



# MASSACHUSETTS

## Special Emphasis Report: Infant and Early Childhood Injury, 2005-2010

### Injury is a Leading Cause of Death in Children

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 2010, 30 Massachusetts (MA) children ages 0-5 died as a result of an injury.<sup>1</sup> In addition to these deaths, there were 906 injury-related hospitalizations in 2010, or a rate of 205 per 100,000 MA children these ages, and 41,213 injury-related emergency department visits, or a rate of 9,314 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 2010, there were over 100 injury-related ED visits and hospitalizations of Massachusetts children ages 0-5 on average each day.*

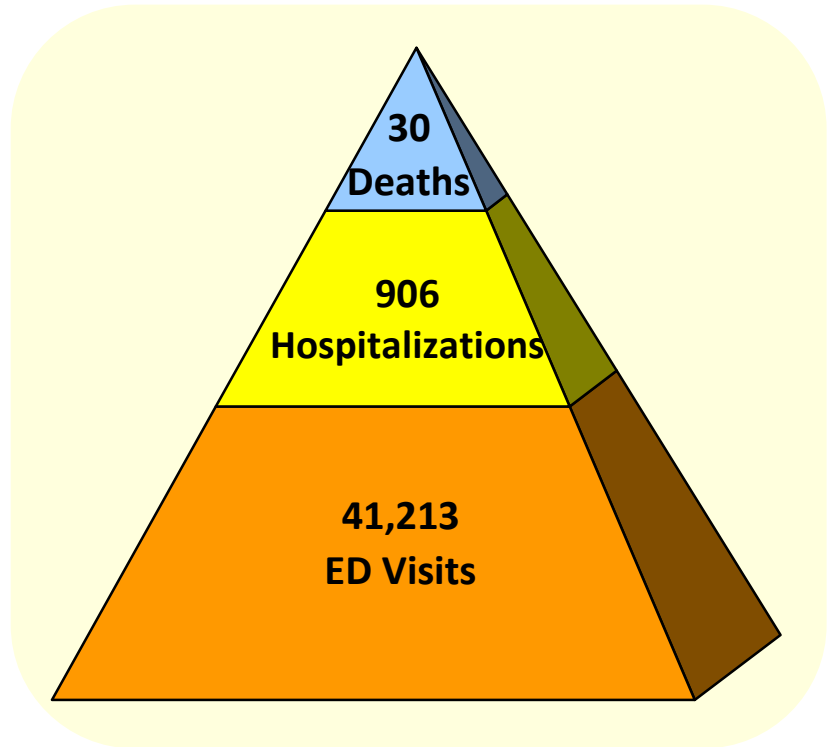


Figure 1: Annual Injuries among Children Ages 0-5 Years, Massachusetts, 2010

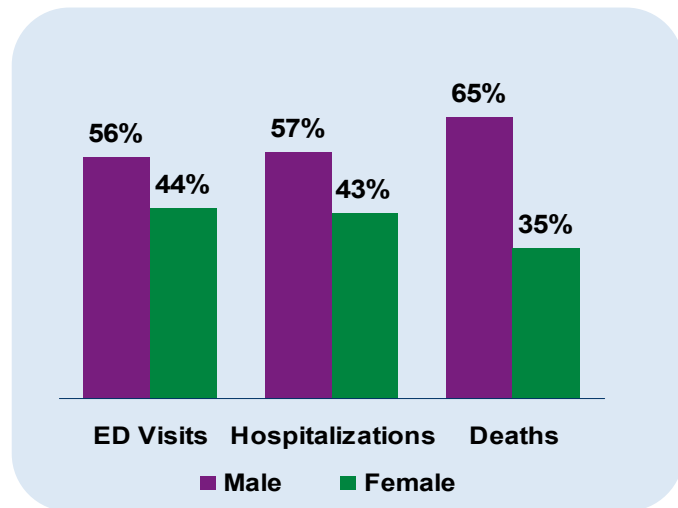


Figure 2: Percent of Injury ED Visits (2010), Hospitalizations (2010) & Deaths (2005-2010) by Sex, Children Ages 0-5 Years, Massachusetts

### Childhood Injury by Sex

Males account for a greater percentage of injuries in Massachusetts children ages 0-5 than females. In 2010, males these ages accounted for 56% of injury ED visits and 57% of injury hospitalizations. Between 2005 and 2010, males accounted for nearly two out of three (65%) injury deaths among Massachusetts children ages 0-5.



