
NHTSA/Industry Quarterly Meeting

Overview & Status of Special Crash Investigations

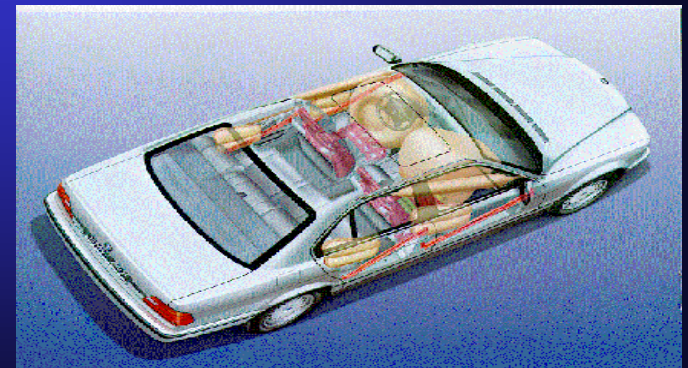
March 16, 2000

Augustus "Chip" Chidester
National Highway Traffic Safety Administration



Discussion Topics

- **FY2000 Caseload Projection**
- **Air Bag Related Fatalities**
- **Side Air Bags**
- **Redesigned Air Bags**
- **Advanced Air Bags**
- **Event Data Recorders**
- **Public Access to Data**



FY2000 SCI Caseload



- **The Special Crash Investigation program will perform approximately 200 investigations in FY2000:**
 - **100 SCI Primary Focus Cases**
 - **100 Advanced Air Bag Deployments**



***Air Bag Related Low
Speed Fatalities***

1994 Air Bag Related Low Speed Fatalities Confirmed & Unconfirmed



■ Total Air Bag Related Fatalities (3/1/00)

→Year	Children	Drivers	Adults Pass.	Total
→1990-00	89 (23)	58 (13)	6 (5)	153 (41)

