

Pre-crash Data
Collection in NHTSA
Crash Databases



Mark Mynatt
Crash Investigation Division

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



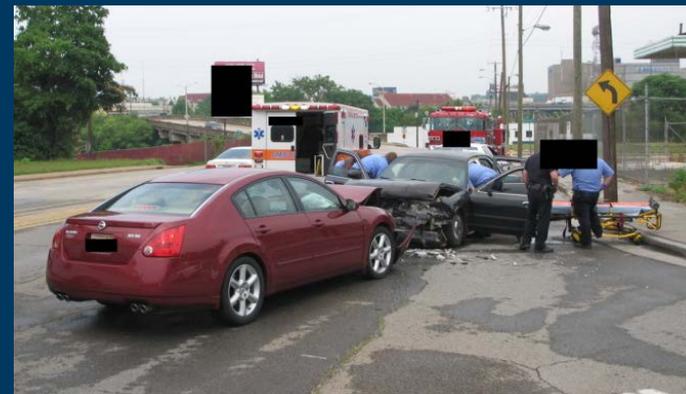
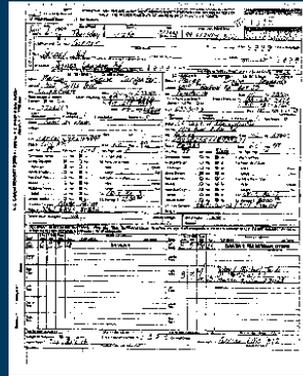
Historical Precrash Data Collection

- (1992-2015) National Automotive Sampling System
 - Crashworthiness Data System (CDS)
 - 4,000 cases per year
 - General Estimates System (GES)
 - 50,000 cases per year
- (2005-2007) National Motor Vehicle Crash Causation Survey (NMVCCS)
 - 7,000 cases
- (2010-current) Fatality Analysis Reporting System (FARS)



Pre-crash Data Collection Methods

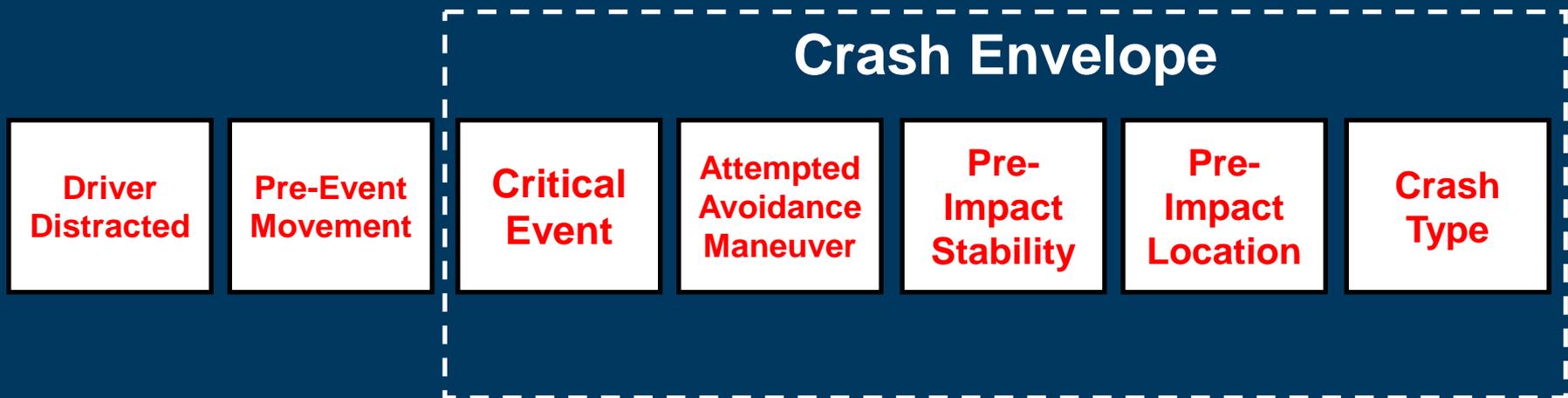
- Police Report based
 - NASS-GES
 - FARS
- Follow on investigation
 - NASS-CDS
 - Special Crash Investigation (SCI)
 - CIREN
- On scene investigation
 - NMVCCS



