

# Emergency department visits for work-related injuries among 18- to 24-year-olds

**Massachusetts  
2005 - 2009**

**Table 1. Summary of All ED Visits**

N = Number of Visits

% = Percent of Visits

|                                           |                            | All Visits    |            |                           |                |
|-------------------------------------------|----------------------------|---------------|------------|---------------------------|----------------|
|                                           |                            | N             | %          | Visits per<br>10,000 FTEs | 95% CI         |
| <b>Total</b>                              |                            | <b>53,891</b> | <b>100</b> | <b>381.7</b>              | <b>378-384</b> |
| <b>Age</b>                                | <b>18</b>                  | 4,721         | 8.8        | 455.8                     | 443-468        |
|                                           | <b>19</b>                  | 6,697         | 12.4       | 579.1                     | 565 -592       |
|                                           | <b>20</b>                  | 7,728         | 14.3       | 419.2                     | 410-428        |
|                                           | <b>21</b>                  | 8,163         | 15.1       | 421.9                     | 413-431        |
|                                           | <b>22</b>                  | 8,691         | 16.1       | 392.1                     | 384-400        |
|                                           | <b>23</b>                  | 8,962         | 16.6       | 304.5                     | 298-310        |
|                                           | <b>24</b>                  | 8,929         | 16.6       | 298.8                     | 292-305        |
| <b>Gender<sup>+</sup></b>                 | <b>Male</b>                | 36,697        | 68.1       | 573.2                     | 567-579        |
|                                           | <b>Female</b>              | 17,190        | 31.9       | 222.8                     | 219 -226       |
| <b>Race &amp; Ethnicity</b>               | <b>White, non-Hispanic</b> | 41,230        | 76.5       | 359.8                     | 356-363        |
|                                           | <b>Hispanic</b>            | 5,568         | 10.3       | 457.1                     | 445-469        |
|                                           | <b>Black, non-Hispanic</b> | 2,802         | 5.2        | 341.1                     | 328-353        |
|                                           | <b>Other</b>               | 2,330         | 4.3        | 354.3                     | 340-368        |
| <b>Year of Hospital Visit<sup>+</sup></b> | <b>2005</b>                | 12,739        | 23.6       | 456.2                     | 448-464        |
|                                           | <b>2006</b>                | 12,398        | 23.0       | 441.8                     | 434-449        |
|                                           | <b>2007</b>                | 11,225        | 20.8       | 390.1                     | 383-397        |
|                                           | <b>2008</b>                | 9,734         | 18.1       | 342.8                     | 336-349        |
|                                           | <b>2009</b>                | 7,795         | 14.5       | 278.1                     | 272-284        |

(continued on next page)

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis.

Counts not shown and rates not calculated for cells with less than 7 cases based on the CHIA rules pertaining to confidentiality.

Numbers may not add to total due to missing information.

An ED visit for an injury is defined as any case having an ICD-9-CM Nature of Injury Code of 800-999 in the primary diagnosis field.

Attribution of work-relatedness is based on designation of Workers' Compensation Insurance as expected payer.

Injuries per 10,000 FTE calculated as number of injury / FTE\*10,000; FTEs=total hours per year / 2000.

Total hours worked for Massachusetts residents obtained from Current Population Survey, Bureau of Labor Statistics, Jan 2005 through Dec 2009.

<sup>+</sup>Difference is significant based on 95% confidence intervals; however, the standard error of the denominator was not taken into account when calculating confidence intervals.

# Emergency department visits for work-related injuries among 18- to 24-year-olds

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**Table 1. Summary of All ED Visits**