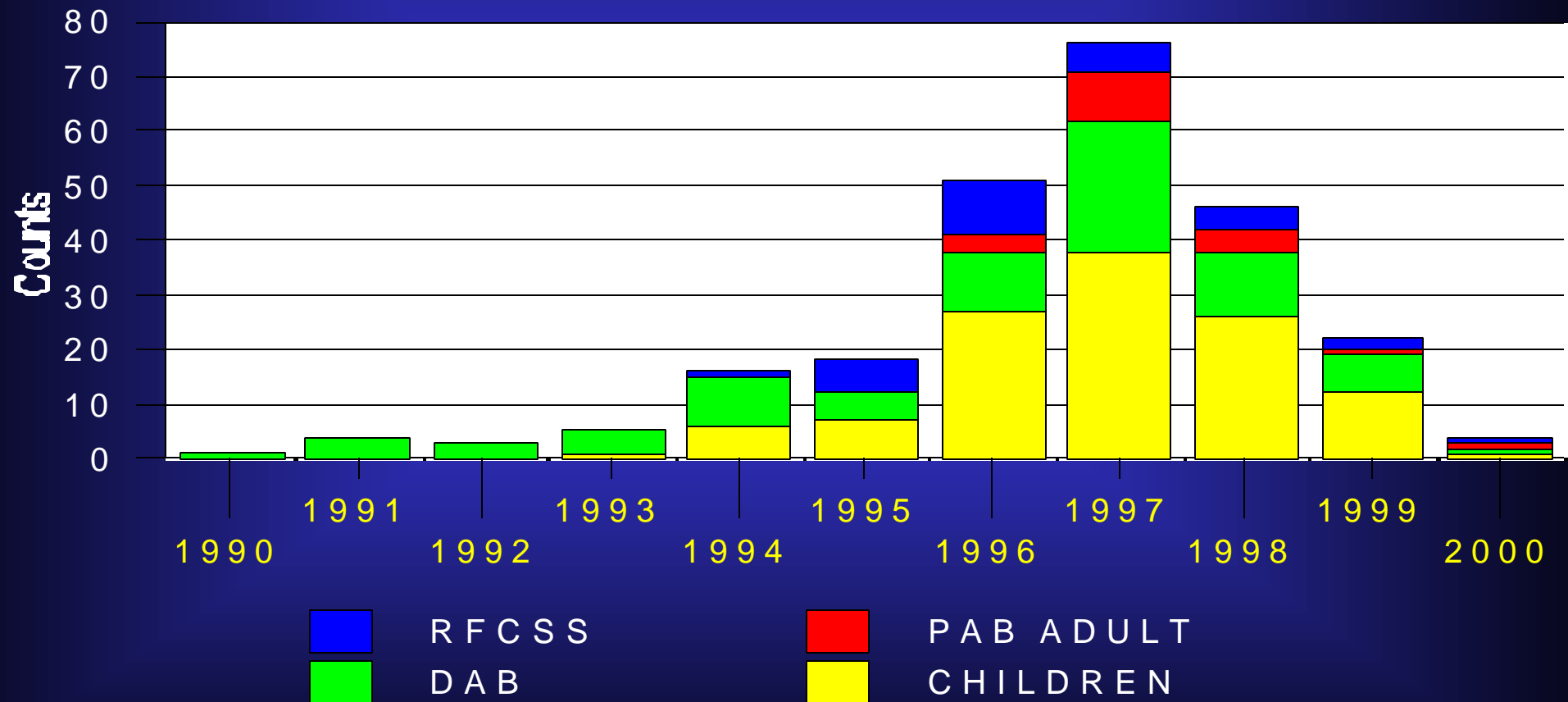
■ Air Bag Related Fatalities by Year

→1990-95	14 (1)	24	0	38 (1)
→1996	24 (1)	7	2	33 (1)
→1997	27 (4)	16 (5)	4 (1)	47 (10)
→1998	15 (10)	10 (1)	0 (3)	25 (14)
→1999	9 (5)	1 (6)	0	10 (11)
→2000	0 (1)	0 (1)	0 (1)	0 (3)

94 Air Bag Related Low Speed Fatalities by Crash Year



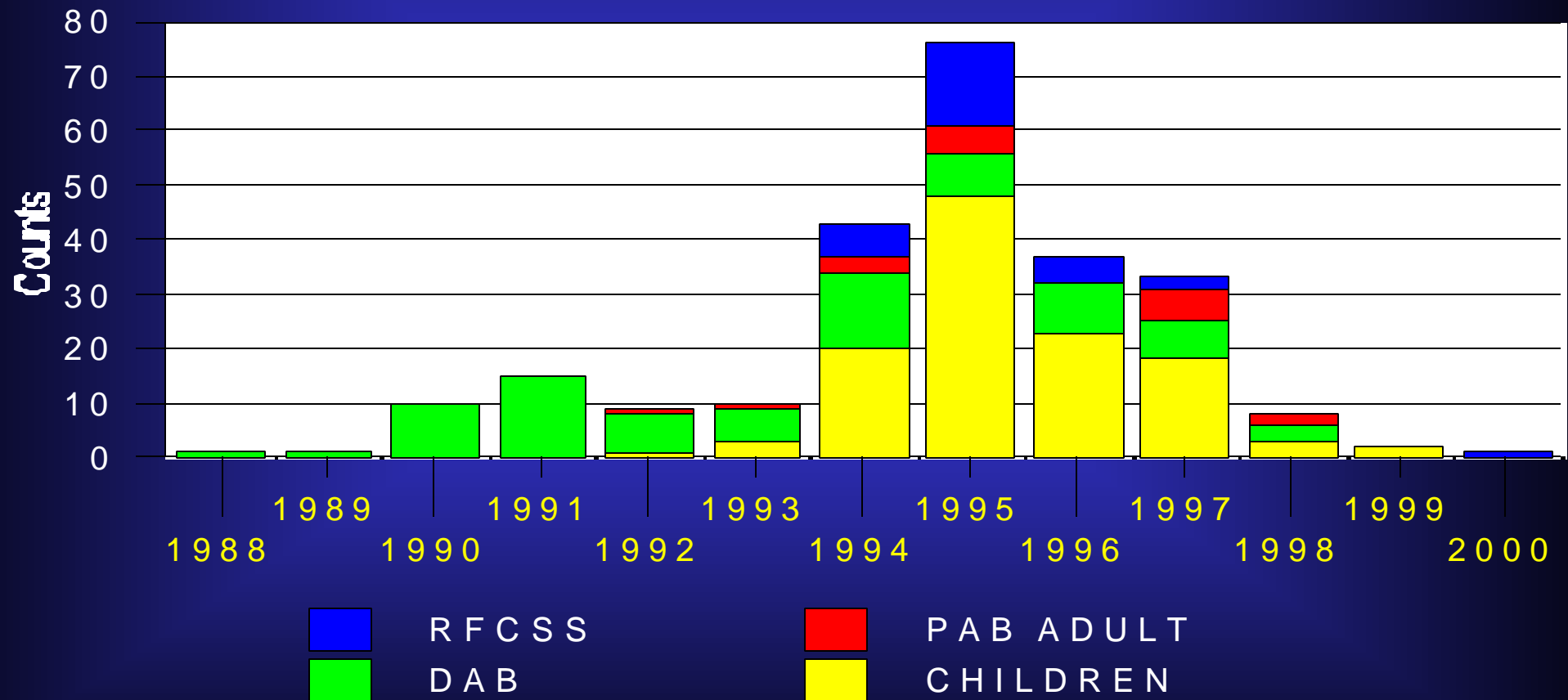
Confirmed & Unconfirmed 3/1/00



1994 Air Bag Related Low Speed Fatalities by Model Year



Confirmed & Unconfirmed 3/1/00



Side Air Bags

50 Side Air Bag Cases



Impact Plane	Type of Side Air Bag					Total
	Door	Seat	H/T Seat	ITS	IC	
Front		2				2
Left	11	10	1	2	1	25
Right	6	6		3		15
Rollover	3	1				4
Inadvertent		2				2
TBD	2					2
Totals	22	21	1	5	1	50

