are a major public health problem across the United States and in Massachusetts. Injuries are not random chance events. Most injuries follow a predictable sequence of events and can be prevented using specific strategies.

In 2011, thirteen Massachusetts (MA) children ages 0-5 died as a result of an injury.¹ In addition to these deaths, there were 834 injury-related hospitalizations, or a rate of 189 per 100,000 MA children these ages and 53,973 injury-related emergency department (ED) visits, or a rate of 12,208 per 100,000 MA children ages 0-5. These numbers do not include outpatient observation stays or children treated in a physician's office or at home.

In 2011, there were nearly 54,000 ED visits by Massachusetts children ages 0-5 for injuries, an average of 148 such visits each day.

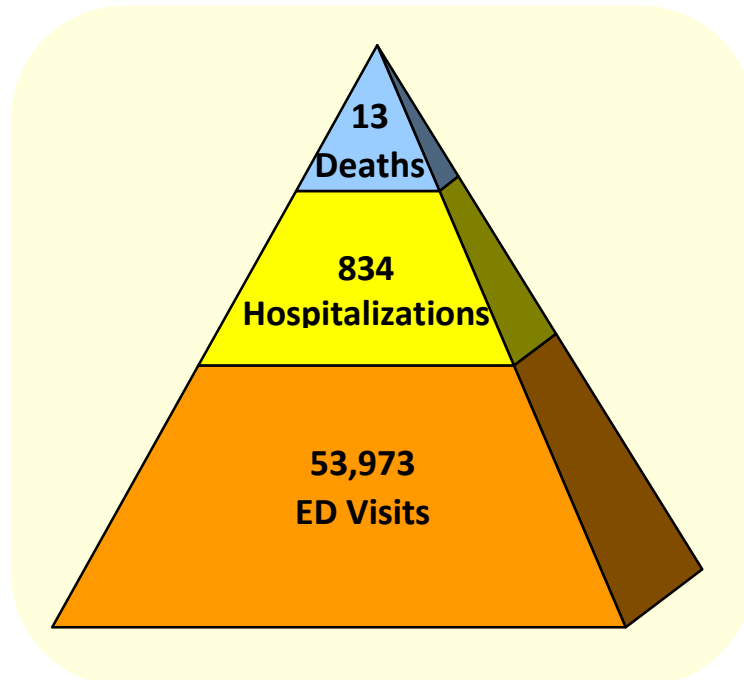


Figure 1: Annual Injuries among Children Ages 0-5 Years, Massachusetts, 2011

Childhood Injury by Sex

Males account for a greater percentage of injuries in Massachusetts children ages 0-5 than females. In 2011, males these ages accounted for 57% of injury ED visits and 58% of injury hospitalizations. Between 2007 and 2011², males again accounted for six out of ten (61%) injury deaths among Massachusetts children ages 0-5.

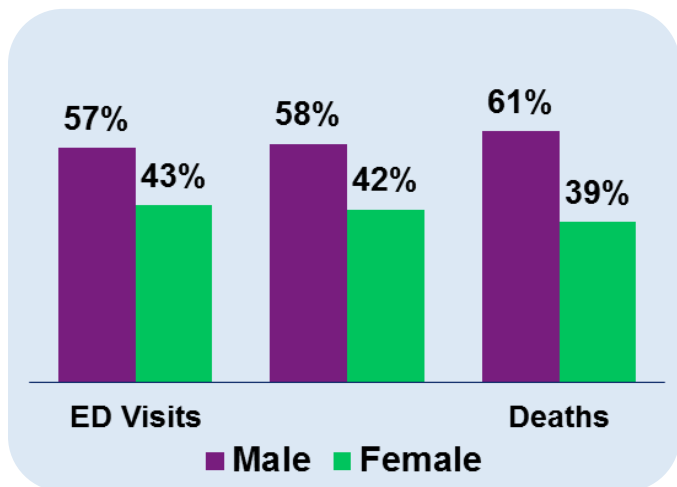


Figure 2: Percent of Injury ED Visits (2011), Hospitalizations (2011) & Deaths (2007-2011²) by Sex, Children Ages 0-5 Years, Massachusetts



1. This report uses CDC injury definitions. Injury counts may therefore differ from those in other Massachusetts reports. Under CDC definitions, deaths and transfers are included in hospitalization and ED visit data. Observation stays are not included with hospitalization data in this report. See Data Notes on page 7 for further details.
2. 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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Injury Deaths in Infants

To examine injury related deaths among infants and young children, 5 years of data are combined to increase the stability of rates. Between 2007 through 2011¹, 32 Massachusetts infants under one year of age died from causes classified as injuries. About half of these infant deaths were due to unintentional injuries (53%, n = 17) and over one in four (28%, n = 9) were homicides.

