

Status of Advanced Frontal Crash Protection Research Program

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**POTENTIAL TEST PROCEDURES FOR
FMVSS NO. 208**

Prepared By The

OFFICE OF VEHICLE SAFETY RESEARCH

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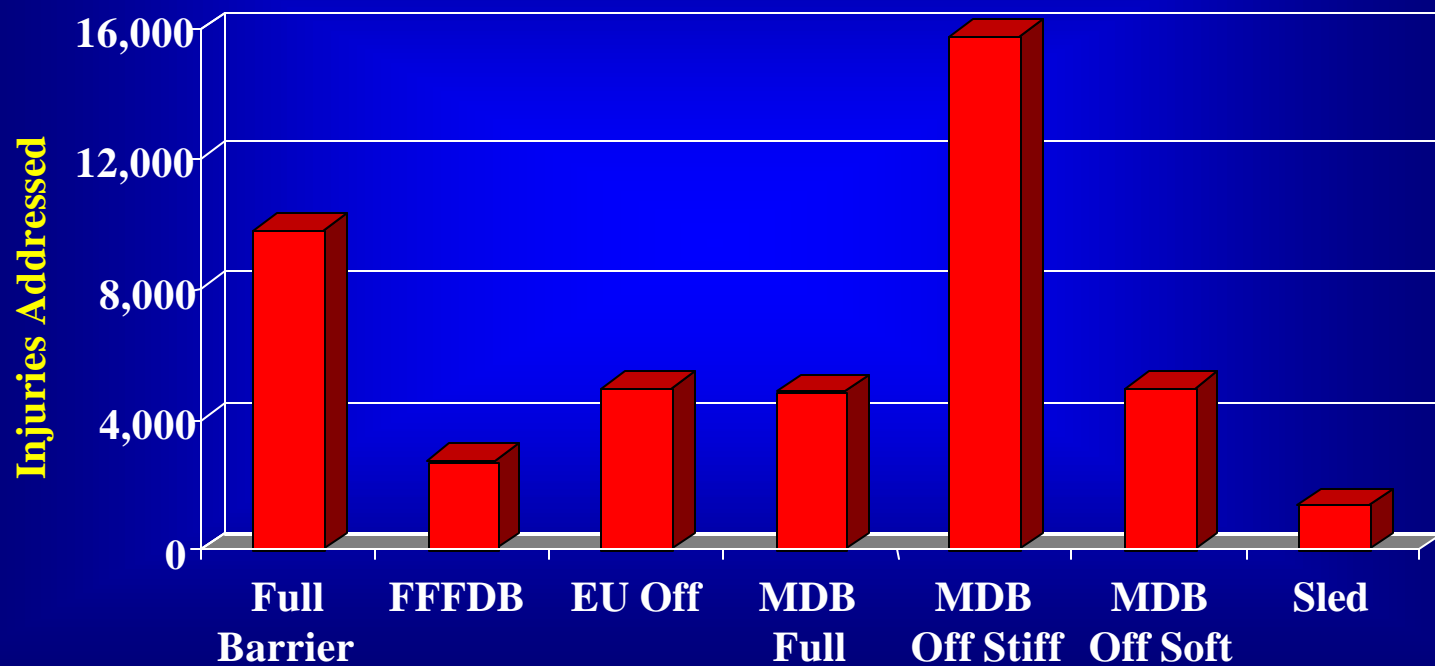
OCTOBER 1999

