400 Seventh Street, S.W.
Washington, D.C. 20590

U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

Dear Crash Data Researchers/Users:

Thank you for choosing crash data from the National Highway Traffic Safety Administration (NHTSA) for your research or other use. The information contained in this motor vehicle crash report is collected, maintained and distributed in accordance with Public Law 89-564. In accordance with this Public Law, NHTSA is required not to release any case information until completion of quality control procedures. These procedures include a review of the case material to extract all names, licenses and registration numbers, non-coded interview material, non-research related researcher comments in the margins, non-factual data, and the production number portion of the vehicle identification number (VIN).

If you requested NHTSA to query its database files in order to identify a specific crash, then that query was made using non-personal descriptors you provided for use in our search. This motor vehicle crash may have been identified from a data search and matches the general, non-personal descriptors you provided, but we cannot confirm that this is the specific crash report you requested.

If you have any questions with regard to the above procedures, please contact the Field Operations Branch, Crash Investigation Division, National Center for Statistics and Analysis at 202-366-4820. Again, please be advised that we cannot confirm that this is the case that you have specifically requested nor can we certify the information to be correct.

*** *** ***

TRANSPORTATION RESEARCH CENTER

Indiana University
Bloomington, Indiana 47403-1599

REMOTE AIR BAG REPORT

CASE NO. - 95-03
FLEET - PRIVATE VEHICLE
LOCATION - [redacted], NEBRASKA
ACCIDENT DATE - [redacted], 1994

Submitted By:

[redacted]
Senior Staff Associate

[redacted] 1995

Revised Submission:

[redacted] 1995

Contract Number: DTNH22-94-D-17058

Prepared for:

U.S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590

DISCLAIMERS

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points be coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
TRC/IU Case No. 95-03		

4. Title and Subtitle	5. Report Date
Remote Air Bag Investigation Private Vehicle Location [redacted] Nebraska	[redacted] 1995; [redacted] 1995
	6. Performing Organization Code
	8. Performing Organization Report No.
7. Author(s) Ronald A. Kaminski	TRC/IU 95-03, Task 9511
9. Performing Organization Name and Address Indiana University Transportation Research Center [redacted] Indiana [redacted]	10. Work Unit No. (TRAIS)
	11. Contract or Grant No. DTNH22-94-D-17058
	13. Type of Report and Period Covered [redacted], 1994
12. Sponsoring Agency Name and Address U.S. Department of Transportation (NRD-32) National Highway Traffic Safety Administration National Center for Statistics and Analysis Washington, D.C. 20590	14. Sponsoring Agency Code

15. Supplementary Notes

Remote air bag deployment investigation involving a 1991 Ford Crown Victoria LX, 4-door sedan, with active belts and driver's air bag

16. Abstract

This report covers a remote investigation of an air bag deployment crash that involved a 1991 Ford Crown Victoria LX, four-door sedan, and a deer. The Crown Victoria was traveling west in the westbound lane of a two-lane, undivided State highway. The deer was traveling south to north across the westbound lane of the roadway. The front right of the Crown Victoria (case vehicle) impacted the deer causing the case vehicle's driver side supplemental restraint system (air bag) to deploy. The case vehicle continued westward in its original travel lane after impact and travelled approximately 35 meters (~ 120 feet) before coming to rest in the westbound lane heading west. After impact the deer was found in the ditch on the north side of the road. The case vehicle's driver (74 year-old male) was not wearing the available, active, three-point lap and shoulder belt and sustained, according to the driver and his medical records, minor injuries which included: contusions to his chest and right hand; semi-circular, friction burns to his chest, bilaterally; and an exacerbation of his existing COPD (i.e., Chronic Obstructive Pulmonary Disease) due to inhalation of gases and/or particulate matter release during the air bag's deployment. The right front passenger in the case vehicle (74 year-old female) was also not wearing the available, active, three-point, lap and shoulder belt and, according to the case vehicle driver, did not sustain any injuries as a result of this crash.

