



I-95 Corridor-wide safety data analysis and identification of existing successful safety programs



**Traffic Injury Research Foundation
April 22, 2010**



Overview

- **Background**
- **Methodology**
- **Purpose**
- **Crash analysis**
- **Program survey**
- **Timelines**





Background

- **Multiple factors contribute to motor vehicle crashes.**
- **Jurisdictions have multiple competing priorities and limited resources to address these priorities.**
- **Need to prioritize interventions and solutions to maximize the effectiveness of programs and policies.**
- **Need evidence-based approach to target interventions.**





Background

- **Purpose of the Safety Data Analysis:**
 - to identify the primary causes of fatal and serious injury crashes; and,
 - to provide an inventory of effective traffic safety programs that can be implemented across the I-95 Corridor.

- **Goal is to improve safety for the motoring public.**

- **Objective is to produce a set of best practices for dealing effectively with the major causes of fatal and serious injury crashes that occur on the roads.**





Methodology

- **Characteristics of fatal and serious injury crashes**
 - FARS analyses
 - Jurisdictional crash data analyses
- **Inventory of effective traffic safety programs**
 - Program survey
- **Best practice recommendations**
 - Webinar





Purpose

- To come up with a set of best practices for dealing with crash characteristics identified in the analyses.
- The project's preliminary findings will be presented.
- We invite you to discuss these findings and provide input into the development of recommendations based on the study findings.





Crash analysis

- **FARS analyses (fatal collisions)**
 - Five regions
 - New England (ME, NH, VT, **MA**, CT, RI)
 - North (NY, NJ, **PA**)
 - Central (DE, MD, DC, **VA**)
 - South (NC, SC, **GA**)
 - Florida (**FL**)

- **State data analyses (fatal and serious injury collisions)**
 - One state from each region
 - GA, PA, VA, FL, and MA





Crash analysis

➤ Type of collision

- Single vehicle crashes were common (39%)
- Many involved angle impacts (24%)
- Rollovers were frequent (9%)
- Hitting a fixed object was common (39%)
- The majority involved frontal impacts (62%)





Crash analysis

➤ Driver characteristics

- Drivers were frequently aged 21-34 (31%)
- The majority were male (74%)
- Negotiating a curve was common (14%)
- Most used no avoidance maneuver (57%)
- Many involved unbelted driver (30%)
- Drinking drivers were common (19%)
- Drug use was frequent (10%)
- Many drivers were speeding (20%)
- Many were improperly licensed (12%)





Crash analysis

- **Road and vehicle characteristics**
 - The majority occurred on 1-2 lane roads (79%)
 - Most were also on undivided roads (64%)
 - Many were located on the roadside (33%)
 - Most were on principal or minor arterials (58%)
 - Most occurred in a rural area (54%)
 - Many crashes were on curved roads (33%)
 - Many also occurred at an intersection (29%)
 - Late model vehicles (2004+) were common (21%)





Crash analysis

- **Temporal and environmental characteristics**
 - Half of the collisions occurred Friday to Sunday (51%)
 - Night-time collisions were common (36%)
 - Many crashes occurred on weekends (42%)
 - Many crashes also occurred when it was dark (44%)





Crash analysis

➤ In summary...

- Most fatal and serious injury collisions involved a single vehicle, frontal impact, running off the road and hitting a fixed object.
- Drivers tended to be male, aged 16-34, unbelted, speeding, using no avoidance maneuvers, and under the influence of alcohol or drugs.
- These collisions occurred on one or two lane rural roads that were undivided, many with a curve.
- Collisions most often occurred on weekends, at night with dark lighting conditions.