NASS Analysis of Frontal Impacts

Evaluation of Potential Frontal Tests

Target populations for Tests

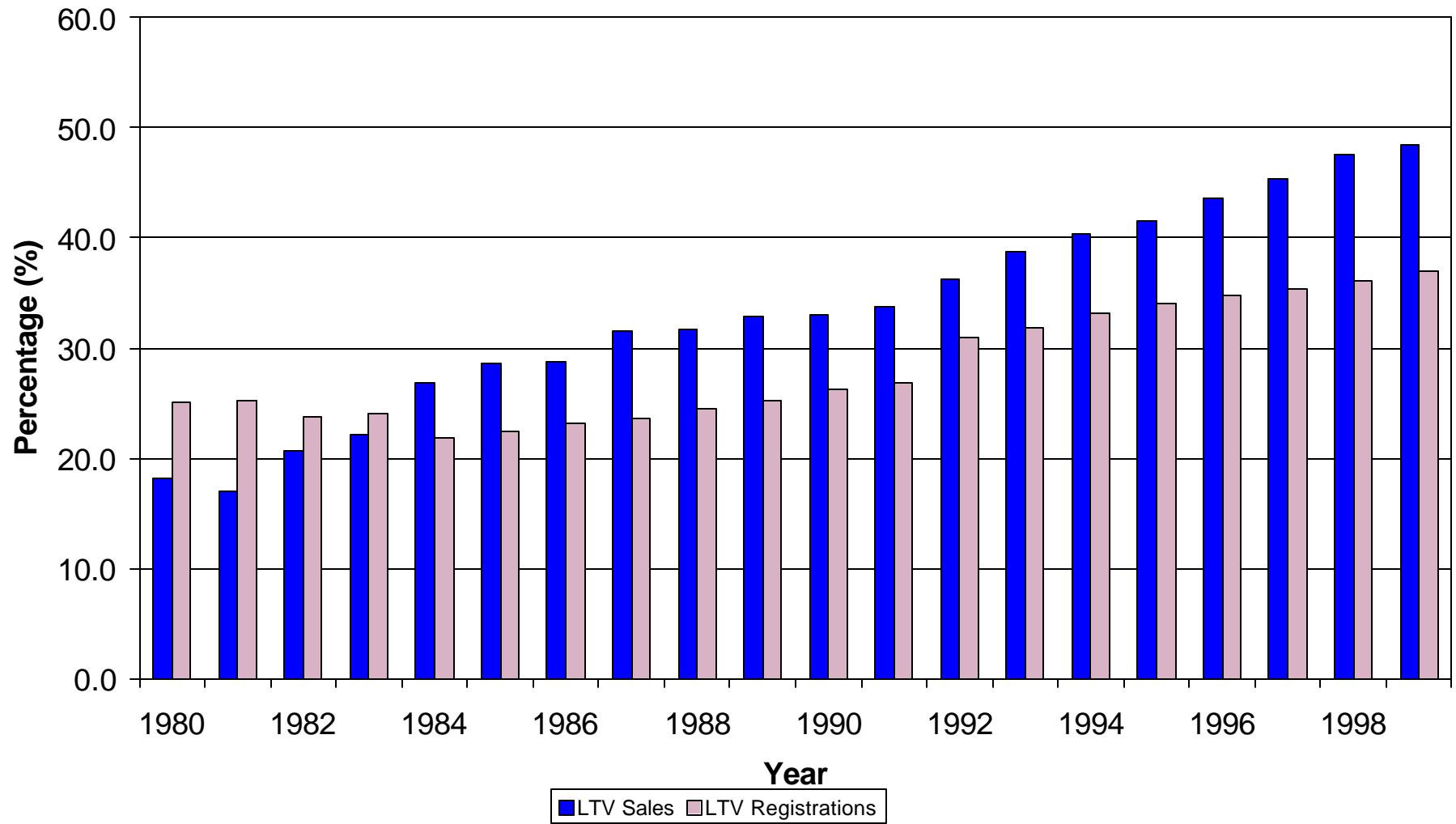
Annual Target Populations Addressed by Tests Drivers with Serious and Greater Injuries