Sudden Unexpected Infant Death²

While Sudden Unexpected Infant Deaths (SUID) are not always classified as “injuries”, they are included here as SUID is a leading cause of death in MA infants and many have been found to be associated with risk factors for suffocation, such as unsafe sleep positions and bedding environments. From 2007 to 2011, there was an average of 41 Sudden Unexpected Infant Deaths in Massachusetts each year (data not shown).

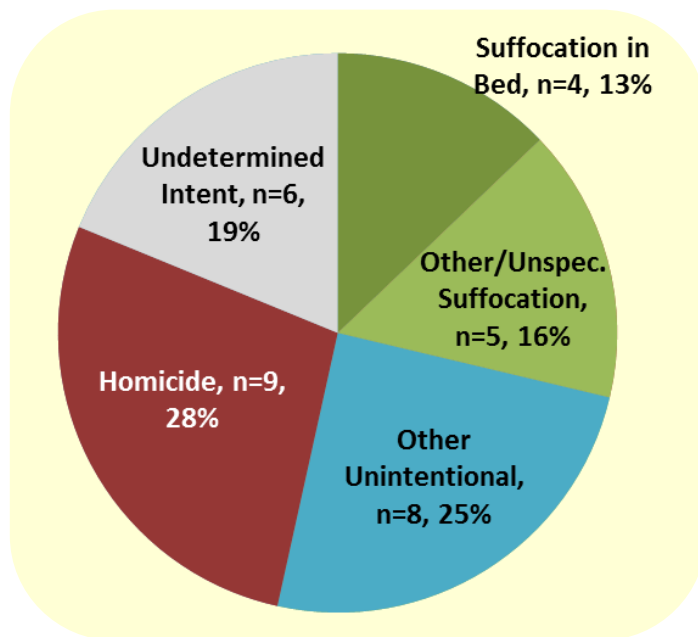


Figure 3: Injury Deaths among Infants Less than One Year, Massachusetts, 2007-2011^{1,3} (N = 32)

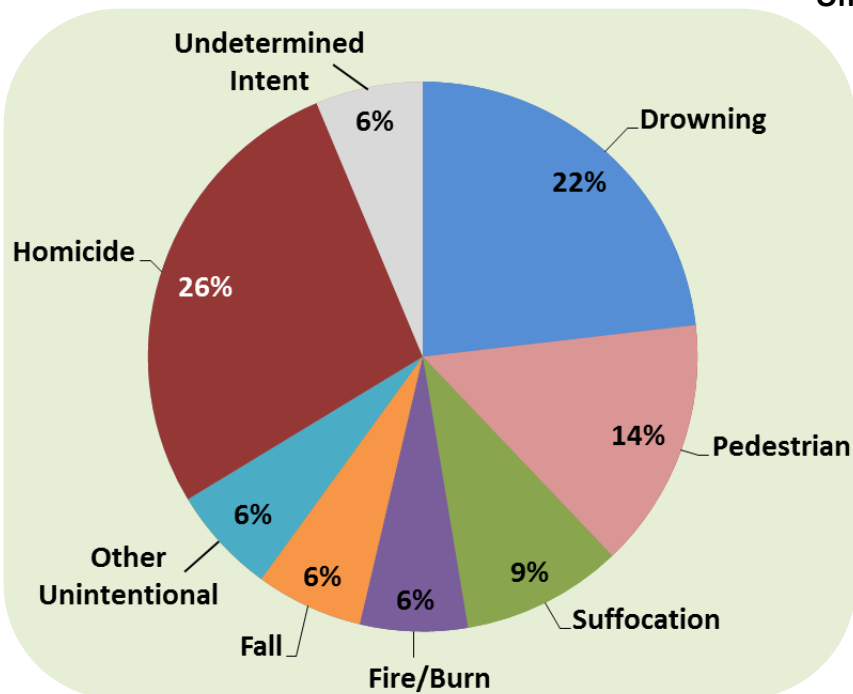


Figure 4: Injury Deaths among Children Ages 1 – 5 Years, Massachusetts, 2007-2011¹ (N = 65)