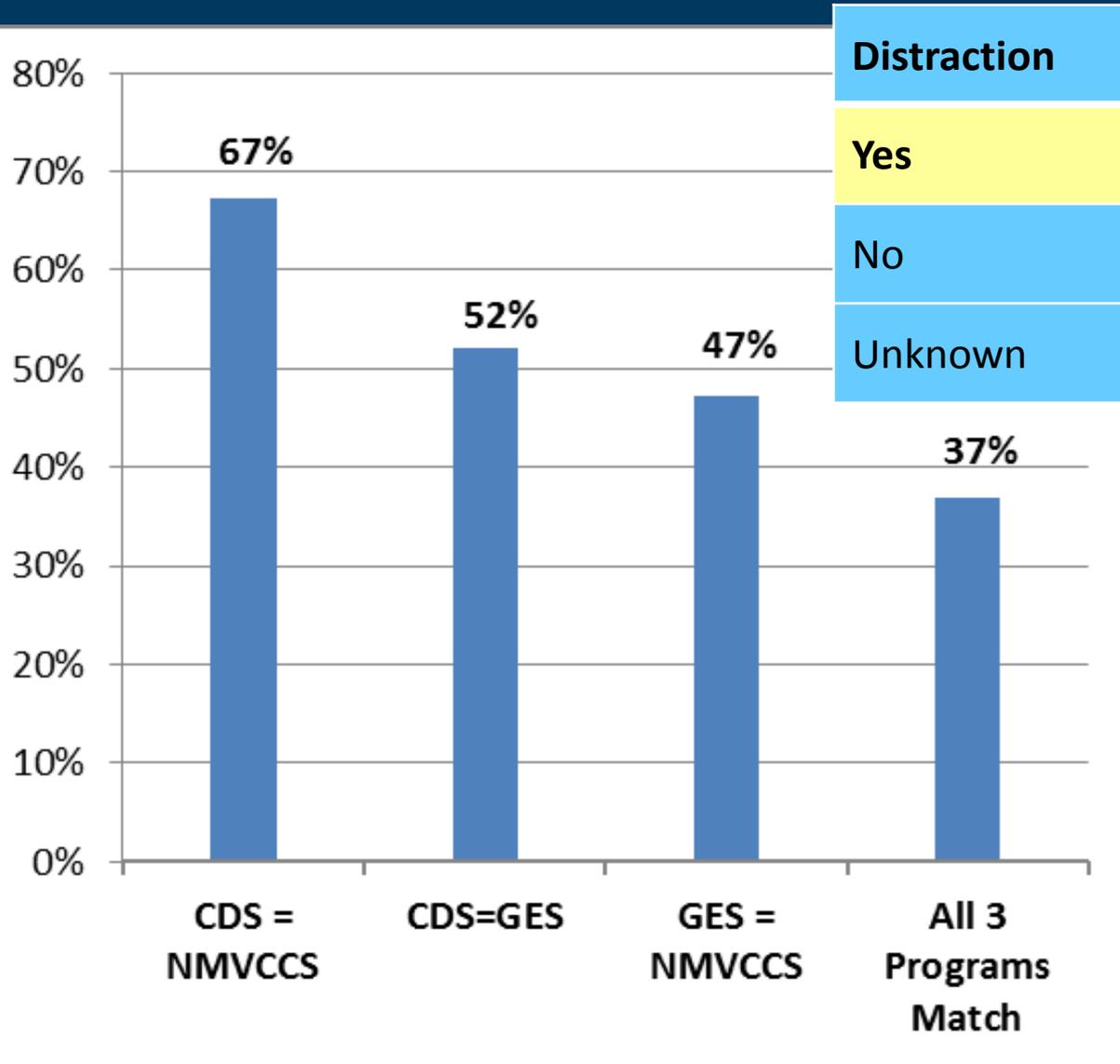
Precrash Data Collection Methods

- 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



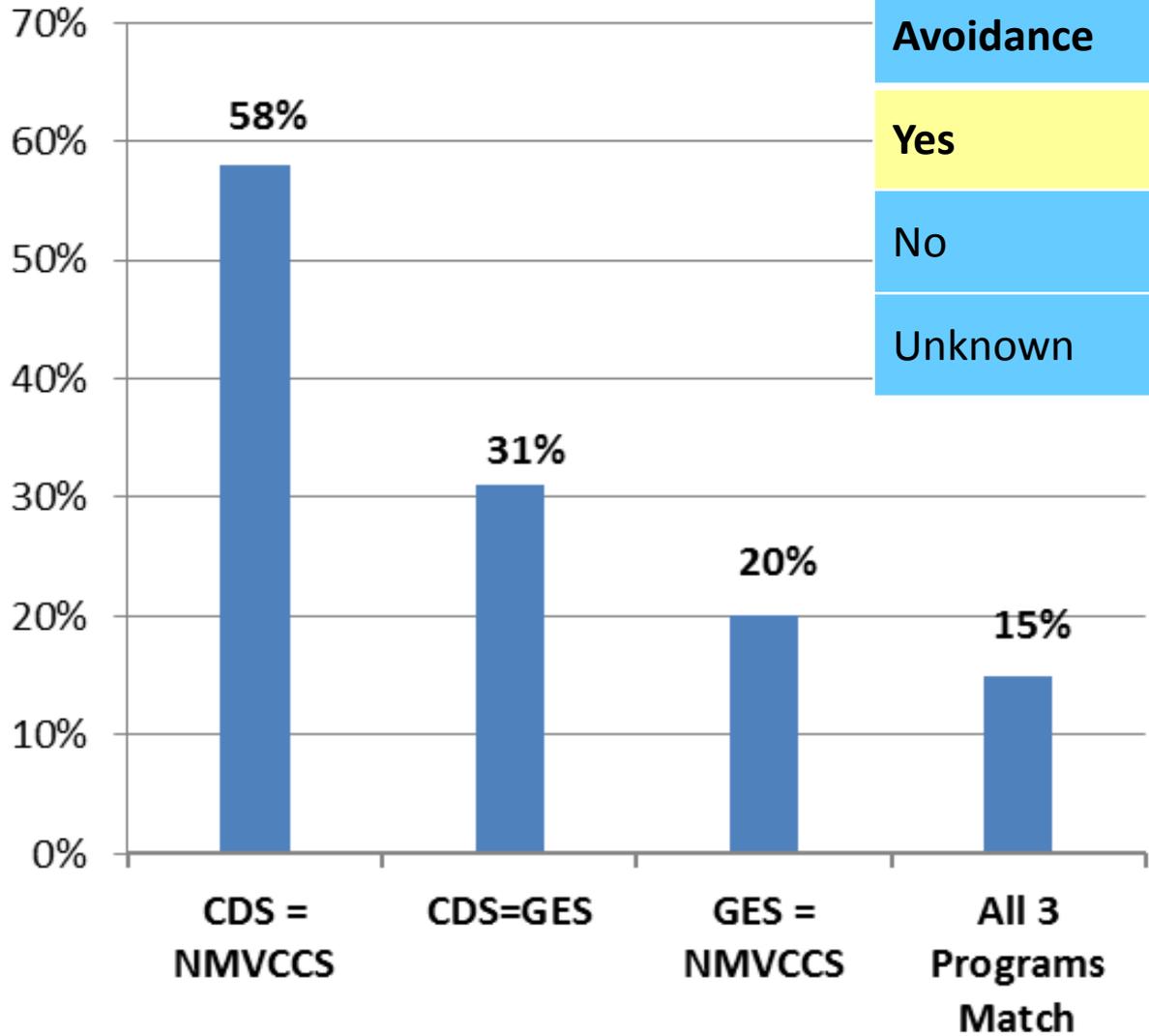
Comparing Data Collection Methods



Distraction	GES	CDS	NMVCCS
Yes	11%	14%	28%
No	60%	46%	48%
Unknown	30%	40%	24%

Distraction

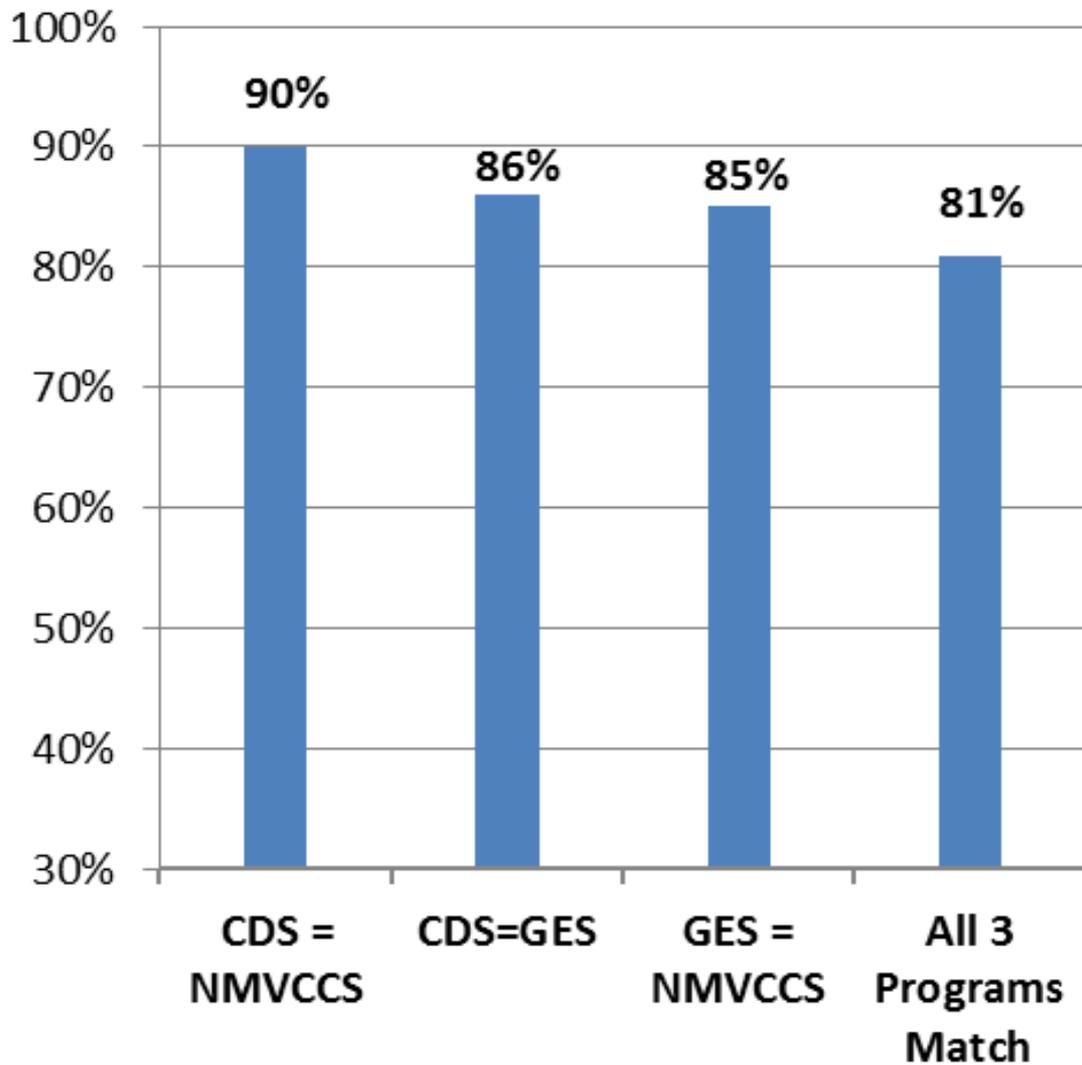