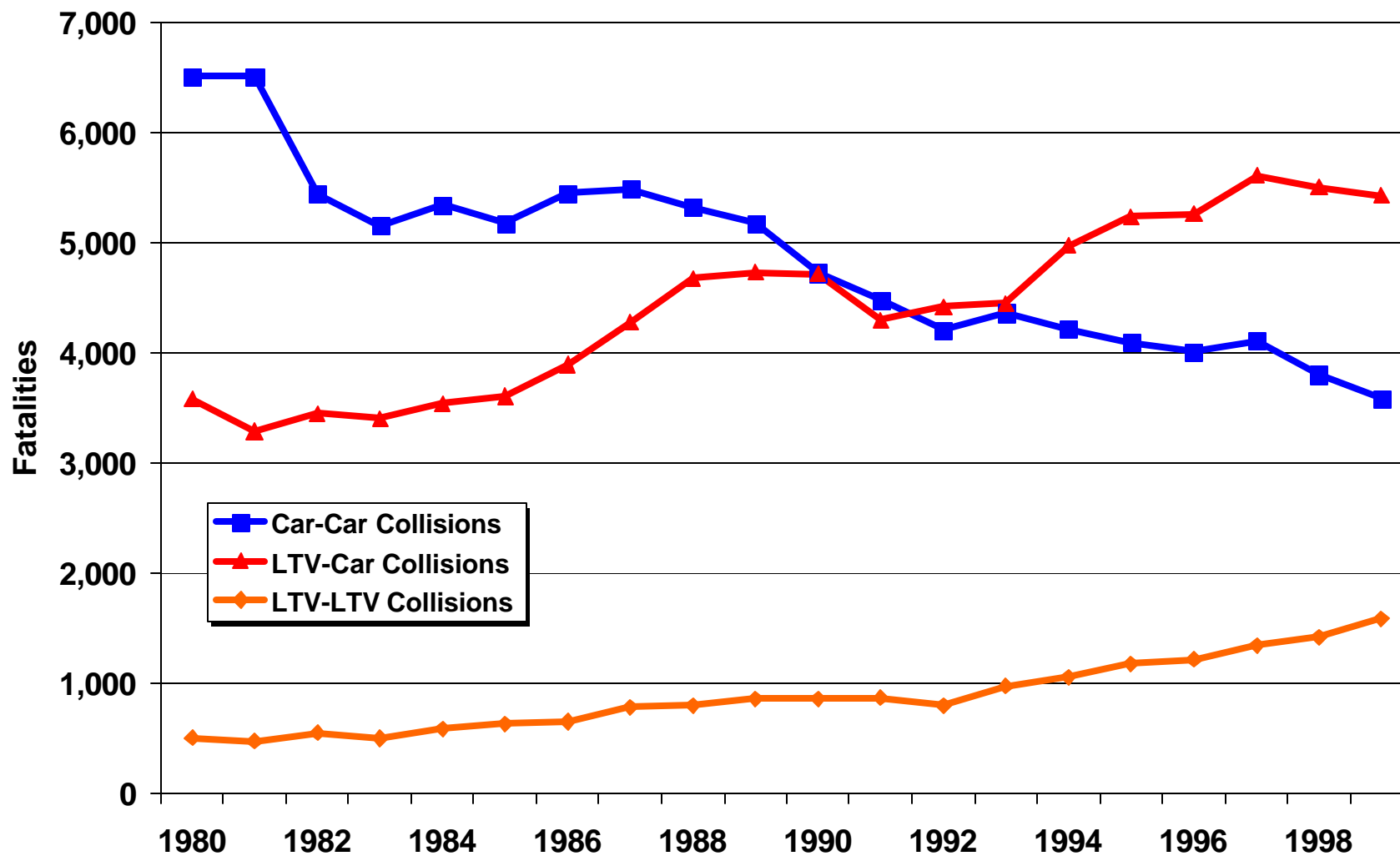
POTENTIAL TEST PROCEDURES FOR FMVSS NO. 208

“...Additionally, it is recommended that research be continued in developing and evaluating the moving deformable barrier test for future agency consideration for upgrading FMVSS No. 208.”