Injury Deaths in Young Children

From 2007 through 2011¹, 65 Massachusetts children ages 1-5 died due to an injury. The majority (68%) of these injuries were unintentional. Drowning and pedestrian-related injuries were the leading causes of unintentional injury death in this age group.

Of the 14 drowning deaths of young children between 2007 and 2011, the majority (64%) occurred in swimming pools.

Homicides accounted for one in four (26%) injury deaths of young children ages 1-5 during this time period. The majority of these young victims (71%) were children ages one and two years old.

1. The most recent 5-year period where data are available.
2. 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.
3. Causes with less than 3 deaths are not shown as separate pie slices.



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Injury-Related Hospitalizations

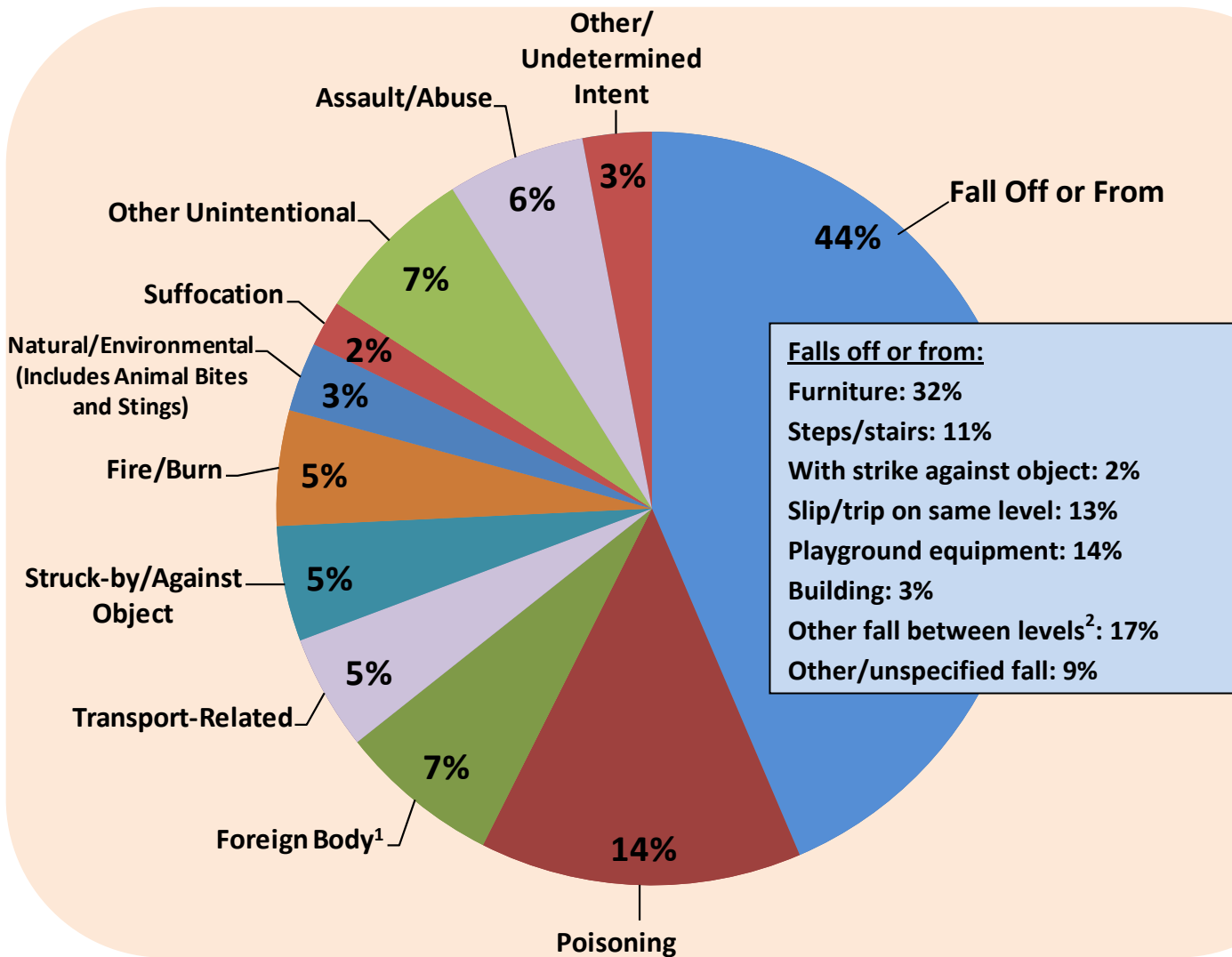


Figure 5: Injury-Related Hospitalizations among Children Ages 0 – 5 Years, Massachusetts, 2011 (N = 834)

- In 2011, there were 834 injury-related hospitalizations of Massachusetts infants and children ages 0-5 years, of which 91% were unintentional (n = 755). The three leading causes of injury-related hospitalization in this age group were unintentional falls (44%, n = 365), poisonings (14%, n = 118) and foreign bodies¹ (7%, n = 57).
- Over one in four (27%) or 223 of these hospitalizations involved a traumatic brain injury (TBI). Of hospitalizations for injury, infants under age one were three times more likely than children ages 1-5 to have sustained a TBI (57% vs. 17%). Of the 119 such TBI-related hospitalizations among infants, 71% were associated with a fall, half (51%) of which were falls from furniture. (Data not shown).