Comparing Data Collection Methods



Avoidance	GES	CDS	NMVCCS
Yes	16%	35%	40%
No	17%	40%	51%
Unknown	67%	25%	9%

Avoidance
Actions

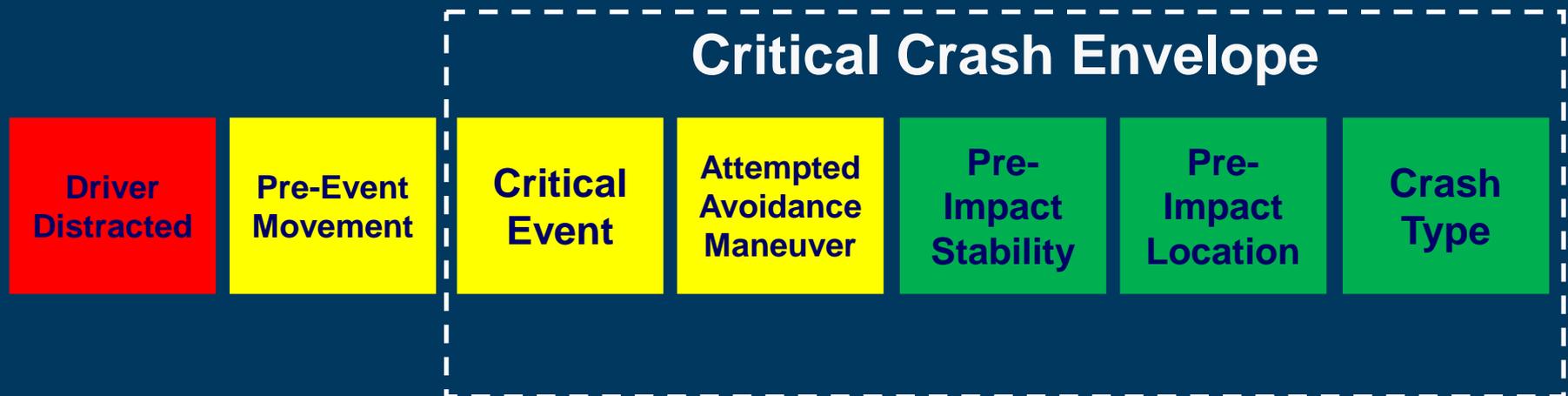
Comparing Data Collection Methods



Pre-Impact
Location

Precrash Data Collection Methods

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



Precrash Data Collection Methods



Future Precrash 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



Summary

- 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
 - CISS
 - SCI

Safer drivers. Safer cars. Safer roads.

Mark Mynatt

Crash Investigation Division

Mark.Mynatt@dot.gov

www.NHTSA.gov