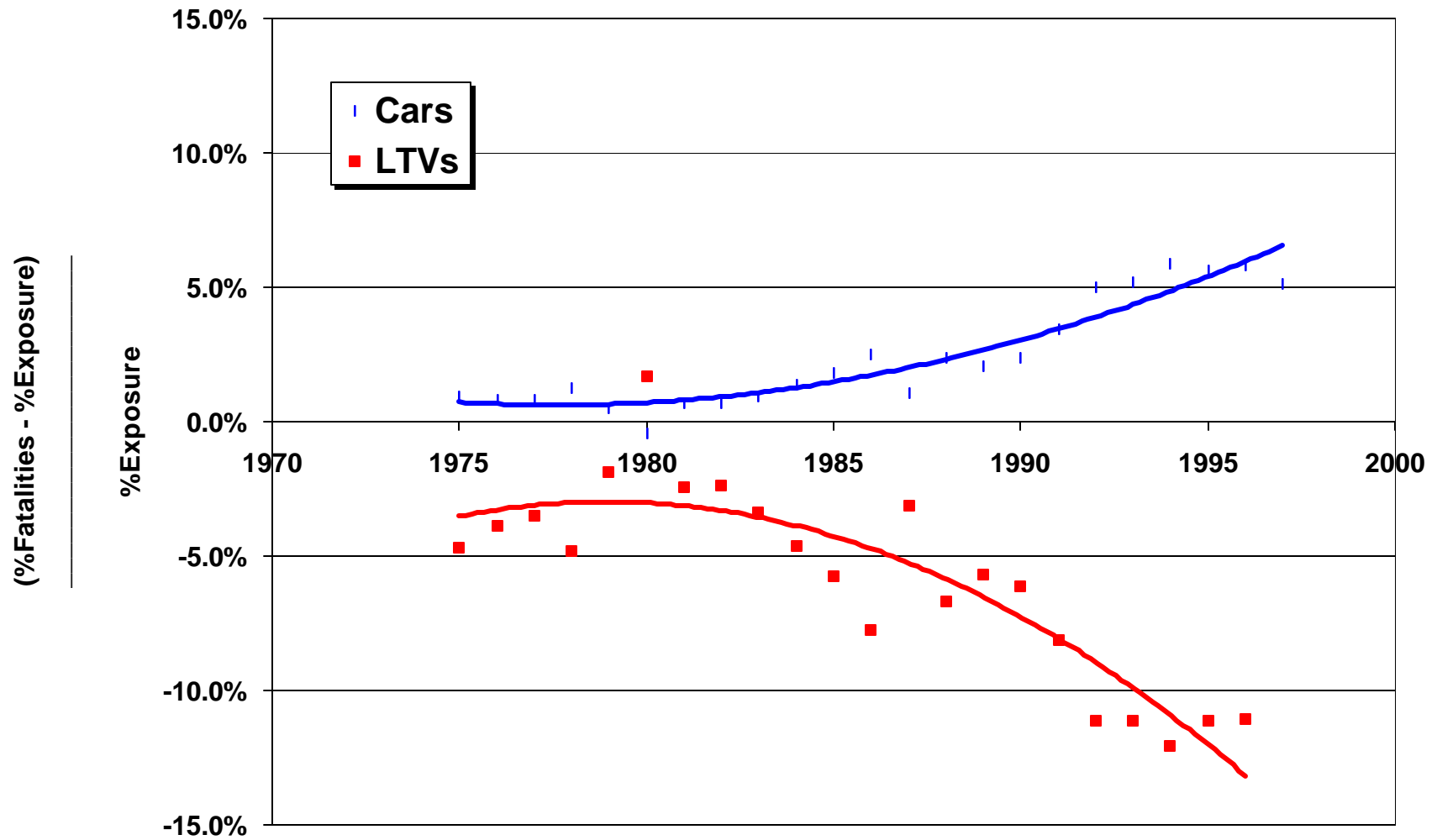
U.S. Sales and Registrations of Light Trucks and Vans



Fatalities in Vehicle-to-Vehicle Collisions



Risk of Fatality: LTVs vs. Cars



Evaluation of Frontal Offset/Oblique Crash Test Conditions

Carl L. Ragland, Osvaldo Fessahaie, and Daniel Elliott

Seventeenth International Technical Conference
on the Enhanced Safety of Vehicles

