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

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U.S. Department of Transportation
Federal Motor Carrier Safety Administration

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Agenda

- **Overview of CDC and CDC-ISS Study**
- **Results to Date**
  - **ISS Technology and Use Survey**
  - **Proof of concept field test**
  - **Methodology to test CDCM with ISS**
- **Next Steps**
- **Outcome Measures**
- **Discussion**

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2

CDC Study Methodology

MCMIS - Database

| CMV Inspection Data | CMV Crash Data |
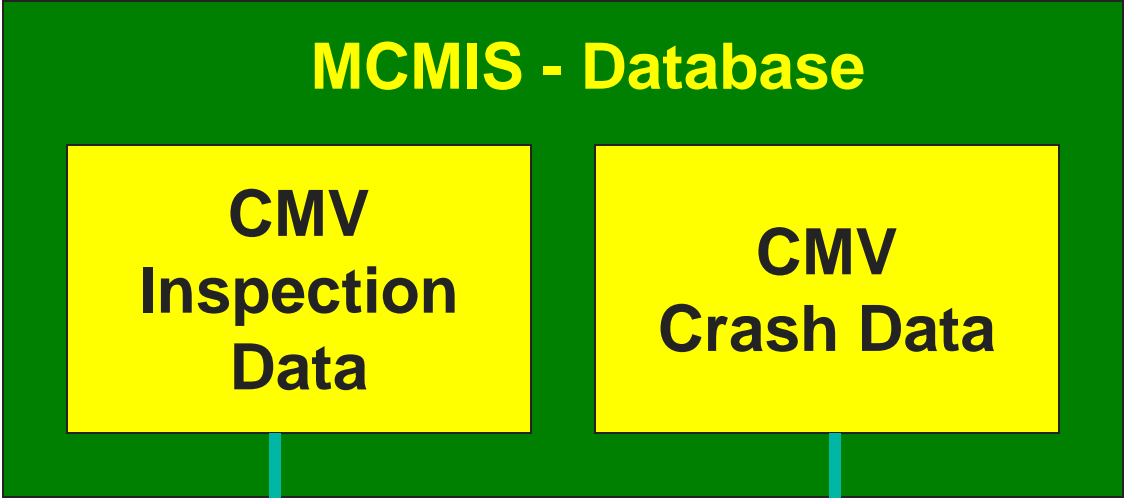
Contains:
- Carrier DOT#
- Driver CDL#
- Safety Data

CDLIS Search ⟷ **State DMV Driver Records**

Combined CDC Records

Contains:
- Driver CDL#
- Conviction data

Create Driver Conviction Measure (DCM)

3 * (disqualifying offense) +
2 * (serious offense) +
1 * (any other offense) = 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**

- **More than 10% of carriers had CDCM, but no other SafeStat measure/indicator**

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**
- **Time frame: April 2003-September 2005**

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6

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CDC-ISS Results to Date

- **Confirmation analysis completed**
  - April 2003 MCMIS data
    - 130,000 U.S. drivers matched to 46,000 carriers
- **ISS and Query Central on the PDA development**
- **Survey of States (via email and web site)**
- **Proof of concept field tests in OH and TN**
- **Methodology to test CDCM as part of ISS**

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Information Systems

INFOSYS BANNER

Technology and ISS Usage Assessment

This survey is part of a FMCSA Research & Technology study, and your opinions are very important to its success. The survey should only take approximately 10 minutes to complete. If you have any questions regarding this survey or the overall study, please feel free to contact Jeff Loftus or Brenda Lantz. Thank you in advance for your participation.

For a brief description of ISS and Query Central, please click the following link. ISS - QC Description

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Q1. Do your agency motor carrier safety enforcement personnel use the ISS software and/or Query Central to access ISS information? If so, approximately how many users use each?

☐ Our enforcement personnel do <u>not</u> use the ISS software nor Query Central.

Approximately, how many users:

a. Use the ISS software?

b. Use Query Central only?

c. Use both ISS and Query Central?

Q2. How many motor carrier safety enforcement personnel does your agency have?

Survey of States

- **Responses from 44 States to date**

- **Current usage level of ISS**
  - **100% for some purpose**
  - **36% for primary basis to inspect (19 of 53)**

- **Hardware and software used to access ISS**
  - **96% laptops, 50% would consider PDA**

- **ISS data updates**
  - **Majority install from CD or require laptops brought in**
  - **23% (12) use the single carrier refresh**
  - **17% (9) use the carrier database refresh**

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9

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Survey of States (continued)

- **Internet access**
  - **47% (24) at fixed sites only**
  - **33% (17) at fixed and mobile sites**
  - **18% (9) have no access**
- **Use of screening / electronic clearance systems**
  - **73% NorPASS, PrePass, or Other (32 of 44)**
- **Suggested improvements to the algorithm**
  - **Include intrastate violations**
  - **More weight on driver violations (3 comments)**

Proof of Concept Field Tests

- **Hypotheses**
  - **Using a PDA will be more efficient for selection**
  - **Wireless connectivity with PDA is timely / adequate**
  - **Using the CDC measure alone will result in increased driver OOS rates**

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Use of PDA

Use of CDC Measure

- **Out of 158 inspections, 126 had a CDC value**
- **CDC identified 18 as "Inspect"**
  - **3 of these resulted in a driver OOS (16.7%)**
- **CDC identified 84 as "Pass"**
  - **7 of these resulted in a driver OOS (8.3%)**

Proof of Concept Field Tests

- **Conclusions**
  - **Using a PDA will be more effective for selection**
    - **Yes, noticeably easier than with desktop**
  - **Wireless connectivity with PDA is timely / adequate**
    - **Yes, demonstrated use and quick response times**
  - **Using the CDC measure alone will result in increased driver OOS rates**
    - **Yes, results are "promising"**

Methodology to test CDCM with ISS

- **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

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Next Steps

- **States selected to pilot test**
  - **States with best crash data available**
  - **States willing to use in electronic screening**
  - **Varied location / size**
  - **OH, WA, AZ, MO, KY, NC, VT, AK, ID, WV, UT, TN, GA, and CT agreed to pilot test**
- **Software ("ISS-D") distributed to the pilot states**

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16

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Outcome Measures

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

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