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|                          |                        | All Visits |      |                        |         |
|--------------------------|------------------------|------------|------|------------------------|---------|
|                          |                        | N          | %    | Visits per 10,000 FTEs | 95% CI  |
| Nature of Injury         | Open wounds            | 20,069     | 37.2 | 142.1                  | 140-144 |
|                          | Sprains                | 12,128     | 22.5 | 85.9                   | 84-87   |
|                          | Superficial/Contusions | 10,480     | 19.4 | 74.2                   | 72-75   |
|                          | Burns                  | 2,481      | 4.6  | 17.6                   | 16-18   |
|                          | Fractures              | 2,269      | 4.2  | 16.1                   | 15-16   |
|                          | Crushing               | 658        | 1.2  | 4.7                    | 4-5     |
|                          | Internal organ         | 480        | 0.9  | 3.4                    | 3-3     |
|                          | Dislocations           | 379        | 0.7  | 2.7                    | 2-3     |
|                          | Amputations            | 195        | 0.4  | 1.4                    | 1.2-1.6 |
|                          | Other <sup>a</sup>     | 2,247      | 4.2  | 15.9                   | 15-16   |
|                          | Unspecified & Missing  | 2,505      | 4.6  | 17.7                   | 17-18   |
| External Cause of Injury | Cut/pierce             | 15,154     | 28.1 | 107.3                  | 105-109 |
|                          | Struck by/against      | 8,827      | 16.4 | 62.5                   | 61-63   |
|                          | Overexertion           | 8,131      | 15.1 | 57.6                   | 56-58   |
|                          | Falls                  | 5,727      | 10.6 | 40.6                   | 39-41   |
|                          | Fire/burn              | 2,539      | 4.7  | 18.0                   | 17-18   |
|                          | Machinery              | 1,897      | 3.5  | 13.4                   | 12-14   |
|                          | Motor vehicle          | 1,337      | 2.5  | 9.5                    | 9-10    |
|                          | Natural/environmental  | 1,199      | 2.2  | 8.5                    | 8-9     |
|                          | Poisoning              | 255        | 0.5  | 1.8                    | 1-2     |
|                          | Suffocation            | 31         | 0.1  | 0.2                    | 0.1-0.3 |
|                          | Firearm                | 7          | <0.1 | <0.1                   | 0.0-0.1 |
|                          | Other transportation   | 188        | 0.4  | 1.3                    | 1.1-1.5 |
|                          | Other <sup>b</sup>     | 6,363      | 11.8 | 45.1                   | 44-46   |
|                          | Unspecified & Missing  | 2,236      | 4.2  | 15.8                   | 15-16   |

(a) Other includes blood vessel injuries, nerve injuries, and system wide and late effect injuries.

(b) Other includes drowning, other specified, and not elsewhere specified.

Nature of Injury and Body Region groupings are based on Barell Injury Matrix, Barell et al., *Inj Prev*, 2002 Jun;8(2):91-96.

External Cause of Injury groupings are based on 'ICD-9 Framework for Presenting Injury Mortality Data,' MMWR Recommendations and Reports, August 29, 1997, Volume 46/NORR-14.

# Emergency department visits for work-related injuries among 18- to 24-year-olds

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**Table 2. Nature of Injury by Gender and Race & Ethnicity**

N = Number of Visits  
% = Percent of Visits

|                                  |                               | Gender        |            |               |            | Race & Ethnicity   |            |              |            |                    |            |              |            |
|----------------------------------|-------------------------------|---------------|------------|---------------|------------|--------------------|------------|--------------|------------|--------------------|------------|--------------|------------|
|                                  |                               | Males         |            | Females       |            | White non-Hispanic |            | Hispanic     |            | Black non-Hispanic |            | Other        |            |
|                                  |                               | N             | %          | N             | %          | N                  | %          | N            | %          | N                  | %          | N            | %          |
| <b>Total</b>                     |                               | <b>36,697</b> | <b>100</b> | <b>17,190</b> | <b>100</b> | <b>41,230</b>      | <b>100</b> | <b>5,568</b> | <b>100</b> | <b>2,802</b>       | <b>100</b> | <b>2,330</b> | <b>100</b> |
| <b>Nature of Injury</b>          | <b>Open wounds</b>            | 15,059        | 41.2       | 5,010         | 29.2       | 15,564             | 37.9       | 2,056        | 37.1       | 829                | 29.7       | 898          | 38.7       |
|                                  | <b>Sprains</b>                | 7,179         | 19.6       | 4,949         | 28.9       | 9,205              | 22.4       | 1,286        | 23.2       | 761                | 27.2       | 461          | 19.9       |
|                                  | <b>Superficial/contusions</b> | 6,679         | 18.3       | 3,800         | 22.2       | 7,877              | 19.2       | 1,029        | 18.6       | 679                | 24.3       | 478          | 20.6       |
|                                  | <b>Burns</b>                  | 1,349         | 3.7        | 1,132         | 6.6        | 1,867              | 4.5        | 277          | 5.0        | 106                | 3.8        | 127          | 5.5        |
|                                  | <b>Fractures</b>              | 1,797         | 4.9        | 472           | 2.8        | 1,693              | 4.1        | 294          | 5.3        | 92                 | 3.3        | 99           | 4.3        |
|                                  | <b>Crushing</b>               | 526           | 1.4        | 132           | 0.8        | 485                | 1.2        | 91           | 1.6        | 25                 | 0.9        | 35           | 1.5        |
|                                  | <b>Internal organ</b>         | 303           | 0.8        | 177           | 1.0        | 404                | 1.0        | 35           | 0.6        | 15                 | 0.5        | 14           | 0.6        |
|                                  | <b>Dislocations</b>           | 287           | 0.8        | 92            | 0.5        | 301                | 0.7        | 27           | 0.5        | 22                 | 0.8        | 17           | 0.7        |
|                                  | <b>Amputations</b>            | 164           | 0.4        | 30            | 0.2        | 129                | 0.3        | 35           | 0.6        | 9                  | 0.3        | 19           | 0.8        |
|                                  | <b>Other<sup>a</sup></b>      | 1,804         | 4.9        | 442           | 2.6        | 1,840              | 4.5        | 169          | 3.0        | 67                 | 2.4        | 79           | 3.4        |
| <b>Unspecified &amp; Missing</b> |                               | 1,550         | 4.2        | 954           | 5.5        | 1,865              | 4.5        | 269          | 4.8        | 197                | 7.0        | 103          | 4.4        |