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.



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### Injury Deaths in Infants

For the six year period 2005 through 2010, a total of 50 Massachusetts infants under one year of age died from causes classified as “injuries”. The majority of these infant deaths were categorized as unintentional (60%). One in four (26%) of these infant deaths were homicides.

Sudden Unexpected Infant Death (SUID)<sup>1</sup> is a leading cause of death in Massachusetts infants. While most SUIDs are not formally classified as injuries, and therefore are not included in counts of injury deaths, reviews of these deaths by multidisciplinary child fatality review teams have found that many are associated with risk factors for suffocation, including unsafe infant sleep positions and bedding environments. From 2005 through 2010, there was an average of 41 Sudden Unexpected Infant Deaths in Massachusetts each year (data not shown).

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.

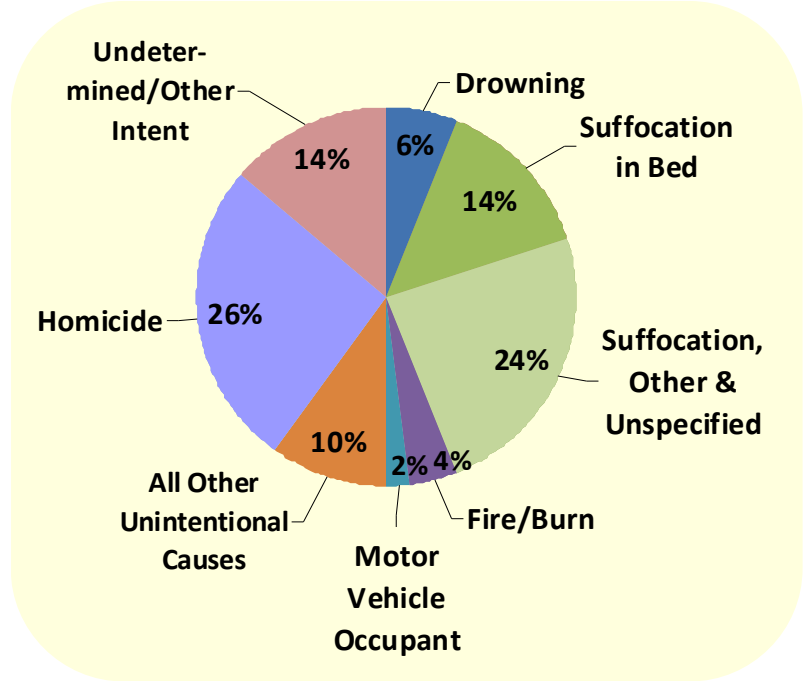


Figure 3: Injury Deaths among Infants Less than 1 Year, Massachusetts, 2005-2010 (N = 50)

### Injury Deaths in Young Children

From 2005 through 2010, 80 Massachusetts children ages 1-5 died due to an injury. The majority (72%) of these injuries were unintentional. Drowning and pedestrian-related injuries were the leading causes of unintentional injury death in this age group.

Of the 21 drowning deaths of young children between 2005 and 2010, the majority occurred in children ages one (38%) and two years old (24%), and nearly half (48%) occurred in swimming pools.

Homicides accounted for approximately one in four injury deaths (24%) of young children ages 1-5 during this time period.