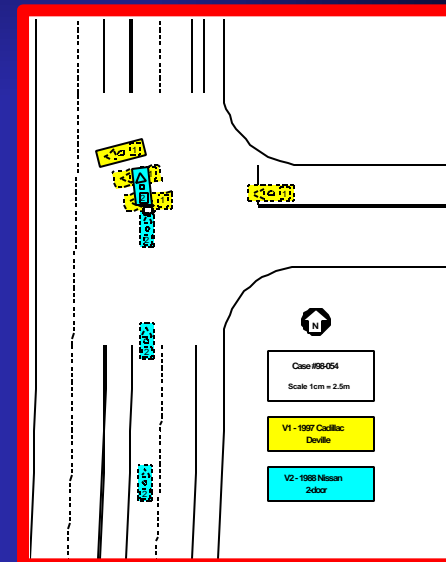
1-Serious Injury Related to a Side Air Bag Deployment

■ Vehicle Damage

→ 09LPEW3

→ 11.4" (29 cm) of Maximum Crush

→ 9 MPH (14.5 KMPH) Barrier
Equivalent ? V



■ Driver Demographics

→ 76 y/o male

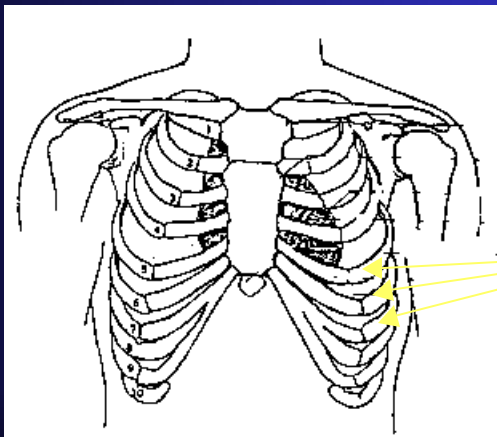
→ 6'2" 180 lbs

→ 3 point manual
restraint in use

1-Serious Injury Related to a Side Air Bag Deployment

■ Driver Injuries

- Closed fracture 6, 7 & 8th left lateral ribs (3) with left anterior pneumothorax
- Abrasion left lateral chest