Program survey

(I-95 Jurisdictions)

- **Impaired driving**
 - Alcohol enforcement initiatives (FL's high visibility sustained DWI enforcement, NY's STOP-DWI and Last Drink Program)

- **Speeding**
 - Speed cameras (FL, MD, DC)
 - Speed campaigns (DE)
 - Targeted speed enforcement (FL)





Program survey

(I-95 Jurisdictions)

- **Fatigued driving**
 - Education – drowsy/fatigued driving (NY's NYPDD)
 - Drowsy driving law (NJ)
- **Seat belt usage**
 - Primary seat belt laws
 - Demerit points (DC)
 - Education (FL's Street Smart)
 - Targeted media – seat belts (MD, NJ)





Program survey

(I-95 Jurisdictions)

- **Improperly licensed drivers**
 - License plate recognition (CT, NY, VA)
- **Collision avoidance**
 - Driver education (CT, NY, NJ, ME)
- **Road engineering**
 - Paved shoulders
 - Roundabouts
 - Increased friction pavement





Program survey

(Jurisdictions outside the I-95 Corridor)

➤ **Impaired driving**

- Targeted DWI enforcement (MI and MN)
- Road safety campaigns (Great Britain's Think!)

➤ **Speeding**

- Targeted speeding enforcement (SK's speed trailers and Great Britain's SPECS cameras)





Program survey

(Jurisdictions outside the I-95 Corridor)

- **Fatigued driving**
 - Fatigued driving enforcement (MN)
 - Laws (MI, IL, OR)

- **Seat belt usage**
 - Safety belt enforcement guidelines (MI)
 - Enforcement blitz (AB)





Program survey

(Jurisdictions outside the I-95 Corridor)

- **Improperly licensed drivers**
 - Facial scanning biometrics (CA)
- **Collision avoidance**
 - Driver education (AZ, SK, AB, ON)
- **Road engineering**
 - Transverse rumble strips (BC)
 - Upgraded sign materials (BC)
 - Colored pavement markings (BC)
 - Self explaining roads (Germany)





Program survey

➤ Program evaluations

- Many evaluations could not be located or were not accessible.
- Few evaluations were peer reviewed.
- Many involved process evaluations which examined the delivery of the programs, but not the outcomes of the programs.





Next steps

- We invite you to discuss these findings and provide input into the development of recommendations based on the study findings.

- End goal is a set of best practices for dealing with crash characteristics identified in the analyses.

- Please send us any additional comments via email within two weeks of the webinar.
 - May 6, 2010





Staying informed

www.tirf.ca

<http://www.i95coalition.org>





I-95 Ten Percenters

**Traffic Injury Research Foundation
April 22, 2010**



Overview

- **Background**
- **Methodology**
- **Purpose**
- **Crash analysis**
- **Program survey**
- **Timelines**





Background

- High-risk drivers (HRDs) are often described as a relatively small group of persistent traffic violators (usually less than 10%).
- It is believed that these persistent offenders are responsible for a significant portion of the serious injury and fatal collisions on the highways.
- The high risk driver problem has not, until recently, received much attention.
- Data on the dimensions of the problem are limited.





Background

- **Purpose of the Ten Percenter project:**
 - To identify the magnitude and characteristics of the high-risk driver (HRD) problem: and,
 - To provide an inventory of effective traffic safety programs that can be implemented across the I-95 Corridor.

- **Goal is to address the problem of the ten percenters or HRDs to improve the safety for the traveling public.**

- **Objective is to produce a set of best practices for dealing effectively with these offenders.**





Methodology

- **Magnitude and characteristics of HRDs**
 - FARS analyses
 - FARS analyses with multiple imputation data
 - Driver record data analyses

- **Inventory of effective traffic safety programs**
 - Program survey

- **Best practice recommendations**
 - Webinar





Purpose

- **The project's preliminary findings will be presented.**
- **We invite you to share your perspective and experiences in relation to the findings and ask questions.**
- **This discussion and input will inform the development of best practices for dealing with ten percenters.**





Crash analysis

- **FARS analyses**
 - 3 or more of the following in the last 3 years
 - impaired driving offense
 - speed violation
 - other violation
 - collision
 - license suspension
- **FARS analyses with multiple imputation data**
 - Same as above plus BAC (0.16% and higher, or refused breath test)
- **State driver record analyses (FL, VA, GA)**
 - 3 or more of the following in the last 3 years
 - traffic convictions, charges or citations





Crash analysis using FARS

- In total, approximately 14% of drivers involved in fatal collisions were considered to be HRDs.
- The percentage ranged from a low of 3% in DC to a high of 19% in NJ.





