Overview of NHTSA's Investigation Based Programs: NASS CDS, SCI and NMVCCS

Augustus “Chip” Chidester,
Director, Office of Data Acquisitions
In 2008

>16,000,000 Crashes

4,348,000 Property Damage Only

1,929,000 Injury Crashes

6,316,000 Police Reported Crashes

5,811,000 Police Reported Crashes

4,146,000 Property Damage Only

1,630,000 Injury Crashes

34,017 Fatal Crashes

37,261 Fatalities

2,346,000 People Injured

$230 Billion Societal Cost in 2000

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National Automotive Sampling System (NASS)

• CRASHWORTHINESS DATA SYSTEM (CDS)
  ♦ Sole source
    o Data on vehicle damage and the occupant outcome (crashworthiness) of towed light passenger vehicles
  ♦ Nationally representative
    o Sample based
  ♦ Field Investigation Based
  ♦ Over 600 CDS Data Elements Describe
    o Crash Events
    o Damage to Vehicle
    o Crash Forces Involved
    o Injuries to Victims
    o Injury Mechanisms
National Automotive Sampling System (NASS)

- Police crash reports
- Scene inspections
- Vehicle inspections
- Driver and occupant interviews
- Autopsy and hospital records
• Crash Events
  ♦ Frontal, Side, Rollover, etc
• Crash Forces Involved
  ♦ Delta V
  ♦ EDR
National Automotive Sampling System (NASS)

- Detailed restraint data
  - Safety belts, air bags
  - Availability
  - Deployment and/or use

- Injuries to Victims
  - AIS 90 (update 98)
  - AIS 2005 (in 2010)

- Injury Mechanisms
Using the NASS CDS data collection system infrastructure to perform special data collection studies

- **National Child Occupant Special Study (NCOSS)**
  - Twelve month study to evaluate the feasibility of using the NASS-GES program as the basis for a child occupant survey

- **Tire Pressure Study**
  - Data to support an evaluation of TPMS rulemaking

- **Off-Road Crashes**
  - Data to support FHWA and TRB Research

- **Support to Federal Motor Carrier Safety Administration (FMCSA)**
  - Critical Reason Special Study (CRSS)
  - Large Truck Crash Causation Study

- **National Motor Vehicle Crash Causation Study**
  - Data to support primary prevention of crashes
Special Crash Investigations (SCI)

- Detailed data on new and rapidly changing technologies
  - First Alert (Problem Identification)
  - Most detailed investigations into:
    o Backover Avoidance
    o Motorcoach fires/crashes
    o Alternative fuel systems
    o Air Bag systems:
      - Front, Side, Rollover Canopy
    o School Bus Crashes
    o Potential Vehicle Defects
- 160 cases annually
National Motor Vehicle Crash Causation Survey (NMVCCS)

- NATIONAL MOTOR VEHICLE CRASH CAUSATION SURVEY (NMVCCS)
  - Sole source
    - On scene data on the factors or events that led up to a crash (primary prevention) of towed light passenger vehicles
  - Nationally representative
    - Sample based
  - On scene field investigation
    - Pre-crash events and associated factors related to how crashes occur
      - Starts at the critical event
    - Detailed data on driver distraction
  - Data collection Period
    - 2005 – 2007
    - 5,000 cases investigated
  - Preliminary reports on distraction
Crash Qualification

- EMS dispatch initiated
- On-scene response by NMVCCS researcher
- At least one of 1st three in-transport vehicles on scene
- One of 1st three in-transport vehicles must be a light vehicle towed due to damage
- Police crash report filed with State
On-Scene Investigations

• Higher rate of participation by crash victims
• Higher quality of interview and vehicle information
• Better understanding of the crash events
• Scene data quickly diminishes with the passage of time
What Happened?

Physical Evidence, Witness interviews, etc are all utilized by the researcher to determine the events and factors that led up to the crash.
Causation vs. Factors

- No single cause of crash
- Causal chain of events
- Factors alone do not cause crashes
- Factors increase the risk of a crash
Overview of NHTSA’s PAR Based Databases: FARS, NASS GES and NiTS

Marietta Bowen, Team Leader, Fatality Analysis Reporting System
Outline of Presentation

• Overview of Fatality Analysis Reporting System (FARS)
  ♦ FastFars
  ♦ GES
  ♦ NiTS

• 2010 Data Collection Changes
Fatality Analysis Reporting System (FARS)