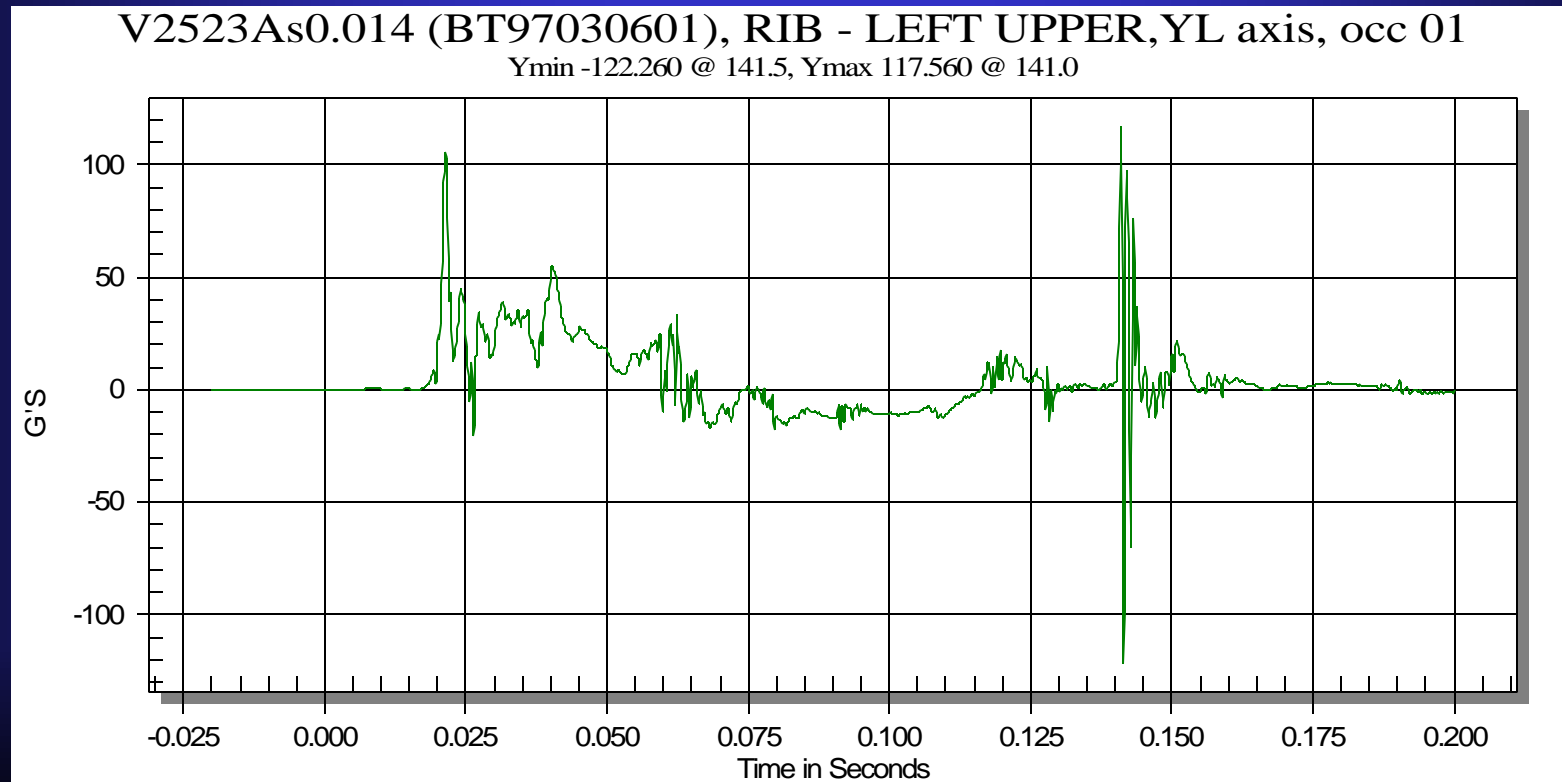


Exemplar Vehicle & Occupant

1-Serious Injury Related to a Side Air Bag Deployment



- New Car Assessment Program (NCAP)
 - Exemplar vehicle test **with side air bag deployment**
 - **Upper Rib loads**



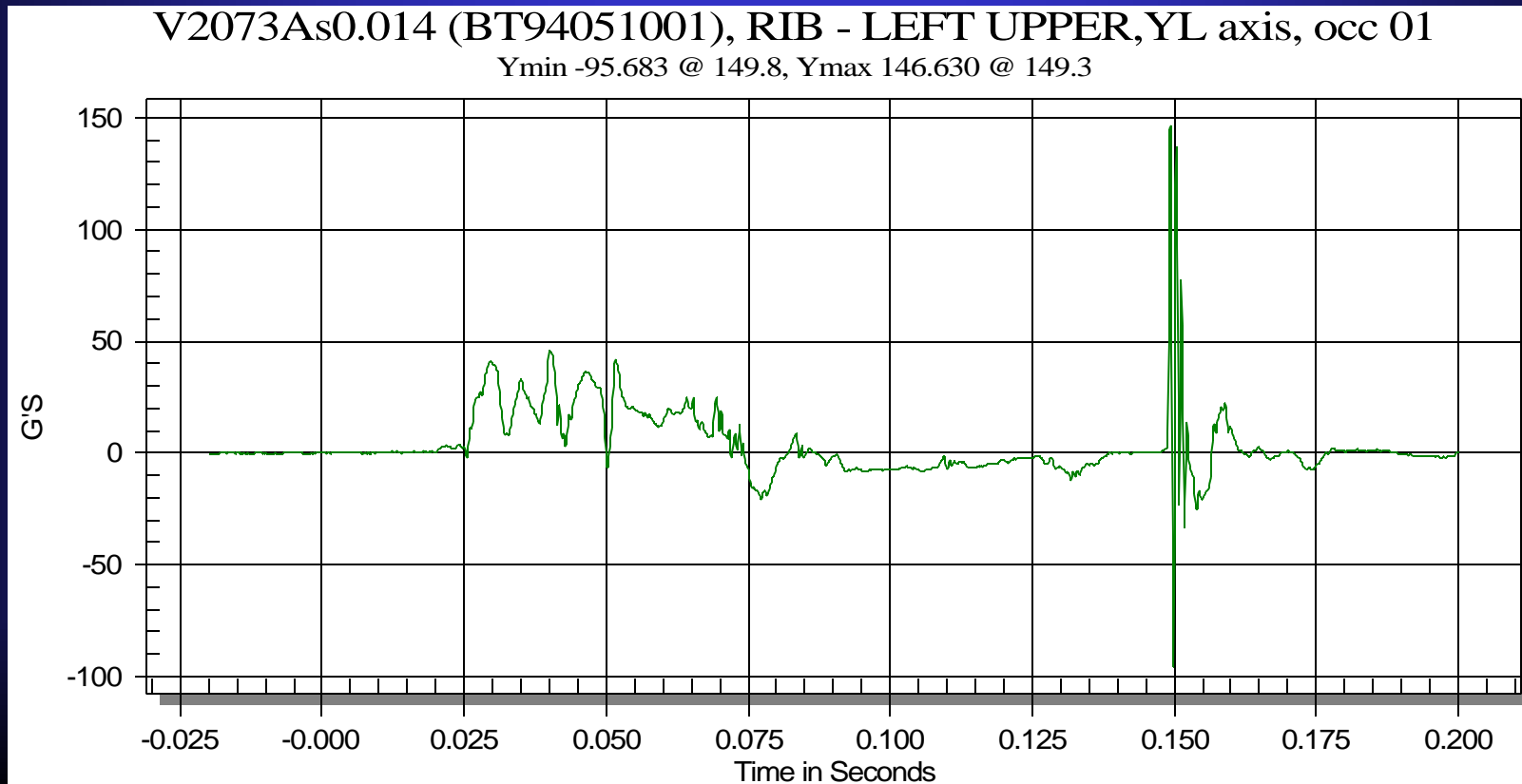
1-Serious Injury Related to a Side Air Bag Deployment



■ New Car Assessment Program (NCAP)