Paper No. 385

Amsterdam, The Netherlands, June 2001

NASS CDS 1995-1999

- Frontal crashes
- Vehicle-to-vehicle
- Two vehicle
- Both vehicles inspected

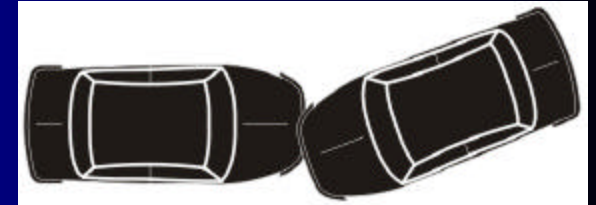
Case 1: Right Offset



Case 4: Center-to-Left Offset Oblique



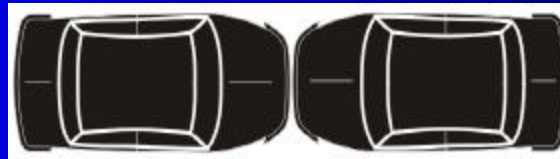
Case 7: Center-to-Right Offset Oblique



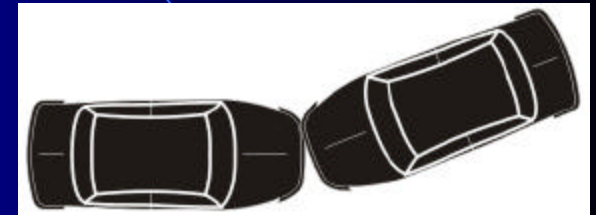
Case 2: Left Offset



Case 5: Full Frontal



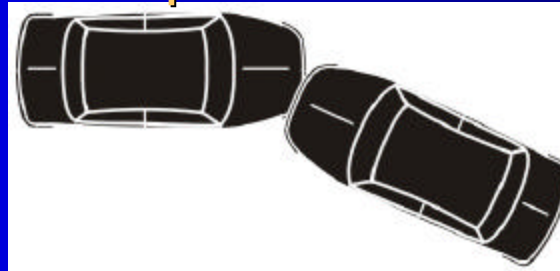
Case 8: Left Full Oblique