- Fatality Analysis Reporting System (FARS)
  - Sole Source
    - Census on all police-reported fatal motor vehicle traffic crashes within the 50 States, the District of Columbia, Puerto Rico and the Virgin Islands.
  - State data based
    - Police Accident Report (PAR)
    - Death Certificates
    - DMV, etc
    - Recoded at the State into a uniform national data set
  - Fatality w/in 30 Days of Crash
    - ~ 40,000 fatalities/year
FastFARS

Objective: to quickly provide basic statistics on motor vehicle traffic

- FastFARS for Analytical Reporting began in CY 2008
  - Currently reporting quarterly
  - Holiday Reporting under development

♦ Operations:
  - Current - Manual
  - Built on FARS Infrastructure
  - Support, Coordination & Communication with Regional Offices
  - Future - Electronic Data Transfer (EDT)

♦ Benefits to FARS
  - Reactive to proactive
  - Improved data quality & timeliness
FARS Case Criteria

- At least one motor vehicle involved in a crash while in transport on a traffic way
- At least one person involved in the crash died as a direct result of the crash within 720 hrs

- Reference ANSI D-16
What is NOT a FARS case

- Deliberate intent (homicide, suicide)
- Legal intervention (except when the fatality is an innocent victim)
- Cataclysm (earthquake, flood, landslide, etc.)
- Not on traffic way (private property, parking lot)
  - See NiTS
- Fatally injured person expires after 720 hours from the time of the crash (30 days)
FARS Core Data Elements

- Crash Level
  - Describes crash environment

- Vehicle Level
  - Characteristics of vehicles involved

- Driver Level
  - Driver history, licensing, related factors

- Pre-Crash Level
  - Basic information on driver distraction
  - Describes pre-crash circumstances, environment, actions by Vehicle/Driver

- Person Level (MV Occupant)
  - Restraint use
  - Air Bag Deployment
  - Ejection

- Person Level (Not a MV Occupant)
  - Drug/Alcohol use
  - Injury severity
  - Location
  - Actions
Building the FARS Case

Crash Report (PJ)

- Speeding
- Restraint Use
- Alcohol Related
- Race & Ethnicity

Crash Report Supplement (PJ)
Road Classification (state DOT)
Driver Records (DMV)
Vehicle Registration (DMV)
EMS Times (EMS agency)
Toxicology Report (ME)
Death Certificate (Vital Records)

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National Automotive Sampling System (NASS)

• Nationally representative data
• Two Components
  ♦ General Estimates System (GES)
    o Tracks Motor Vehicle Crash Trends
  ♦ Crashworthiness Data System (CDS)
    o Evaluate Motor Vehicle Safety Countermeasures
National Automotive Sampling System (NASS)

• GENERAL ESTIMATES SYSTEM (GES)
  ♦ Sole Source
    o National estimates on all police reported crashes
      • KABCO
  ♦ Nationally representative
    o Sample based
    o Collected at 410 Police Jurisdictions
    o in 60 locations across the US
  ♦ ~55,000 crashes annually
  ♦ Infrastructure
    o NiTS
    o Special Studies
Building the GES Case
2010 Data Collection Changes

- FARS/GES Variable Integration
  - PAR Based programs
  - MMUCC compatible
- New data collection
  - Pre-Crash Form (2010 FARS)
  - Person level Split
    - Non-motor vehicle Occupant/Vehicle Occupant
    - Pedestrian and Bicycle Typing
Not in Traffic Surveillance (NiTS)

Yellow = Current NHTSA focus

Green = Not in Traffic Incidents

Motor Vehicle Incidents

Non-Crash Incidents
- Hyperthermia / hypothermia
- Trunk entrapment
- Power window strangulation
- Carbon monoxide poisoning

Crashes

Non-Traffic Crashes
- Occur in parking lots, on private property, etc.

Traffic Crashes
- In our current data systems

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**Not in Traffic Surveillance (NiTS)**

- Data on non-traffic crashes & non-crash incidents
  - Information on deaths and injuries
    - Not previously collected by NHTSA
    - Crashes off the trafficway (road environment)
    - Noncrash incidents involving motor vehicles
- A virtual system using multiple existing systems
  - NHTSA databases (GES, FARS, SCI)
  - CPSC’s NEISS
  - CDC’s NVSS
- Created based on requirements:
  - SAFETEA-LU Sec. 10305; Sec 2012
- Report
Data Availability

- Reports
- State Traffic Safety Information
- Data Files
  - All systems
- FARS Query System
- NASS Case Viewer
- SCI Case Viewer


NCSA web page

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