



**Federal Motor Carrier  
Safety Administration**

U.S. Department of  
Transportation

## **Driver Safety History Indicator and the Inspection Selection System (CDC-ISS)**

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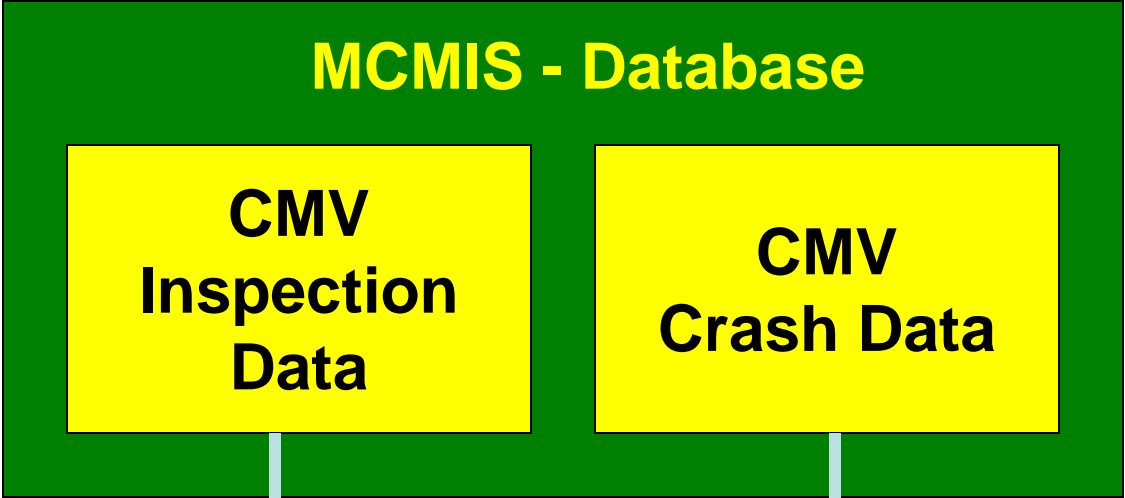
*Jeff Loftus, FMCSA*

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## Agenda

- ▶ Overview of the Original Carrier-Driver-Conviction (CDC) Study
- ▶ Overview of the CDC-ISS Study Phases
- ▶ Outcome Measures
- ▶ Results
- ▶ Discussion

# CDC Study Methodology



Contains:

- Carrier DOT#
- Driver CDL#
- Safety Data



Combined CDC Records

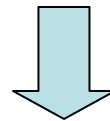


Contains:

- Driver CDL#
- Conviction data

## Create Driver Conviction Measure (DCM)

$$3 * (\text{disqualifying offense}) + \\ 2 * (\text{serious offense}) + \\ 1 * (\text{any other offense}) = \text{DCM}$$



## Create Carrier Driver Conviction Measure (CDCM)

$$\frac{\text{Sum of severity weighted \# of convictions (DCM)}}{\text{\# of drivers for carrier}}$$

## CDC Results

- ▶ Correlation analysis of CDCM with OOS rates, crash rates, and SEA values revealed significant positive correlations
- ▶ Provides additional data on smaller carriers that is not being captured by other SEA values
  - Many carriers have CDCI but no other SEA
  - 84% of these had less than 6 drivers

## CDC-ISS Project

- ▶ How do we apply CDC results to the real world?
  - CDC – Next step to use CDCM
    - Further analysis of DCM
  - ISS – Improve both the algorithm and the use
    - Implement CDCM as part of ISS

## CDC-ISS Phases

- ▶ Confirmation analysis
  - April 2003 MCMIS data
    - 130,000 U.S. drivers matched to 46,000 carriers
- ▶ Survey of States
  - Hardware and software used to support the existing algorithm
  - Use of screening / electronic clearance systems
  - Current usage level of the ISS algorithm
  - Suggested improvements to the algorithm and delivery platform
- ▶ ISS and Query Central on the PDA development
- ▶ Proof of concept field tests in OH and TN
- ▶ Methodology to test CDCM as part of ISS
- ▶ ISS-D implementation
- ▶ Analysis and Results

## Methodology to test ISS-D

- ▶ Implemented similar to SafeStat
  - Used CDC measure to create an indicator (CDCI)
  - Added it to Safety Management SEA
  - Calculated ISS values in same way
    - Certain carriers now receive safety values
    - Some carriers have higher values

## **ISS-D Pilot Test**

- ▶ States selected to pilot test
  - States with best crash data available
  - Varied location / size
- ▶ Software (ISS-D) installed for majority of users in:
  - ID, NC, OH, and UT mid-January 2005
  - AK, CT, KY, and VT mid-March 2005
- ▶ ISS-D installed for a limited number of users in:
  - MO (4), WV (4), AZ (2), and WA (7)
- ▶ Explored use with electronic clearance system in KY

## Outcome Measures

- ▶ **Project Safety Outcome Measures**
  - Anticipate increased use of ISS / improved ISS algorithm, increased driver OOS rates, and decreased crashes
  - Analyze OOS rates and crash rates before and after implementation

## ISS vs. ISS-D: Before and After Results

- ▶ ID, NC, OH, and UT
  - ISS
    - For Oct-Dec 2004, driver OOS rate = 7.72%
    - 38,270 Level 1, 2, 3 and 6 inspections
  - ISS-D
    - For Feb-Apr 2005, driver OOS rate = 8.33%
    - 38,812 Level 1, 2, 3 and 6 inspections
- ▶ AK, CT, KY, and VT
  - ISS
    - For Dec 2004-Feb 2005, driver OOS rate = 6.43%
    - 23,717 Level 1, 2, 3 and 6 inspections
  - ISS-D
    - For Apr-Jun 2005, driver OOS rate = 7.10%
    - 30,069 Level 1, 2, 3 and 6 inspections
- ▶ Preliminary crash analysis trends appear positive, but further analysis needed

## Contact Information and Discussion

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<http://www.ugpti.org/tssc/projects/drivesafe.php>