→ Exemplar vehicle test **without** side air bag deployment

→ Upper Rib loads

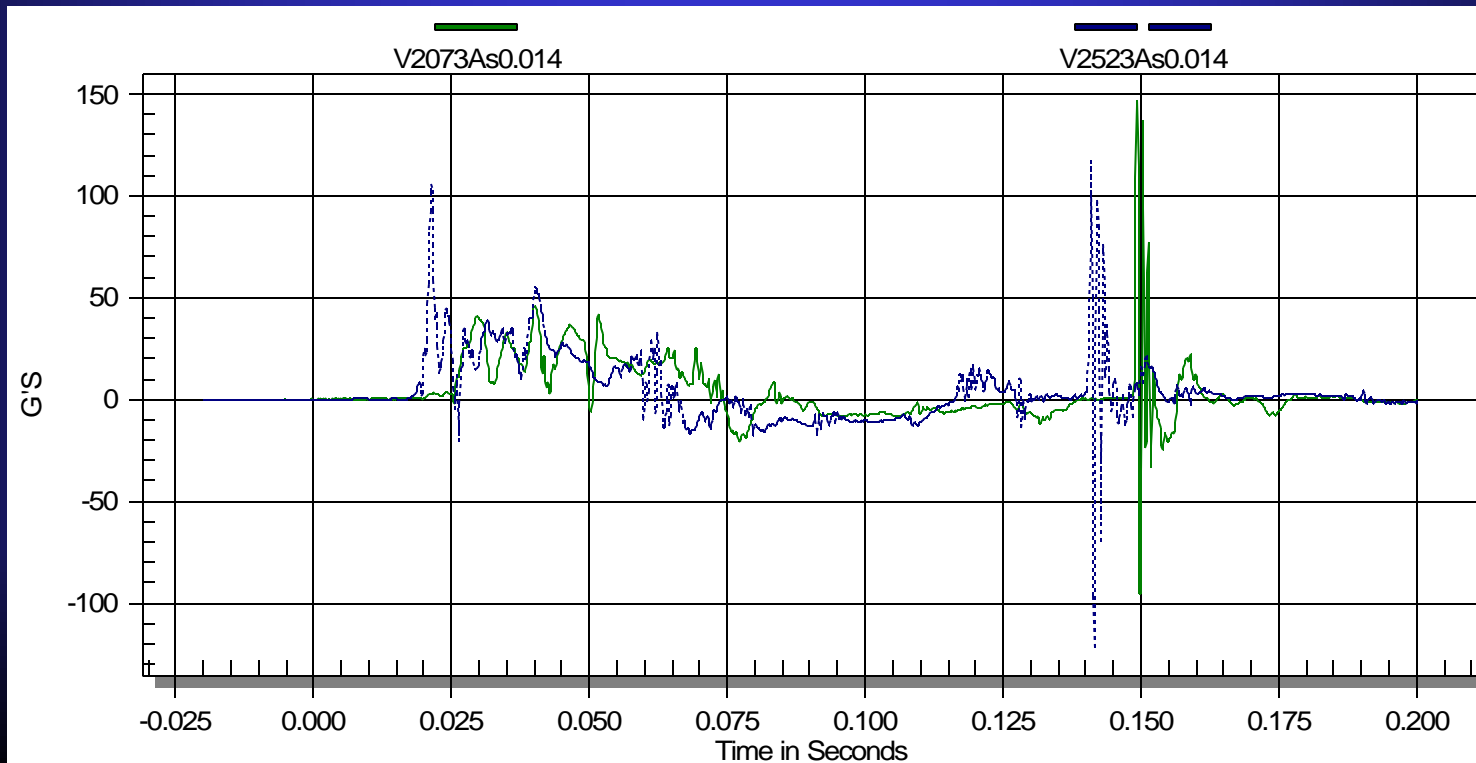


1-Serious Injury Related to a Side Air Bag Deployment



■ New Car Assessment Program (NCAP)

- Exemplar vehicle tests with & without side air bag deployment
- Upper Rib loads



Redesigned Air Bags

427 Redesigned Air Bag Cases as of 3/1/00



- Total number of NHTSA RAB cases 283
- Total number of Partners RAB cases 136
- RAB air bag related fatal or serious injury 8
 - 6 - Confirmed
 - 2 - Unconfirmed
- Final total will be over 500 cases

