Introduction

• What is NHTSA precrash
  – Background

• Historical precrash data collection

• Precrash data collection methods

• Future precrash data collection
  – Crash Investigation Sampling System
What is NHTSA Precrash

- Precrash data describes the actions of a vehicle and driver leading up to a crash
  - Key source of data for crash avoidance

Chronological Order of a Single Crash Envelope

- Driver
  - Distracted
- Pre-Event
  - Movement
- Critical
  - Event
- Attempted
  - Avoidance
  - Maneuver
- Pre-Impact
  - Stability
- Pre-Impact
  - Location
- Crash
  - Type
Historical Precrash Data Collection

  - Crashworthiness Data System (CDS)
    - 4,000 cases per year
  - General Estimates System (GES)
    - 50,000 cases per year

  - 7,000 cases

- (2010-current) Fatality Analysis Reporting System (FARS)
Precrash Data Collection Methods

- Police Report based
  - NASS-GES
  - FARS

- Follow on investigation
  - NASS-CDS
  - Special Crash Investigation (SCI)
  - CI REN

- On scene investigation
  - NMVCCS
• 379 common crashes, 653 vehicles
  – NASS-GES (Police report)
  – NASS-CDS (Follow on investigation)
  – NMVCCS (On scene investigation)

Chronological Order of a Single Crash Envelope

Driver Distracted  |  Pre-Event Movement  |  Critical Event  |  Attempted Avoidance Maneuver  |  Pre-Impact Stability  |  Pre-Impact Location  |  Crash Type

Safer drivers. Safer cars. Safer roads.
Comparing Data Collection Methods

<table>
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<th>Distraction</th>
<th>GES</th>
<th>CDS</th>
<th>NMVCCS</th>
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<td>28%</td>
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Distraction
### Comparing Data Collection Methods

**Avoidance Actions**

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<td>35%</td>
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**Graph:**

- **CDS = NMVCCS:** 58%
- **CDS = GES:** 31%
- **GES = NMVCCS:** 20%
- **All 3 Programs Match:** 15%
Comparing Data Collection Methods

Pre-Impact Location

- CDS = NMVCCS: 90%
- CDS = GES: 86%
- GES = NMVCCS: 85%
- All 3 Programs Match: 81%
Precrash Data Collection Methods

- Discrepancies between programs is due to the different data sources
  - Coded correctly based on available information
Precrash Data Collection Methods

- Naturalistic
- On Scene Investigation
- Follow On Investigation
- Police Report Based
Future Pre Crash Data Collection

• Crash Investigation Sampling System (CISS)
  – Replaces NASS-CDS
    • 24 sites by end of 2016

• Crash Report Sampling System
  – Replaces NASS-GES
    • 60 sites

• FARS
CISS Precrash Data Collection

- 7 Core precrash elements
- 5 Avoidance Technologies
- Pre-First Harmful Event Maneuver Sequence
  - Describes vehicles lateral movements
- Environment
  - Lane lines
  - Rumble strips
CISS Precrash Data Collection

• Avoidance equipment
  – Lane Departure Warning with/without Lane Keeping
  – Forward Collision Warning with/without Automatic Braking
  – Blind Spot Detection

• Technology available
  – Activate
  – Manually disabled
• NHTSA has been collecting precrash data since 1992

• Police report based systems will continue to collect basic precrash data
  – FARS
  – CRSS

• Investigation based systems will collect more detailed precrash information
  – CI SS
  – SCI
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