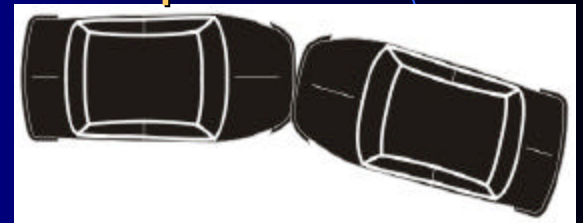
Case 3: Left Offset Oblique



Case 6: Right Offset Oblique

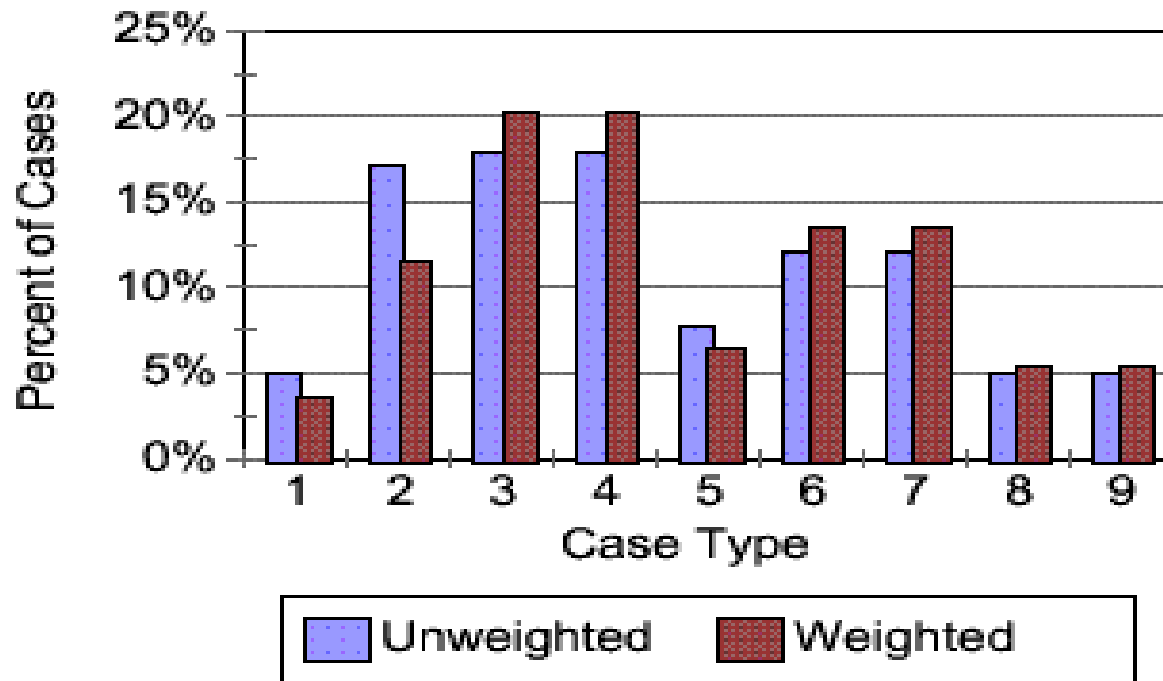


Case 9: Right Full Oblique



Percentage of NASS Two Vehicle Crashes

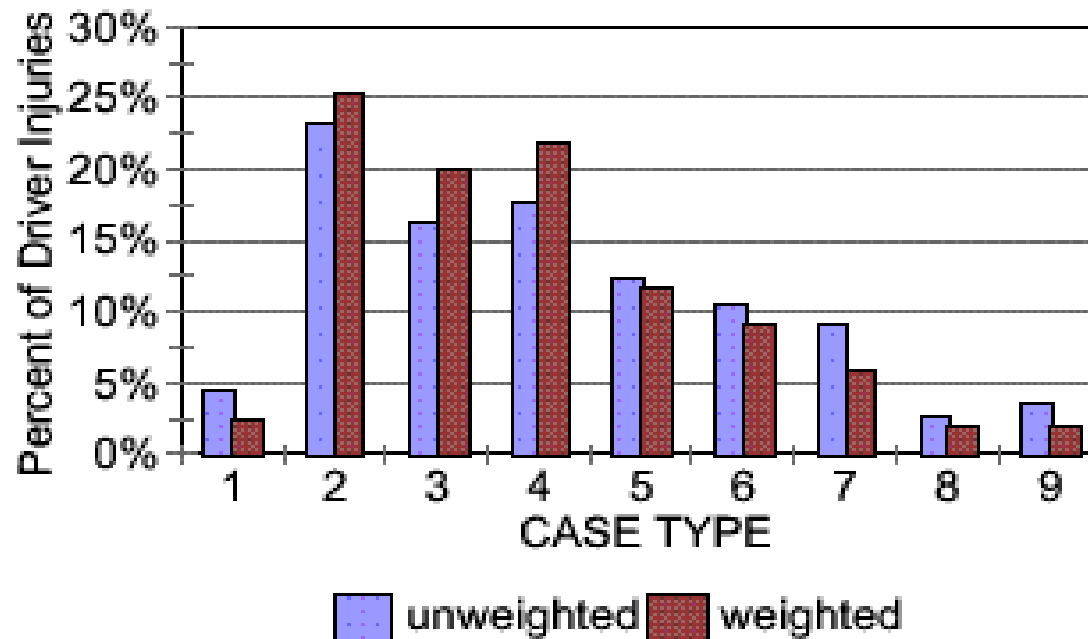
Vehicle Involvement by Case Type
Unweighted & Weighted Cases



Preliminary Data

Distribution of Moderate to Serious Injuries by Case

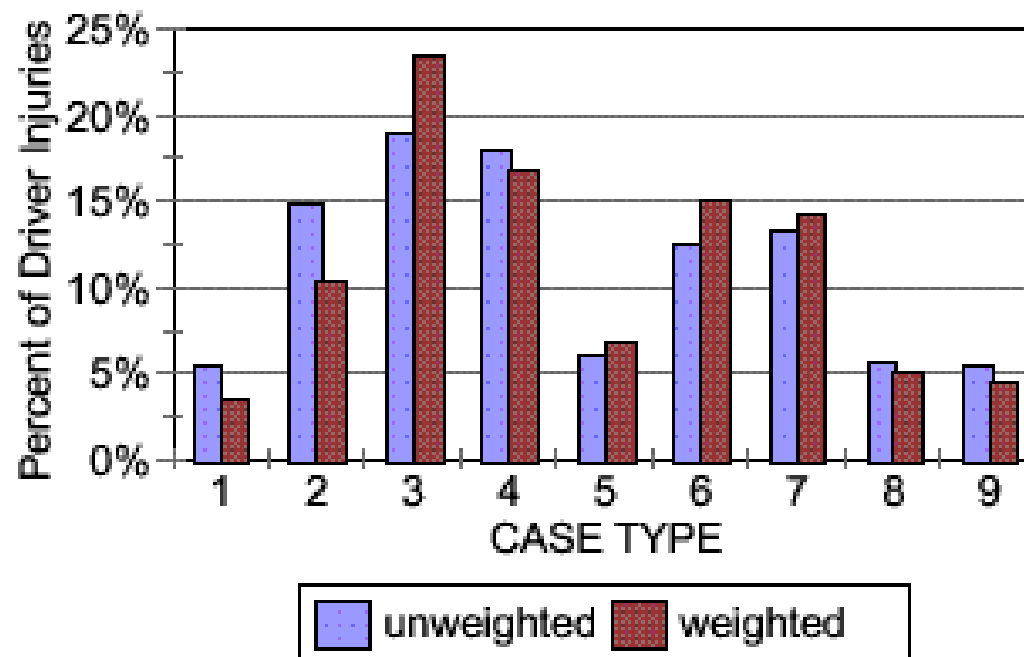
**Distribution of AIS 2-6 Injuries
95-99 NASS**