17. Key Words	18. Distribution Statement
Motor Vehicle Traffic Accident Air Bag Deployment Injury Severity	General Public

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	66	$3,400

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

* U. S. GOVERNMENT PRINTING OFFICE : 1973 725-904/329

TABLE OF CONTENTS

TRC/IU REMOTE AIR BAG REPORT

TRC/IU CASE NO. 95-03

FLEET - PRIVATE VEHICLE
LOCATION - [redacted] NEBRASKA

SUMMARY

This report concerns a motor vehicle crash involving an air bag equipped 1991 Ford Crown Victoria LX, four-door sedan and a deer occurring on [redacted] 1994 at 5:00 p.m., near [redacted] Nebraska on a State road. This crash is of special interest because the deployment of the case vehicle's driver side air bag is alleged to have caused respiratory problems for the case vehicle driver.

The Crown Victoria was traveling west in the westbound lane of a two-lane undivided State roadway when it impacted the deer which was traveling across the same roadway from south to north. The Crown Victoria continued westward in its original travel lane after impact and travelled approximately 35 meters (~ 120 feet) before coming to rest in the westbound lane heading west. After impact the deer was found in the ditch on the north side of the road.

The front right of the Crown Victoria impacted the right torso of the deer. The CDC is estimated as: 12-FZEW-1 for the Crown Victoria. No reconstruction program was used on this crash because the NASS, CDS, CRASH3PC protocol requires that actual vehicular crush measurements be obtained; however, this contractor's visually estimated Delta V is between 24 k.p.h. (15 m.p.h.) and 32 k.p.h. (20 m.p.h.).

The 1991 Ford Crown Victoria was equipped with a driver supplemental restraint system (air bag) which deployed as a result of the frontal impact. The driver of the Crown Victoria (74 year-old male) was not wearing the available, active, three-point lap and shoulder belt. According to the driver and his medical records, he sustained contusions to his chest and right hand; semi-circular, friction burns to his chest, bilaterally; and an exacerbation of his existing COPD (i.e., Chronic Obstructive Pulmonary Disease) due to inhalation of gases and/or particulate matter release during the air bag's deployment. The driver of the Crown Victoria was listed on the Police Accident Report as not sustaining any injury as a result of this crash. The right front passenger in the Crown Victoria (74 year-old female) was also not wearing the available, active, three-point, lap and shoulder belt. According to the case vehicle's driver and the Police Accident Report, she was not injured.

TRC/IU REMOTE AIR BAG REPORT

TRC/IU CASE NO. 95-03

FLEET - PRIVATE VEHICLE
LOCATION [redacted] NEBRASKA

ACCIDENT DATA

Location/Street:	State Road
City/Township:	[redacted] Miles Township, near [redacted] Nebraska
Area/Type:	Rural, undeveloped
Accident Date/Time:	[redacted] 1994, @ 5:00 p.m.
Investigating Police Agency:	[redacted] County Sheriff Department
Accident Type:	Car / Deer - right angle
Occupant Injury Severity (air bag vehicle):	Abrasions, *"friction burns"*, to chest (AIS-1)

AMBIENT CONDITIONS[1]

Light Conditions:	Dusk[1]
Weather Condition:	Partially cloudy[1]
Precipitation:	None
Road Surface:	Dry

ROADWAY

Case Vehicle

Location:	State road
Number of Travel Lanes:	Two-lanes, undivided
Width:	Unknown
Surface Type:	Asphalt
Vertical alignment:	Level

[1] According to the case vehicle driver, it was dusk (i.e., the sun was going down) when the crash occurred and dark when the police arrived. In addition, the weather was partly cloudy.