Multiple imputation crash analyses using FARS

- In total, approximately 25% of drivers involved in fatal collisions were considered to be HRDs.
- The percentage ranged from a low of 15% in DC to a high of 33% in CT.
- The differences between HRDs and non-HRDs are more pronounced when using multiple imputation data.





Crash analysis

- HRDs were more commonly involved in single vehicle collisions where the vehicle ran off the road and hit a fixed object.
- Drivers in these collisions tended to be male, aged 21-34, unbelted, speeding, under the influence of alcohol or drugs, and were likely to have an invalid license.
- Collisions most often occurred on weekends, at night, and when it was dark.
- HRDs represent a small proportion of drivers but account for a very substantial portion of fatal injury collisions.





State driver record analyses

- **Percentage of HRDs**
 - FL (7%)
 - GA (1%)
 - VA (0.25%)

- **The percentage of HRDs is smaller when examining all licensed drivers, whether involved in a crash or not, than the percentage involved in fatal crashes alone.**





Program survey

(I-95 Jurisdictions)

- **High-risk impaired drivers**
 - Laws and enforcement
 - License revocations (FL's Operation Round-UP)
 - Enforcement campaigns (ME – NHTSA's Buzzed Driving in Drunk Driving)
 - Saturation patrols (NY)
 - High-visibility enforcement and heightened public awareness (RI's You Drink & Drive, You Lose)





Program survey

(I-95 Jurisdictions)

- **High-risk impaired drivers**
 - Educational programs
 - Level II DWI course (FL)
 - Education, assessment and treatment programs (NY and ME's DEEP)
 - Resource centers (NJ)
 - Rehabilitation programs
 - Individualized content (DE)
 - Multiple phase treatment (MA)
 - Others (NH, NY, SC)





Program survey

(I-95 Jurisdictions)

- **High-risk other drivers**
 - Laws and enforcement
 - Legal definition of a HRD (FL, GA, ME, MD, NJ, VA)
 - Targeted campaigns (GA, NY)
 - Special enforcement units (NH)
 - Monitoring (NJ)
 - Targeted enforcement (PA)





Program survey

(I-95 Jurisdictions)

- **High-risk other drivers**
 - Defensive driving courses
 - Driving habits (FL)
 - Defensive driving awareness/abilities (ME)
 - Young drivers (MA)
 - Driver retraining courses
 - Behavioral (MA, NY, NJ)
 - Rehabilitation (VA)





Program survey

(Jurisdictions outside the I-95 Corridor)

- **High-risk impaired drivers**
 - Laws and enforcement
 - Targeted enforcement (MN, NS, SK)
 - Year-long enforcement (ON)
 - Educational programs
 - Portion of rehab program (SK)
 - Rehabilitation programs
 - SK, ON





Program survey

(Jurisdictions outside the I-95 Corridor)

- **High-risk other drivers**
 - Laws and enforcement
 - Enforcement and media campaign (AZ)
 - Electronic enforcement (CA)
 - Monetary assessments (MI)
 - Campaigns (OR)
 - Targeted education and enforcement (ON)
 - Automatic license recognition (Victoria)





Program survey

(Jurisdictions outside the I-95 Corridor)

- **High-risk other drivers**
 - Defensive driving courses
 - HRD-specific (BC, NWT)
 - Driver improvement (MB)
 - Driver improvement counselors (ON)
 - Driving theory and practical skills (UK)
 - Behavioral (Victoria)
 - Driver retraining courses
 - Behavioral (AZ, CA, OH, OR)





Program survey

- **Program evaluations**
 - Some evaluations are still ongoing.
 - Many evaluations could not be located or were not accessible.
 - Few evaluations were peer reviewed.
 - Many involved process evaluations which examined the delivery of the programs, but not the outcomes of the programs.





Next steps

- We invite you to discuss these findings and provide input into the development of recommendations based on the study findings.
- End goal is a set of best practices for dealing with ten percenters, or HRDs that jurisdictions can use to strengthen existing practices.
- Please send us any additional comments via email within two weeks of the webinar.
 - May 6, 2010





Staying informed

www.tirf.ca

<http://www.i95coalition.org>