Preliminary Data

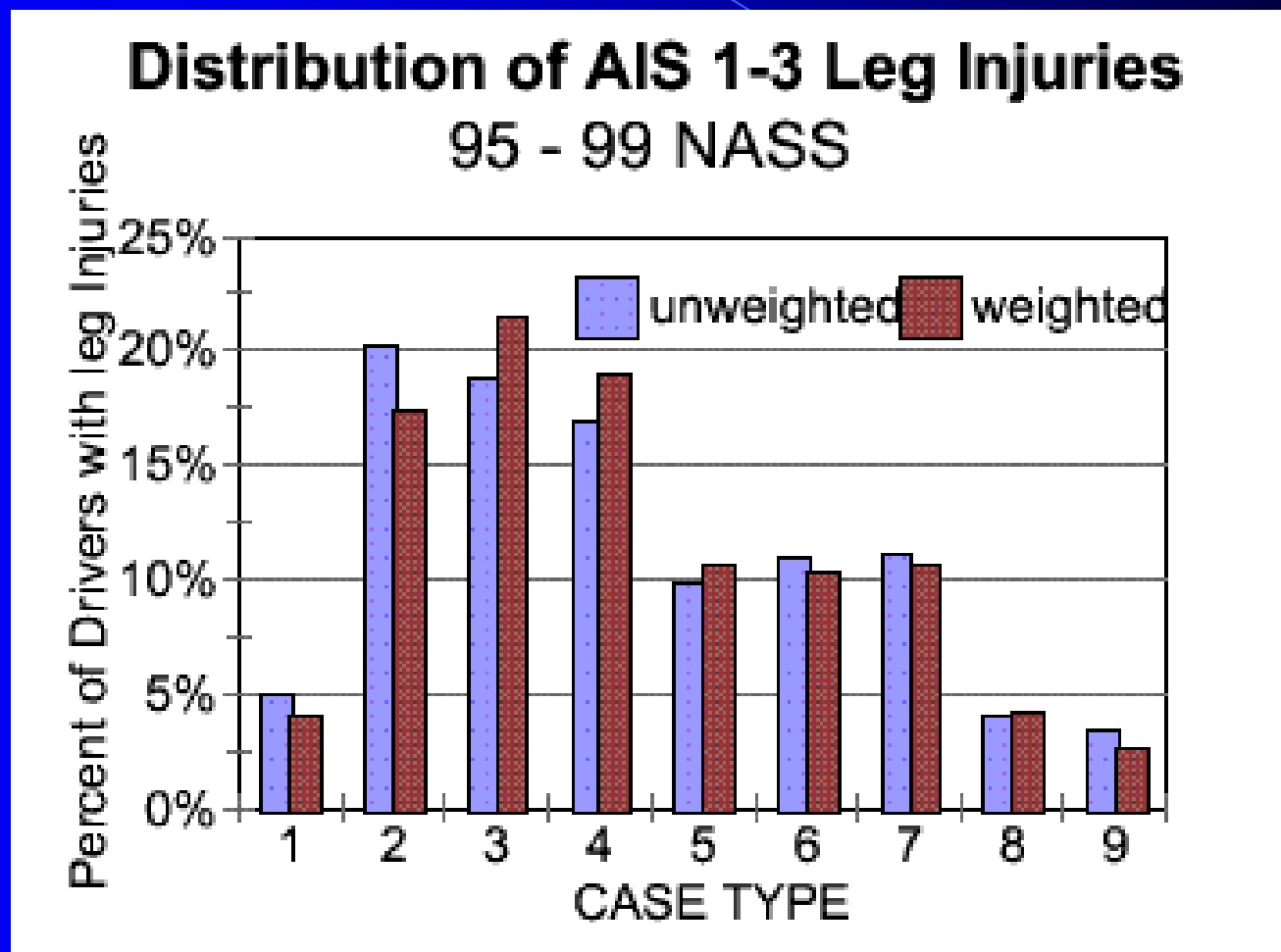
Distribution of Minor and Moderate Injuries by Case