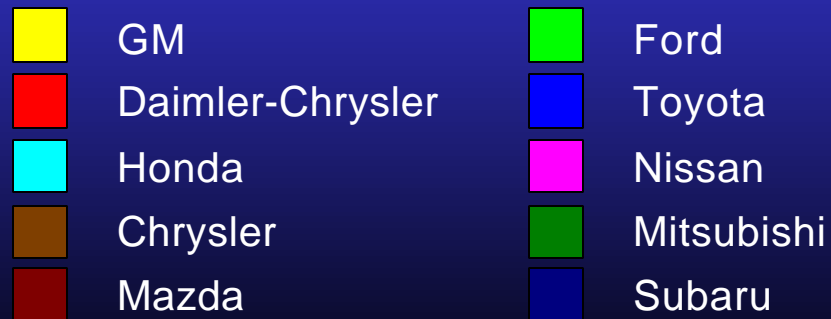
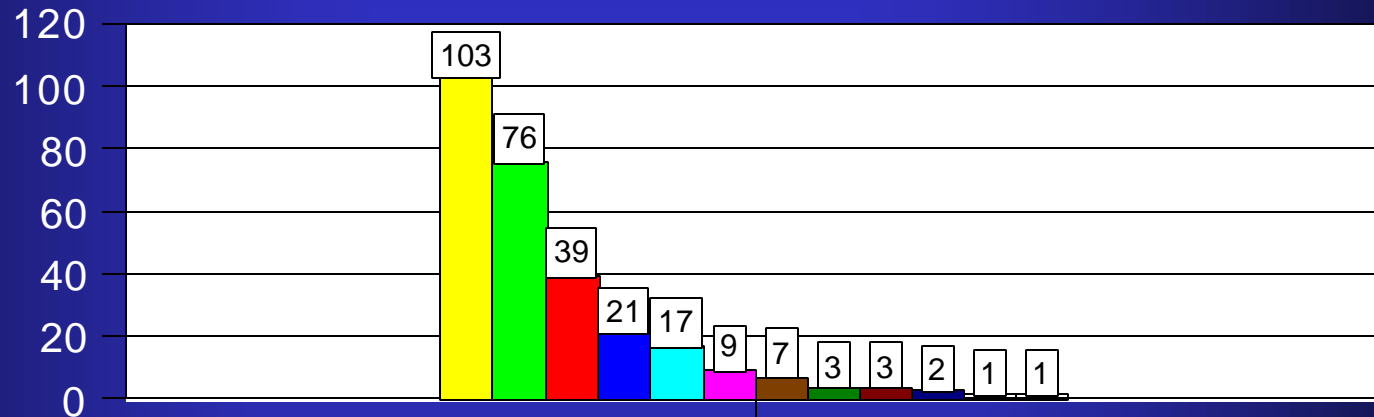


Redesigned Air Bag Cases as of 3/1/00



Vehicles By Manufacturers (NHTSA)

(283)

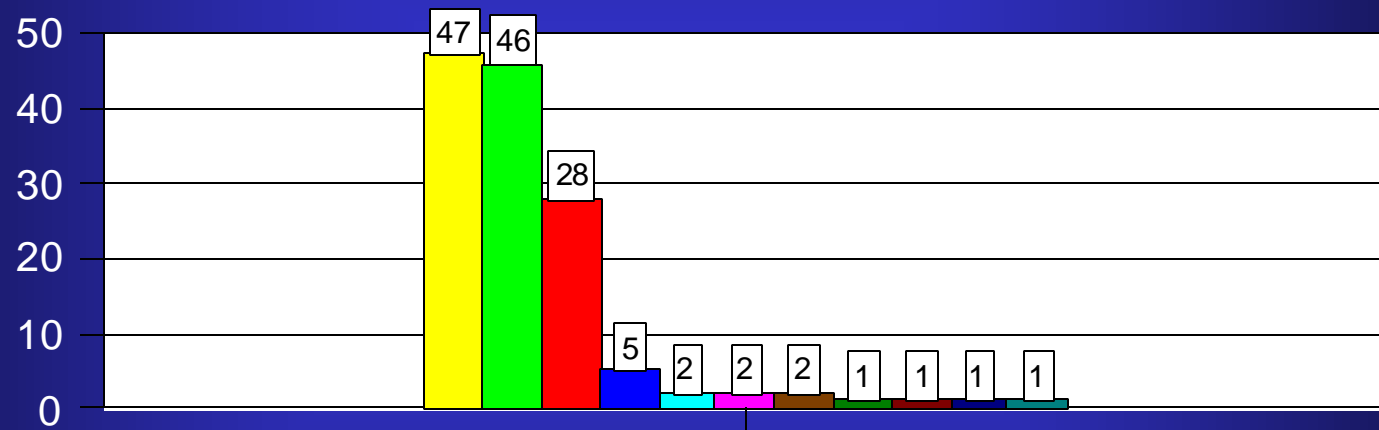


Redesigned Air Bag Cases as of 3/1/00



Vehicles By Manufacturers (Partners)