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis.

(a) Other includes blood vessel injuries, nerve injuries, and system wide and late effect injuries.

Counts not shown for cells with less than 7 cases based on the CHIA rules pertaining to confidentiality. Numbers may not add to total due to missing information.

An ED visit for an injury is defined as any case having an ICD-9-CM Nature of Injury Code of 800-999 in the primary diagnosis field.

Attribution of work-relatedness is based on designation of Workers' Compensation Insurance as expected payer.

Nature of Injury and Body Region groupings are based on Barell Injury Matrix, Barell et al., *Inj Prev*, 2002 Jun;8(2):91-96.

# Emergency department visits for work-related injuries among 18- to 24-year-olds

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Table 3. Nature of Injury by Age

N = Number of Visits  
% = Percent of Visits

|                                  |                                | Age          |            |              |            |              |            |              |            |              |            |              |            |              |            |
|----------------------------------|--------------------------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|
|                                  |                                | 18           |            | 19           |            | 20           |            | 21           |            | 22           |            | 23           |            | 24           |            |
|                                  |                                | N            | %          | N            | %          | N            | %          | N            | %          | N            | %          | N            | %          | N            | %          |
| <b>Total</b>                     |                                | <b>4,721</b> | <b>100</b> | <b>6,697</b> | <b>100</b> | <b>7,728</b> | <b>100</b> | <b>8,163</b> | <b>100</b> | <b>8,691</b> | <b>100</b> | <b>8,962</b> | <b>100</b> | <b>8,929</b> | <b>100</b> |
| <b>Nature of Injury</b>          | <b>Open Wounds</b>             | 2,186        | 46.4       | 2,809        | 42.0       | 2,968        | 38.6       | 2,948        | 36.2       | 3,022        | 35.0       | 3,105        | 34.8       | 3,031        | 34.1       |
|                                  | <b>Sprains</b>                 | 743          | 15.8       | 1,312        | 19.6       | 1,684        | 21.9       | 1,879        | 23.1       | 2,062        | 23.9       | 2,193        | 24.6       | 2,255        | 25.3       |
|                                  | <b>Superficial/ Contusions</b> | 822          | 17.5       | 1,241        | 18.6       | 1,486        | 19.3       | 1,598        | 19.6       | 1,734        | 20.1       | 1,808        | 20.2       | 1,791        | 20.1       |
|                                  | <b>Burns</b>                   | 331          | 7.0        | 346          | 5.2        | 382          | 5.0        | 390          | 4.8        | 377          | 4.4        | 343          | 3.8        | 312          | 3.5        |
|                                  | <b>Fractures</b>               | 173          | 3.7        | 256          | 3.8        | 321          | 4.2        | 350          | 4.3        | 380          | 4.4        | 387          | 4.3        | 402          | 4.5        |
|                                  | <b>Crushing</b>                | 58           | 1.2        | 77           | 1.2        | 109          | 1.4        | 108          | 1.3        | 128          | 1.5        | 81           | 0.9        | 97           | 1.1        |
|                                  | <b>Internal Organ</b>          | 55           | 1.2        | 65           | 1.0        | 59           | 0.8        | 73           | 0.9        | 90           | 1.0        | 77           | 0.9        | 61           | 0.7        |
|                                  | <b>Dislocations</b>            | 20           | 0.4        | 46           | 0.7        | 45           | 0.6        | 62           | 0.8        | 64           | 0.7        | 72           | 0.8        | 70           | 0.8        |
|                                  | <b>Amputations</b>             | 24           | 0.5        | 22           | 0.3        | 22           | 0.3        | 33           | 0.4        | 43           | 0.5        | 21           | 0.2        | 30           | 0.3        |
|                                  | <b>Other <sup>a</sup></b>      | 131          | 2.8        | 257          | 3.8        | 292          | 3.8        | 360          | 4.4        | 368          | 4.2        | 414          | 4.6        | 425          | 4.8        |
| <b>Unspecified &amp; Missing</b> |                                | 178          | 3.8        | 266          | 4.0        | 360          | 4.7        | 362          | 4.4        | 423          | 4.9        | 461          | 5.1        | 455          | 5.1        |

