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## Background

- Motor vehicle collisions (MVC) are the leading cause of unintentional death in children age 1-19 years<sup>1</sup>
- In 2011, 98 percent of caregivers of children < 8 years used restraints when transporting their children. Nearly half of these child safety seats (CSS) were used incorrectly.<sup>2</sup>
- Parents don't understand when to transition children into a new seat<sup>3</sup>
- Deaths in infants can be reduced up to 71% (<1 years old) and 54% for toddlers (1 to 4 years old) if CSS are used<sup>4</sup>
- Fatalities due to MVC can be reduced if children are restrained in an appropriate CSS for their age, height, and weight<sup>4</sup>

**Deaths among Kentucky Children 1-17 Years of Age by Cause Category for a Typical Year\***

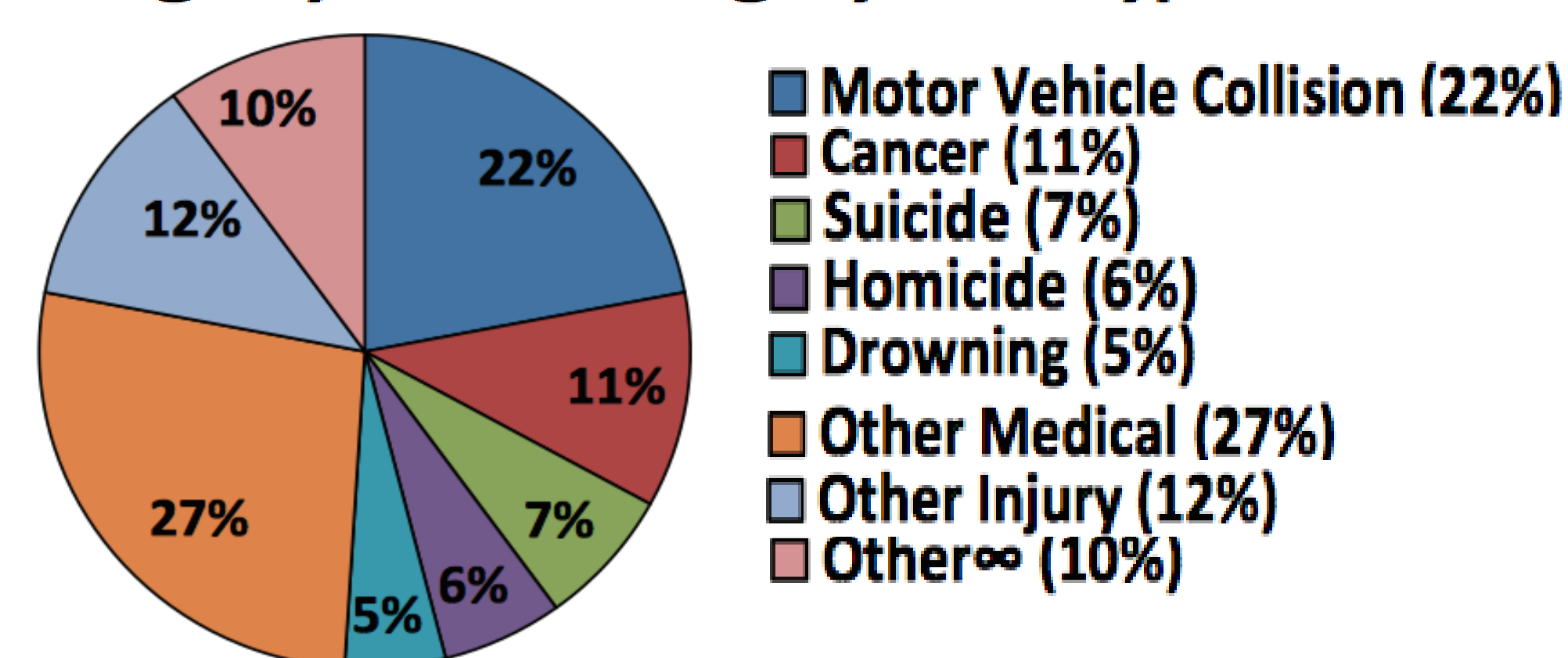


Figure: Public Health Child Fatality Review Program 2015 Annual Report<sup>5</sup>

## Objective

- Assess knowledge of child passenger safety (CPS) and car safety seat use among parents of patients in Norton Children's Hospital Emergency Department (ED).