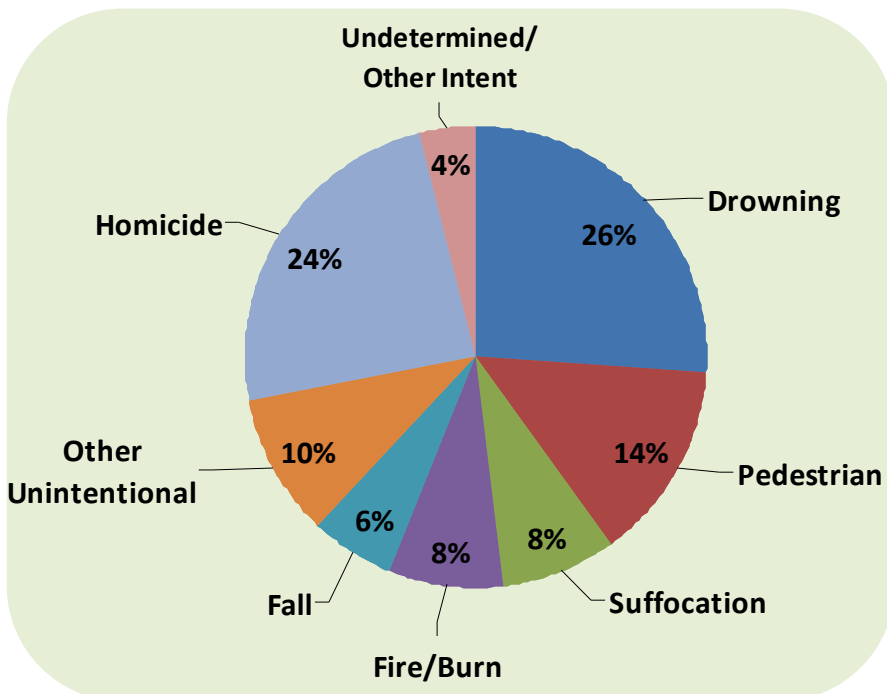


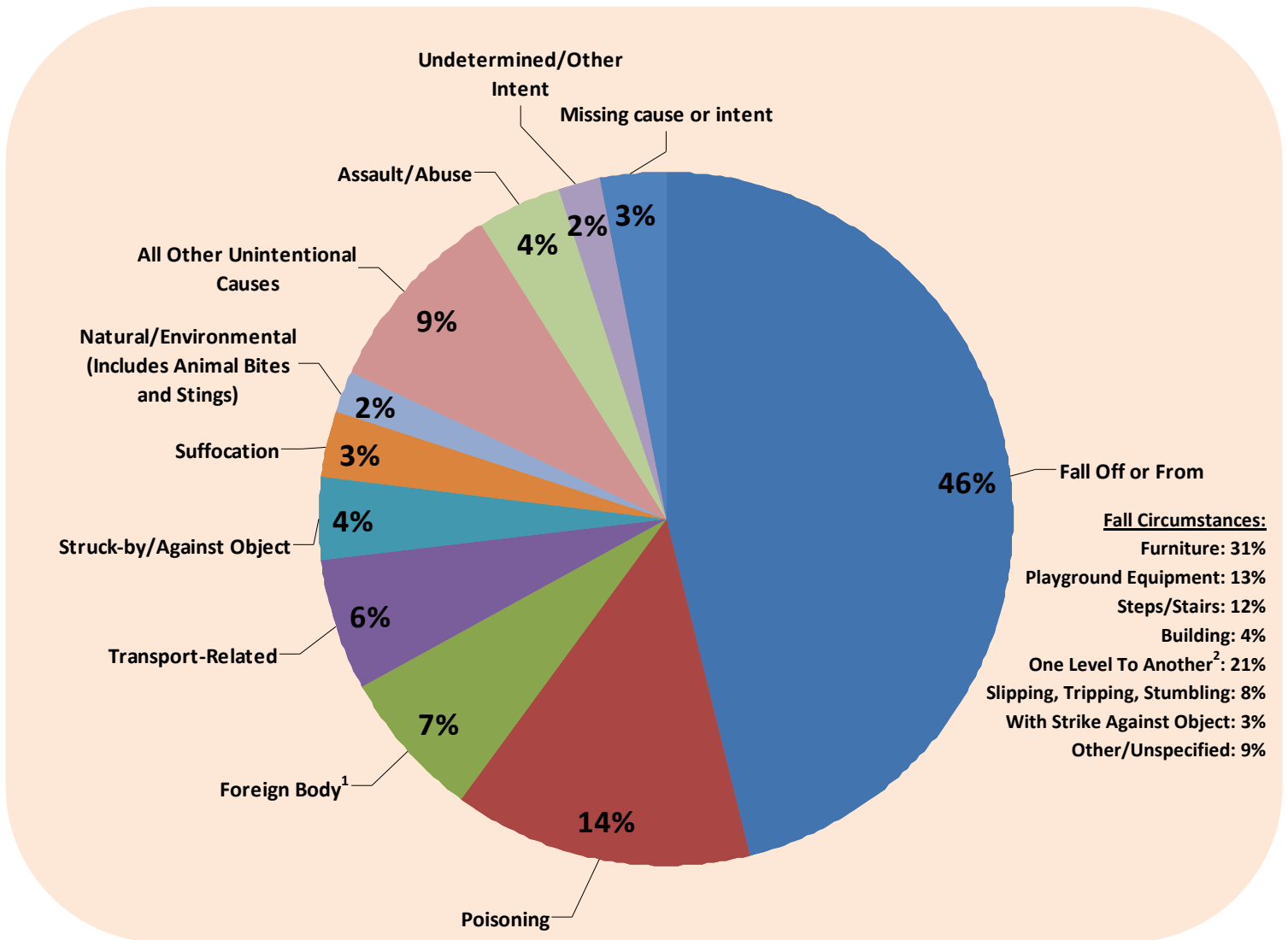
Figure 4: Injury Deaths in Children Ages 1 – 5 Years, Massachusetts, 2005-2010 (N = 80)