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis.

(a) Other includes blood vessel injuries, nerve injuries, and system wide and late effect injuries.

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Table 4. Nature of Injury by Body Part

N = Number of Visits  
% = Percent of Visits

|                                  | Total         | Visits      |   |
|----------------------------------|---------------|-------------|---|
|                                  |               | N           | % |
|                                  | <b>53,891</b> | <b>100</b>  |   |
| <b>Open Wounds</b>               | <b>20,069</b> | <b>37.2</b> |   |
| Extremities                      | 18,164        | 90.5        |   |
| Head & neck                      | 1,808         | 9.0         |   |
| <b>Sprains</b>                   | <b>12,128</b> | <b>22.5</b> |   |
| Extremities                      | 6,424         | 53.0        |   |
| Spine & Back                     | 4,226         | 34.8        |   |
| Torso                            | 1,155         | 9.5         |   |
| <b>Superficial/contusions</b>    | <b>10,480</b> | <b>19.4</b> |   |
| Extremities                      | 6,872         | 65.6        |   |
| Head & neck                      | 2,417         | 23.1        |   |
| Torso                            | 1,035         | 9.9         |   |
| <b>Burns</b>                     | <b>2,481</b>  | <b>4.6</b>  |   |
| Extremities                      | 1,990         | 80.2        |   |
| Head & neck                      | 361           | 14.6        |   |
| Torso                            | 114           | 4.6         |   |
| <b>Fractures</b>                 | <b>2,269</b>  | <b>4.2</b>  |   |
| Extremities                      | 2,032         | 89.6        |   |
| Head & neck                      | 140           | 6.2         |   |
| <b>Other<sup>a</sup></b>         | <b>2,247</b>  | <b>4.2</b>  |   |
| <b>Crushing</b>                  | <b>658</b>    | <b>1.2</b>  |   |
| Extremities                      | 655           | 99.5        |   |
| <b>Internal Organ</b>            | <b>480</b>    | <b>0.9</b>  |   |
| Head & neck*                     | 469           | 97.7        |   |
| <b>Dislocations</b>              | <b>379</b>    | <b>0.7</b>  |   |
| Extremities                      | 376           | 99.2        |   |
| <b>Amputations</b>               | <b>195</b>    | <b>0.4</b>  |   |
| Extremities                      | 195           | 100         |   |
| <b>Unspecified &amp; Missing</b> | <b>2,505</b>  | <b>4.6</b>  |   |
| Extremities                      | 1,194         | 51.3        |   |
| Head & neck                      | 928           | 39.9        |   |
| Torso                            | 175           | 7.5         |   |

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis

(a) Other includes blood vessel injuries and nerve injuries, system wide and late effect injuries.

\* 453 of these injuries are concussions.

Counts not shown for cells with less than 7 cases based on CHIA rules pertaining to confidentiality. Numbers may not add to total due to missing information.

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Nature of Injury and Body Region groupings are based on Barell Injury Matrix, Barell et al., *Inj Prev*, 2002 Jun;8(2):91-96.