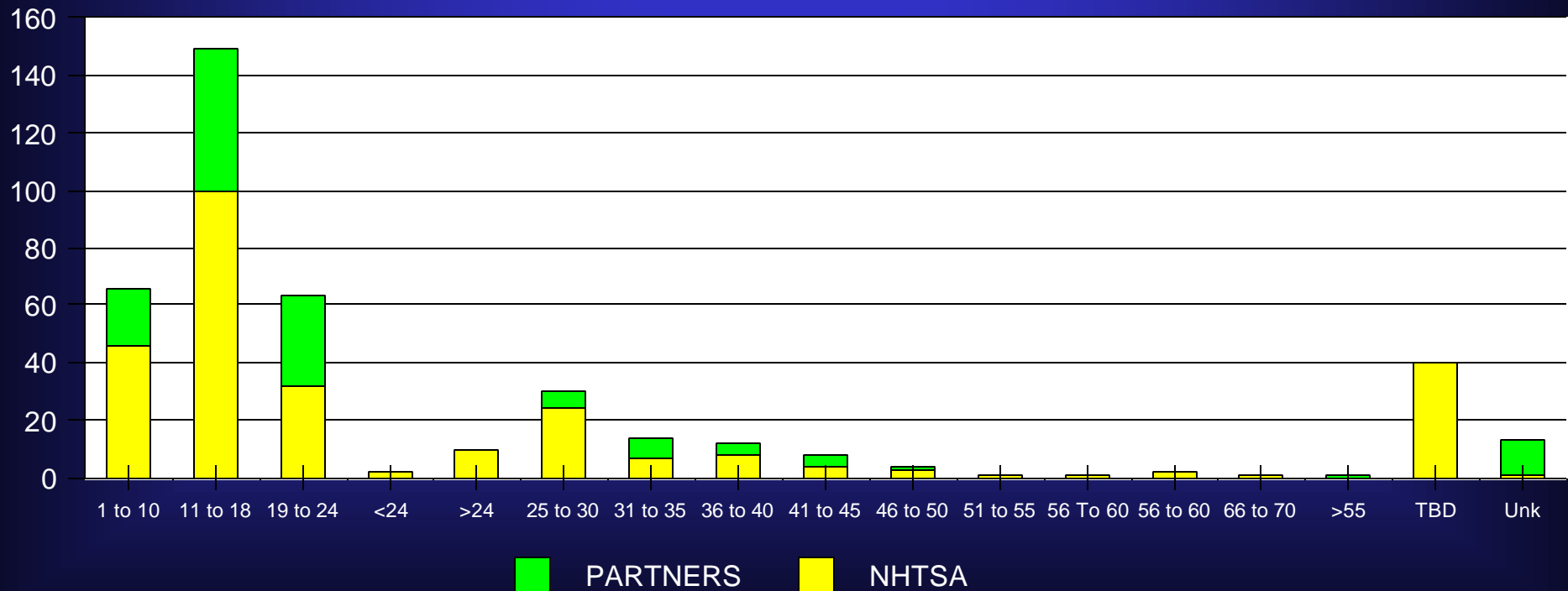
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Redesigned Air Bag Cases as of 3/1/00