- Of the 118 hospitalizations of young children for poisoning, three-quarters (75%) involved poisoning by prescription medications or other drugs rather than other toxic substances. Children ages one and two years old represented nearly two-thirds (64%) of young children hospitalized for any poisoning.

1. Includes objects accidentally entering an eye, ear, nose or other orifice, excluding inhalation of a foreign body, which is included in suffocation.
 2. 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 2011, there were 53,973 injury-related emergency department (ED) visits of Massachusetts children ages 0-5 years, of which 95% were unintentional.¹ The leading causes of these visits were unintentional falls (40%, n = 21,514), being struck by or against an object (15%, n = 8,197) and natural/environmental causes (7%, n = 3,831).
- Of MA children ages 0-5 seen in the ED for an injury in 2011, over one in ten (15%) or 7,987 visits involved a traumatic brain injury (TBI). The leading causes of such injuries were unintentional falls (75%) and being struck by or against an object (19%). Only 3% of these injuries involving a TBI were transport-related. (Data not shown.)
- Of ED visits in 2011, one out of three (36%) injuries sustained by infants under age one involved a TBI. Among children ages 1-5, one out of ten (12%) injuries seen in the ED involved a TBI. Of the 2,008 such TBI-related injuries among infants, 85% were due to a fall, of which over half (52%) involved falls from furniture. (Data not shown.)
- Of the 3,831 ED visits of children ages 0-5 for natural/environmental injuries, 17% (n = 669) involved dog bites, 80% (n = 3,055) involved other bites or stings, and 3% (n = 107) involved other natural/environmental causes. (Data not shown.)