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### Injury-Related Hospitalizations



**Figure 5: Injury-Related Hospitalizations in Children Ages 0 – 5 Years, Massachusetts, 2010 (N = 906)**

- In 2010, there were 906 injury-related hospitalizations of Massachusetts infants and children ages 0-5 years. The three leading causes of injury-related hospitalization in this age group were unintentional falls (46%, n = 416), poisonings (14%, n = 124) and foreign bodies<sup>1</sup> (7%, n = 60).
- Of children ages 0-5 hospitalized for an injury in 2010, infants under age one were over twice as likely as children ages 1-5 to have sustained a traumatic brain injury (TBI). That is, 57% of such hospitalizations of infants involved a TBI (132 of 232) as compared to 22% of such hospitalizations of children ages 1-5 (145 of 674; data not shown).
- Of the 124 hospitalizations of young children for poisoning, seven out of ten (70%, n = 87) involved children ages one or two years old, and three-quarters (76%, n = 94) involved prescription medications or other drugs rather than other toxic substances.

1. Includes objects accidentally entering an eye, ear, nose or other orifice, but excludes inhalation of a foreign body.

2. Includes falls from one level to another *other than* falls from furniture or playground equipment.



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### Injury-Related Emergency Department Visits

- In 2010, there were 41,213 injury-related emergency department (ED) visits of Massachusetts children ages 0-5 years. The leading causes of injury-related ED visits in children ages 0-5 were unintentional falls (41%, n = 16,849), striking against or being struck by an object or person, (16%, n = 6,386) and natural or environmental causes, including insect stings and dog bites (6%, n = 2,534).
- In 2010, over one in three (36%, n = 1,512) injury-related ED visits of infants under age one involved a traumatic brain injury. Of children ages 1-5 seen for an injury-related ED visit in 2010, over one in ten (13%, n = 4,726) had sustained a traumatic brain injury (data not shown).
- Of the 16,849 ED visits of young children for unintentional falls in 2010, one in five (21%, n = 3,457) involved falls from furniture and one in ten involved falls down steps or stairs (10%, n = 1,607). Children one year of age accounted for the largest percentage of falls in young children (23%, n = 3,881) followed by children two years of age (21%, n = 3,520) (data not shown).