## Methods

- **Subjects:** Following IRB approval parents of Norton Children's Hospital ED patients completed a survey regarding CPS. Children >4'9" tall who do not require CSS, non-English speaking parents, patients with life-threatening illness/injury were excluded. Based on the hypothesis that 30% of parents would be informed on current AAP guidelines our goal sample size was 126; 150 were enrolled.
- **Survey Administration and Questions:** Questions consisted of demographics, CSS use, knowledge of CSS and preferred source of information about CPS.
- **Data Analysis:** Descriptive analysis and logistic regression models were developed to test what impacted the odds a parent/guardian properly used a safety seat for their child.

## Results

| Demographics                |            |                    |
|-----------------------------|------------|--------------------|
| Age                         | Mean       | Standard Deviation |
| Child's Age                 | 2.83 years | 2.3 years          |
| Parent's Age                | 28.7 years | 6.2 years          |
| Relationship to Child       | n          | % of Total         |
| Mother                      | 133        | 89%                |
| Father                      | 14         | 9%                 |
| Race                        |            |                    |
| Caucasian                   | 73         | 49%                |
| African-American            | 65         | 43%                |
| Income                      |            |                    |
| < \$30,000                  | 50         | 33%                |
| \$30,000-\$70,000           | 39         | 26%                |
| > \$70,000                  | 18         | 12%                |
| Education                   |            |                    |
| < High School               | 19         | 13%                |
| High School                 | 54         | 36%                |
| Some College/College Degree | 71         | 51%                |

| Trusted Information Source |     |            |
|----------------------------|-----|------------|
| Relationship               | n   | % of Total |
| Relative                   | 15  | 10%        |
| Pediatrician               | 119 | 79%        |
| Internet                   | 8   | 5%         |
| Friend                     | 2   | 1%         |

| Car Seat Knowledge   |           |
|--|-----------|
| At what age/weight/height should your child transition from: | % Correct |
| Rear to Forward Facing?                                      | 26.0%     |
| Forward Facing to Booster Seat?                              | 45.6%     |
| Booster to Safety Belt Alone                                 | 8.7%      |
| Front Seat with Safety Belt Alone                            | 28.0%     |
| When does a car seat expire?                                 | 53.4%     |

### Proper Restraint of Child Per Guidelines

104 (69.3%)

| Predictor of Proper Restraint Use |      |           |         |
|-----------------------------------|------|-----------|---------|
| Age                               | OR   | 95% CI    | p-value |
| Child's Age                       | 0.75 | 0.59-0.92 | 0.035   |
| Parent's Age                      | 1.12 | 1.02-1.27 | 0.046   |
| Relationship to Child             |      |           |         |
| Mother                            | Ref  |           |         |
| Father                            | 0.14 | 0.07-0.33 | 0.002   |
| Other                             | 0.95 | 0.88-1.04 | 0.927   |
| Source of Information             |      |           |         |
| Relative                          | Ref  |           |         |
| Pediatrician                      | 2.31 | 2.01-2.68 | <0.001  |
| Internet                          | 1.49 | 1.31-1.67 | 0.012   |
| Other*                            | 3.7  | 3.32-4.11 | <0.001  |

\*A broad response by low number of respondents (i.e., parental classes, church, store, etc.)

## Discussion

- Knowledge scores were generally low, however most respondents report having their child in the proper car seat.
- Previous studies found that age-appropriate CSS use is lower among minority children<sup>6</sup>; we found no relationship between race, education, income and appropriate CSS use.
- Young parent age, fathers, parents of older children were predictors for improper CSS use. Parents who obtained knowledge from a pediatrician, the internet or other sources were more likely to have their children in the correct seat
- The majority of respondents reported that their pediatrician was a trusted source of information about CPS.

## Conclusion

- This study identified risk factors for improper use of child safety seats which will be used to target injury prevention programming in the community.

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