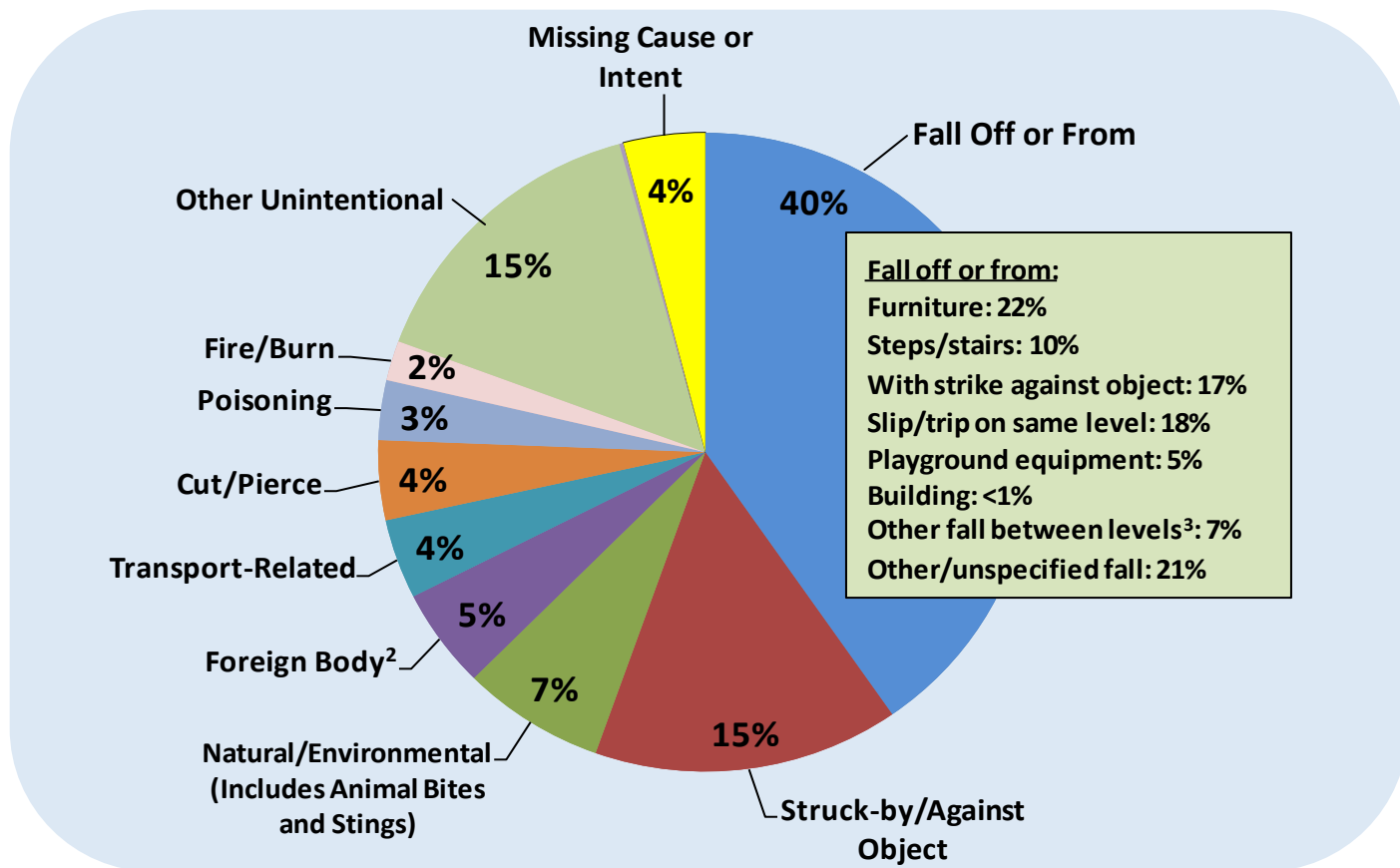


Figure 6: Injury-Related Emergency Department Visits¹ among Children Ages 0 – 5 Years, Massachusetts, 2011 (N = 53,973)

1. Assaults and injuries of other/undetermined intent, including self-inflicted injuries, do not appear in pie chart because they accounted for less than 1% of all injury-related ED visits in this age group.
 2. Includes objects accidentally entering an eye, ear, nose or other orifice, but excludes inhalation of a foreign body.
 3. 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 and Intent and Age Group, Massachusetts, 2011