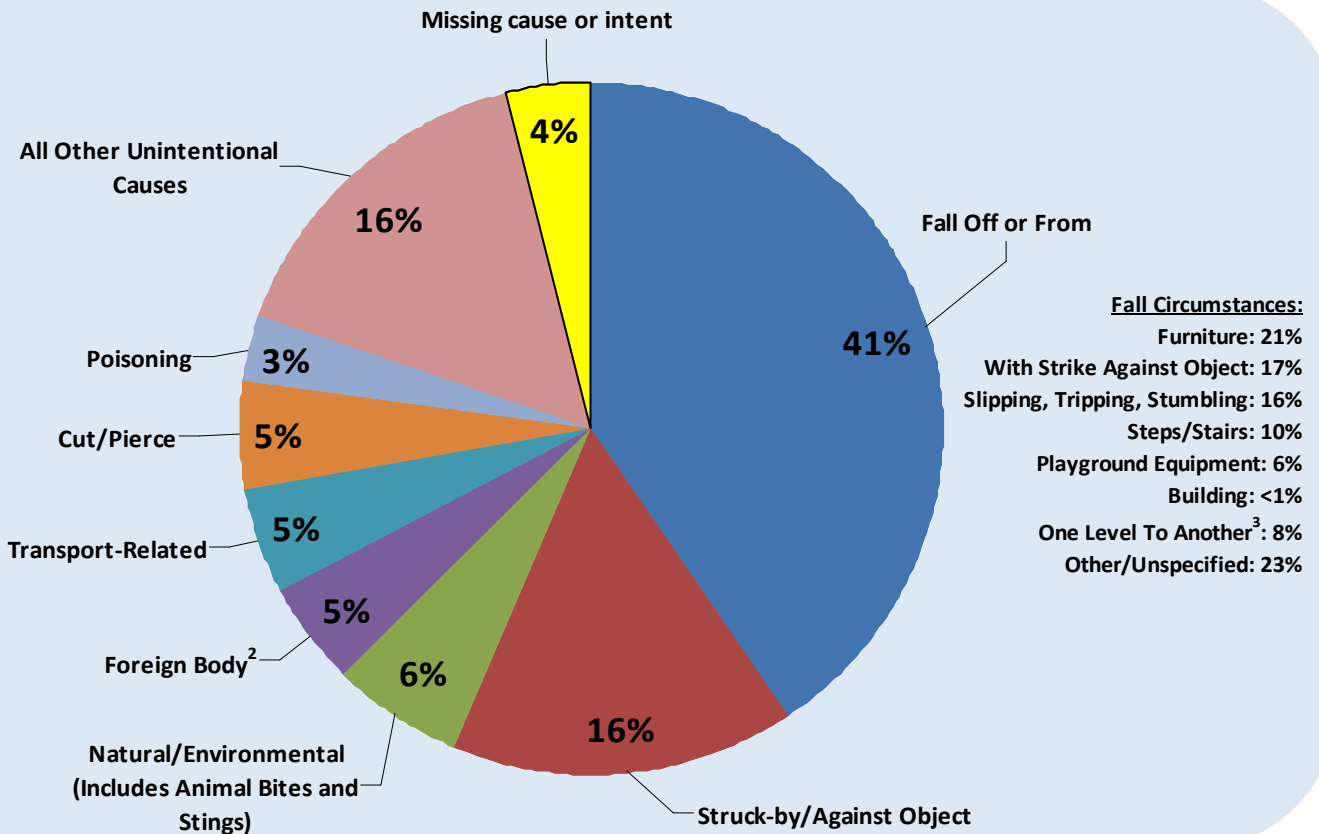


Figure 6: Injury-Related Emergency Department Visits<sup>1</sup> among Children Ages 0 – 5 Years, Massachusetts, 2010 (N = 41,213)

1. Injuries of other or undetermined intent, including assaults, do not appear in this 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 or playground equipment.