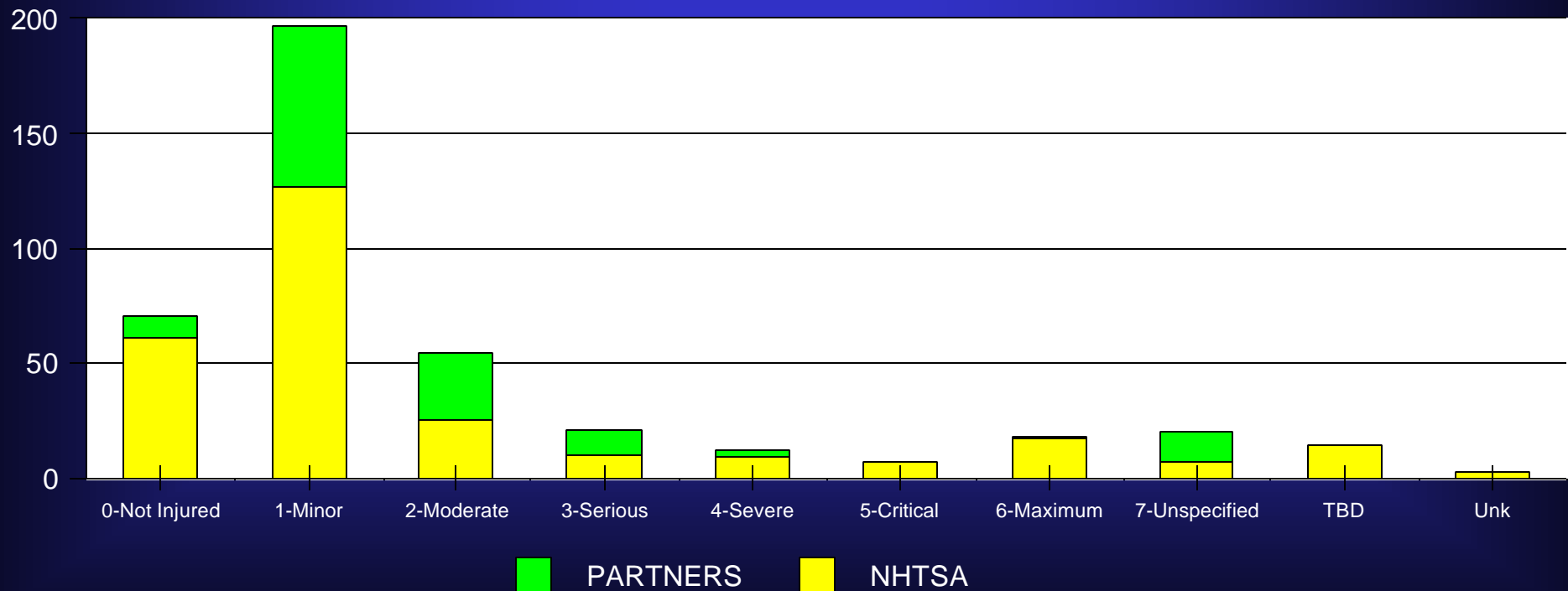
NHTSA/PARTNERS by Delta V Ranges



Redesigned Air Bag Cases as of 3/1/00



NHTSA/PARTNERS by Driver Injury Severity



Redesigned Air Bag Cases as of 3/1/00



- The Following Redesigned Air Bag Cases Appear on the SCI report Monthly Counts for Air Bag Related Fatalities and Seriously Injured Persons
 - 6 - confirmed Fatal and Life Threatening Injuries with a Redesigned Air Bag as the Injury Mechanism
- ① IN9902 (4-year-old male) Fatal child. 1999 Pontiac Grand AM. Not belted. No pre-impact braking. Delta V = 13. Atlanto-occipital dislocation with spinal cord laceration.
- ② IN9830 (8-year-old male) Fatal child. 1998 Dodge Dakota Pickup. Not belted. Pre-impact braking. Delta V = 18 mph. Neck fracture with spinal cord damage. Passenger on/off switch in the “on” position.

Redesigned Air Bag Cases as of 3/1/00



- **Confirmed (continued)**
- ⑧ **CA9925 (7-year-old male) Fatal child. 1999 Pontiac Grand Prix. Not belted. Pre-impact braking. Delta V = 12. Subdural Hematoma with brain swelling.**
- ④ **CA9912 (80-year-old female) Fatal driver. 1998 Buick Regal. Not belted. No pre-impact braking. Delta V = 19. Rib fractures with a heart laceration.**
- ⑤ **CA9855 (19 year-old pregnant female) Seriously injured driver. 1998 Mitsubishi Mirage. Not belted. Pre-impact braking. Delta V = 10. Abruption of the placenta, fatal fetus.**
- ⑥ **CA9838 (4-year-old male) Fatal. 1998 Plymouth Neon. Not Belted (on lap of unbelted front right passenger). There were 10 occupants in the vehicle. Pre-Impact braking. Delta V = 15 mph. Neck fracture.**

Redesigned Air Bag Cases as of 3/1/00



■ 2- unconfirmed Fatal and Life Threatening Injuries with a Redesigned Air Bag as the Injury Mechanism

- ① DS9901 (72-year-old female) Fatal. 1998 Chevrolet Blazer. Belted. Pre-impact braking. Delta V = 20 mph. Injuries unknown at this time. Pre existing medical condition, oxygen dependent.**
- ② CA00007 (2-month-old female) Fatal. 2000 Chevrolet Impala. Improperly secured child safety seat (RFCSS installed Forward Facing). Pre-Impact braking unknown at this time. Delta V unknown at this time. Injuries unknown at this time.**

Advanced Air Bags

Advanced Air Bag Special Study



- The objective is to collect data on crashes involving vehicles equipped with an advanced air bag system in which the front or side air bags were involved.

→ Advanced Air Bag Characteristics

- Advanced sensors, weight sensors;
- Multi-stage inflators, and;
- May provide automatic air bag suppression
- Expected to Yield 100 cases

Event Data Recorders

Event Data Recorder Special Study



- The objective is to collect the data on crashes involving vehicles equipped with an event data recorder.
- Data Collection
 - **SCI/NASS/CIREN**
 - SCI 100 cases per year.
 - NASS CDS expected yield 200 to 300 vehicles.



Public Access to Data

Availability of SCI Reports



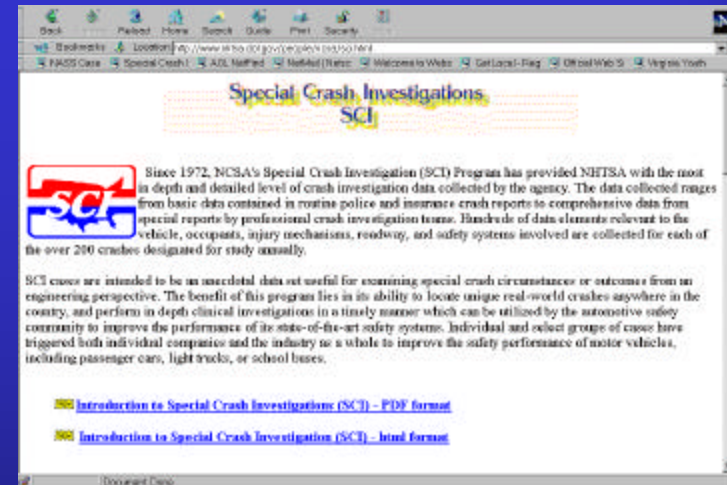
■ Hard (Paper) and Soft (Electronic) Reports

→ Current

- Reports only available through the storage contractor
- Data collection & storage in an electronic format since 1997
- All of the low speed air bag related hard copy case reports prior to 1997 have been scanned into an electronic format for storage and distribution.

Electronic Data Distribution

2000-on



- Data files and case reports available on CD ROM
- Internet accessible through Web site
 - (data query, download data files & cases)



Future SCI Plans (FY2001 on)



- **Real world data on Advanced Occupant Protection Systems**
- **Improved crash severity data (Event Data Recorder)**
- **Crashworthiness and Occupant Protection of Alternative Fuel Vehicles**
- **Performance of Occupant Protection Systems in Adaptive Vehicles for the Physically Challenged**
- **Implement a Focus Study of Crashes Involving Vehicles Equipped with Automatic Crash Notification Systems**