Cause and Intent	Infants less than 1 Year		Children Ages 1-5 Years	
	HD & ED Total Count ¹	% of Total	HD & ED Total Count ¹	% of Total
Unintentional Injuries	5,341	93.1%	46,519	94.8%
Cut/pierce	136	2.4%	2,109	4.3%
Drowning/submersion	<11	---	25	0.1%
Falls (<i>off/from</i>):	2,904	50.6%	18,975	38.7%
<i>Furniture</i>	1,402	24.4%	3,512	7.2%
<i>Steps/stairs</i>	237	4.1%	1,882	3.8%
<i>With strike against object</i>	213	3.7%	3,435	7.0%
<i>Slipping/tripping/stumbling</i>	159	2.8%	3,739	7.6%
<i>Playground equipment</i>	14	0.2%	1,067	2.2%
<i>Building</i>	<11	---	45	0.1%
<i>Other fall from one level to another</i>	453	7.9%	1,134	2.3%
<i>Other/unspecified</i>	425	7.4%	4,161	8.5%
Fire/Burn	158	2.8%	968	2.0%
Foreign Body	258	4.5%	2,536	5.2%
Natural and Environmental	188	3.3%	3,666	7.5%
<i>Excessive heat</i>	<11	---	<11	---
<i>Dog bites</i>	41	0.7%	637	1.3%
<i>Other bites/stings/animal injury</i>	120	2.1%	2,944	6.0%
<i>All other natural/environmental</i>	22	0.4%	76	0.2%
Poisoning	158	2.8%	1,498	3.1%
Struck-by/against object	531	9.3%	7,704	15.7%
Suffocation	37	0.6%	131	0.3%
Transport-related	266	4.6%	1,931	3.9%
<i>Motor vehicle (MV)-occupant</i>	254	4.4%	1,241	2.5%
<i>Bicycle/tricycle (MV & non-MV)</i>	<11	---	420	0.9%
<i>Pedestrian (MV & non-MV)</i>	<11	---	117	0.2%
<i>Other transport</i>	<11	---	153	0.3%
All other unintentional causes	699	12.2%	6,976	14.2%
Assault/Abuse	45	0.8%	100	0.2%
Other/Undetermined Intent	34	0.6%	195	0.4%
Missing intent	315	5.5%	2,258	4.6%
Total Injury-Related Cases	5,735	100.0%	49,072	100.0%

1. Hospital discharges and emergency department visits. Counts of less than 11 are suppressed due to data confidentiality guidelines.



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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 2011 in the 17 communities participating in the MA Home Visiting Initiative. The vast majority of these injuries are unintentional.

MHVI Communities	Number of Injury Cases ¹	
	Hospital Discharges	ED Visits
Boston	117	4,992
Brockton	18	1,116
Chelsea	<11	331
Everett	<11	452
Fall River	<11	1,268
Fitchburg	<11	332
Holyoke	<11	667
Lawrence	23	1,369
Lowell	21	1,225
Lynn	20	1,005
New Bedford	<11	1,169
No. Adams/Pittsfield	<11	763
Revere	<11	416
Southbridge	<11	281
Springfield	34	2,197
Worcester	48	2,041
MA Total	834	53,973

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

Table 2: Injury-Related Hospital Discharges and ED Visits, Children Ages 0-5, MHVI Communities, 2011



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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 will expand their home visiting services using one or more of the following evidence-based programs:

- **Healthy Families** (ages 0-3) 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 parents age 20 and under. However, through the MHVI program, some participating communities are serving first-time parents of any age or parents with multiple children.
- **Healthy Steps** (ages 0-3), which typically operates out of a family or pediatric practice, is a home visiting and center-based program that emphasizes close relationships between pediatric clinicians, Healthy Steps Specialists and parents to address the developmental and emotional needs of young children.
- **Early Head Start** (ages 0-3) 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 0-5) provides family-centered services to promote child health, development and school readiness through parent education, using the evidence-based curriculum *Born to Learn*, annual health and developmental screening, and referrals to support parents in their role as teachers.

The Massachusetts Home Visiting Initiative will also work 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. 2011 data are provisional.

Hospitalizations: MA Inpatient Hospital Discharge Database, MA Center for Health Information and Analysis, 2011.

ED Visits: MA Emergency Department Discharge Database, MA Center for Health Information and Analysis, 2011.

Population: Massachusetts Single Age and Sex file, 2011, (Vintage 2012) U.S. Census Bureau.



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Resources

Injury Surveillance Program (ISP)

Massachusetts Department of Public Health
Bureau of Health Information, Statistics, Research and Evaluation
250 Washington Street, 6th Floor
Boston, MA 02108

Phone: (617) 624-5648; Email: MDPH-ISP@state.ma.us

www.mass.gov/dph/isp

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

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/safekids

Safe Kids Worldwide

www.safekids.org

This report is supported by grant #5U17-CE002009-02. Reference to any commercial entity or product or service on this page should not be construed as an endorsement by the Government of the company or its products or services.