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**Table 5. External Cause of Injury**

N = Number of Visits  
% = Percent of Visits

|                                  | Total         | Visits         |   |
|----------------------------------|---------------|----------------|---|
|                                  |               | N              | % |
| <b>External Cause of Injury</b>  | <b>53,891</b> | <b>100</b>     |   |
| <b>Cut/pierce</b>                | <b>15,154</b> | <b>28.1</b>    |   |
| <b>Struck by/against</b>         | <b>8,827</b>  | <b>16.4</b>    |   |
| <b>Overexertion</b>              | <b>8,131</b>  | <b>15.1</b>    |   |
| <b>Falls</b>                     | <b>5,727</b>  | <b>10.6</b>    |   |
| Fall to same level               | 2,323         | 40.6           |   |
| Fall to lower level              | 543           | 9.5            |   |
| Fall from stairs                 | 524           | 9.1            |   |
| Fall from ladder                 | 474           | 8.3            |   |
| Fall from building               | 59            | 1.0            |   |
| Fall into opening                | 44            | 0.8            |   |
| Fall to same level w/person      | 15            | 0.3            |   |
| Other falls                      | 1,745         | 30.5           |   |
| <b>Fire/burn</b>                 | <b>2,539</b>  | <b>4.7</b>     |   |
| Burn                             | 2,349         | 92.5           |   |
| Fire                             | 190           | 7.5            |   |
| <b>Machinery</b>                 | <b>1,897</b>  | <b>3.5</b>     |   |
| <b>Motor vehicle</b>             | <b>1,337</b>  | <b>2.5</b>     |   |
| Driver/passenger motor vehicle   | 1,085         | 81.2           |   |
| Pedestrian                       | 112           | 8.4            |   |
| Unspecified Person               | 108           | 8.1            |   |
| <b>Natural/environmental</b>     | <b>1,199</b>  | <b>2.2</b>     |   |
| Sting, non-poisonous             | 835           | 69.6           |   |
| Sting, poisonous                 | 236           | 19.7           |   |
| <b>Poisoning</b>                 | <b>255</b>    | <b>0.5</b>     |   |
| <b>Other Transportation</b>      | <b>188</b>    | <b>0.4</b>     |   |
| Other transportation             | 143           | 76.1           |   |
| Pedestrian, non motor vehicle    | 27            | 14.4           |   |
| Pedal cyclist, non motor vehicle | 18            | 9.6            |   |
| <b>Suffocation</b>               | <b>31</b>     | <b>0.1</b>     |   |
| <b>Firearm</b>                   | <b>7</b>      | <b>&lt;0.1</b> |   |
| <b>Other <sup>a</sup></b>        | <b>6,363</b>  | <b>11.8</b>    |   |
| <b>Unspecified &amp; Missing</b> | <b>2,236</b>  | <b>4.2</b>     |   |

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis.

(a) Other includes drowning, other specified, and not elsewhere specified

Counts not shown cells with less than 7 cases based on the CHIA rules pertaining to confidentiality. Numbers may not add to total due to missing information.

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External Cause of Injury groupings are based on 'ICD-9 Framework for Presenting Injury Mortality Data,' MMWR Recommendations and Reports, August 29, 1997, Volume 46/NORR-14.

# Emergency department visits for work-related injuries among 18- to 24-year-olds

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**Table 6. Visits Distributed by Month**

N = Number of Visits  
% = Percent of Visits

|                 |           | Visits |      |
|-----------------|-----------|--------|------|
|                 |           | N      | %    |
| Month of Injury | January   | 3,935  | 7.3  |
|                 | February  | 3,467  | 6.4  |
|                 | March     | 3,915  | 7.3  |
|                 | April     | 4,180  | 7.8  |
|                 | May       | 4,588  | 8.5  |
|                 | June      | 5,421  | 10.1 |
|                 | July      | 5,763  | 10.7 |
|                 | August    | 5,664  | 10.5 |
|                 | September | 4,470  | 8.3  |
|                 | October   | 4,509  | 8.4  |
|                 | November  | 4,124  | 7.7  |
|                 | December  | 3,855  | 7.2  |

Source: Emergency Discharge Data, for 1 Jan 2005 through 31 Dec 2009, Massachusetts Center for Health Information and Analysis. Counts not shown for cells with less than 7 cases based on the CHIA rules pertaining to confidentiality.

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