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**Table 1: Injury-Related Hospitalizations and ED Visits among Children Ages 0 -5 Years, by Cause and Intent and Age Group, Massachusetts, 2010**

Cause and Intent	Infants less than 1 Year		Children Ages 1-5 Years	
	Hospitalizations	ED Visits	Hospitalizations	ED Visits
<b>Unintentional Injuries</b>	<b>190</b>	<b>4,021</b>	<b>636</b>	<b>35,489</b>
Cut/pierce	<7	78	<7	1,810
Drowning/submersion	<7	<7	15	39
Falls ( <i>off/from</i> ):	112	2,223	304	14,626
<i>Furniture</i>	50	1,024	79	2,433
<i>Steps/stairs</i>	11	189	38	1,418
<i>With strike against object</i>	<7	179	11	2,706
<i>Slipping/tripping/stumbling</i>	<7	115	30	2,652
<i>Playground equipment</i>	0	12	53	930
<i>Building</i>	0	0	15	32
<i>Other fall from one level to another</i>	42	319	45	958
<i>Other/unspecified</i>	<7	385	33	3,497
Fire/Burn	<7	111	16	666
Foreign Body	20	195	40	1,974
Natural and Environmental	<7	120	20	2,414
<i>Excessive heat</i>	0	<7	0	15
<i>Dog bites</i>	<7	24	14	563
<i>Other bites/stings/animal injury</i>	0	76	<7	1,807
<i>All other natural/environmental</i>	<7	16	0	29
Poisoning	10	106	114	1,019
Struck-by/against object	<7	396	34	5,990
Suffocation	9	26	16	81
Transport-related	<7	257	48	1,583
<i>Motor vehicle (MV)-occupant</i>	<7	245	13	995
<i>Bicycle/tricycle (MV &amp; non-MV)</i>	0	<7	8	380
<i>Pedestrian (MV &amp; non-MV)</i>	<7	<7	22	81
<i>Other transport</i>	0	7	<7	127
All other unintentional causes	25	504	23	5,287
<b>Assault/Abuse</b>	<b>17</b>	<b>8</b>	<b>15</b>	<b>63</b>
<b>Undetermined/Other Intent</b>	<b>11</b>	<b>20</b>	<b>10</b>	<b>148</b>
<b>Missing intent</b>	<b>14</b>	<b>194</b>	<b>13</b>	<b>1,270</b>
<b>Total Injury-Related Cases</b>	<b>232</b>	<b>4,243</b>	<b>674</b>	<b>36,970</b>



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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 maternal and infant health, child development and school readiness, family economic self sufficiency, child maltreatment, domestic violence, and substance use indicators.

Table 2 shows the baseline number of injury-related hospitalizations and ED visits in the 17 communities participating in the MA Home Visiting Initiative. The vast majority of these injuries are unintentional.

MHVI Communities	Number Injury Cases	
	Hospitalizations	ED Visits
Boston	122	3,794
Brockton	28	825
Chelsea	8	213
Everett	<7	359
Fall River	7	971
Fitchburg	9	277
Holyoke	15	467
Lawrence	27	1,053
Lowell	33	907
Lynn	28	753
New Bedford	<7	897
No. Adams/Pittsfield	<7	565
Revere	<7	314
Southbridge	<7	182
Springfield	44	1,732
Worcester	45	1,513
<b>MA Total</b>	<b>906</b>	<b>41,213</b>

**Table 2: Injury-Related Hospitalizations and ED Visits in Children Ages 0-5, MHVI Communities, 2010**



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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). Deaths and transfers may be 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: MDPH Registry of Vital Records and Statistics, 2010.

Hospitalizations: MA Inpatient Hospital Discharge Database, MA Division of Health Care, Finance and Policy, 2010.

ED Visits: MA Emergency Department Discharge Database, MA Division of Health Care, Finance and Policy, 2010.

Population: Massachusetts Single Age and Sex file, 2010, U.S. Census Bureau.

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MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

<http://www.mass.gov/dph/injury>

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