**Distribution of AIS 1 and 2 Injuries
95-99 NASS**



Preliminary Data

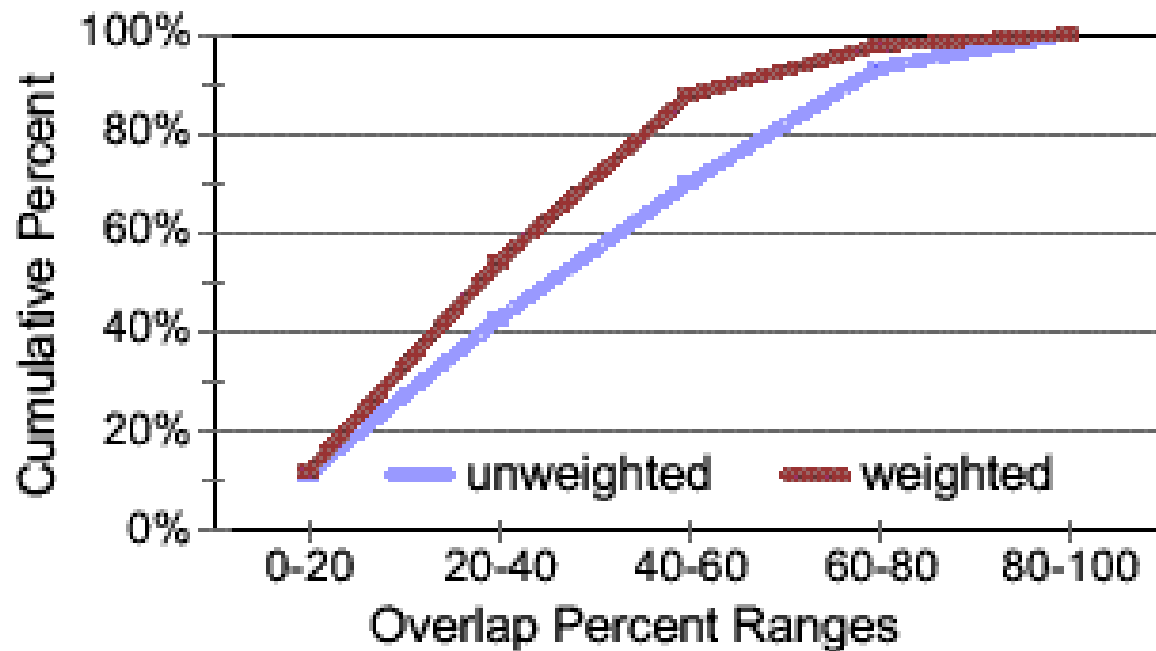
Distribution of Leg Injuries



Preliminary Data

Distribution of Overlap Percent

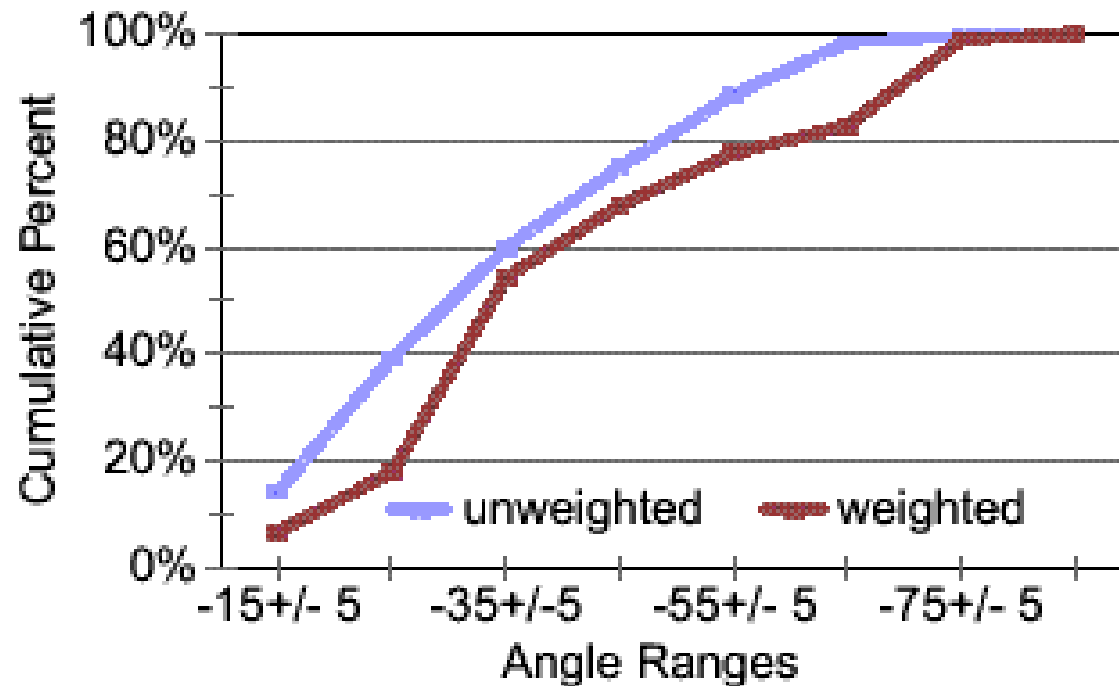
Percentage Distribution of Overlap %
For Case 3 Vehicles



Preliminary Data

Distribution of Angle

**Percentage Distribution of Angle
For Case 3 Vehicles**



Preliminary Data

Summary of NASS Analysis

- **New methodology** to evaluate crash conditions
- **Preliminary data:**
 - Predominate crash is left offset oblique
 - More minor and moderate injuries in left oblique crashes
 - Most leg injuries in left-oblique, center-to-left corner, and left offset crashes

Recent Crash Testing



Recent Crash Testing











Post-impact Photograph



Post-impact Photograph











Summary

Questions?