ROADWAY (CONTINUED)

	Case Vehicle
Horizontal alignment:	Straight
Traffic Density:	Light
Speed Limit:	89 k.p.h. (55 m.p.h.)
Traffic Controls:	Regulatory sign, speed limit

VEHICLES

	Case Vehicle
Year:	1991
Make:	Ford
Model:	Crown Victoria LX
Body Type:	Four-door sedan
V.I.N.:	2FACP74F3MX------
Mileage:	105,047 km (65,273 m)
Securiflex windshield:	None
Windshield damage/source:	Cracked, from hood contact
Active Restraints:	3-point, manual, lap and shoulder belts in front and rear outboard seating positions; lap belt only at front and rear center positions
Passive Restraints:	Factory installed driver supplemental restraint system (air bag)
Fleet:	Private vehicle
Tow status:	Towed due to damage
Reported Defects:	None, according to the Police Accident Report

VEHICLE DAMAGE

	Case Vehicle
DEPLOYMENT IMPACT	
Event number:	One
Object struck:	Deer

VEHICLE DAMAGE (CONTINUED)

Case Vehicle

DEPLOYMENT IMPACT (Continued)

Damage location:	Front
CDC:	12-FZEW-1
Estimated maximum crush:	Not estimable
Damaged components:	Front bumper, grille, hood, radiator, windshield, and right front headlight assembly, fender, and door
Repair estimate:	$ 5,735
Interior damage:	Air bag module

COLLISION SEQUENCE

PRE-CRASH: According to the Police Accident Report and the case vehicle's driver, the case vehicle (Crown Victoria) was traveling west in the westbound lane of a two-lane, undivided, State roadway and was attempting to continue in its direction of travel. According to our interview with the case vehicle driver, (1) the sun was setting in the west, limiting vision and causing a shadow from which the deer emerged, and (2) he did not have time to make any pre-crash avoidance maneuvers[2]. The case vehicle continued straight ahead prior to impact. According to the Police Accident Report and the case vehicle driver, the crash occurred in the westbound lane when the case vehicle impacted the deer which was traveling across (i.e., south to north) the same roadway.

CRASH: According to the Police Accident Report and the case vehicle driver, the front right of the case vehicle impacted the right torso of the deer causing the driver side supplemental restraint system (air bag) to deploy. According to the case vehicle driver, the case vehicle continued westward in its original travel lane after impact and travelled approximately 35 meters[3] (~ 120 feet) before coming to rest in the westbound lane heading west. After impact, according to the case vehicle driver, the deer was found in the ditch on the north side of the road.

---

[2] According to the information on the case vehicle driver's medical records, he braked prior to striking the deer.

[3] The case vehicle driver most likely braked hard post crash thus bringing the case vehicle to rest in a relatively short distance.

DRIVER DATA

	Case Vehicle
Age:	74
Sex:	Male
Height:	173 centimeters (68 inches)
Weight:	67 kilograms (148 pounds)
Occupation:	Retired
Active Restraint System/Usage:	3-point lap and shoulder/not used
Usage Source:	Interviewee, Police Accident Report
Eye glasses/contacts:	Eye glasses/worn
Vehicle Familiarity:	Approximately 29,000 kilometers (18,000 miles) per year
Route Familiarity:	Weekly
Trip Plan:	Shopping to home
Manner of Leaving Scene:	Unknown: was not transported to a medical facility
Type of Medical Treatment:	Treatment later, treated and release next day
Right front Passenger:	**Case Vehicle**
Age:	74
Sex:	Female
Height:	150 centimeters (59 inches)
Weight:	59 kilograms (130 pounds)
Active Restraint System/Usage:	3-point lap and shoulder/not used
Usage Source:	Interviewee, Police Accident Report
Eye glasses/contacts:	Eye glasses/worn
Manner of Leaving Scene:	Unknown: was not transported to a medical facility
Type of Medical Treatment:	None

DRIVER INJURIES[4]

Description of Injury	A.I.S.	Source of Data	Injury Mechanism	Certainty
Abrasion {friction burn} chest	490202.1,4	3	Air bag, driver's side	{Certain}
Contusion chest	490402.1,4	3	Air bag, driver's side	{Certain}
Contusion right finder	790402.1,1	3	Air bag, driver's side	{Certain}
Blunt thoracic trauma (i.e., exacerbation of pre-existing chronic obstructive pulmonary disease due to inhalation from air bag deployment)[4]	415099.7,0	3	Air bag, driver's side	{Possible}

PASSENGER INJURIES

Description of Injury	A.I.S.	Source of Data	Injury Mechanism	Certainty
Not injured	0	7	Not applicable	Not applicable

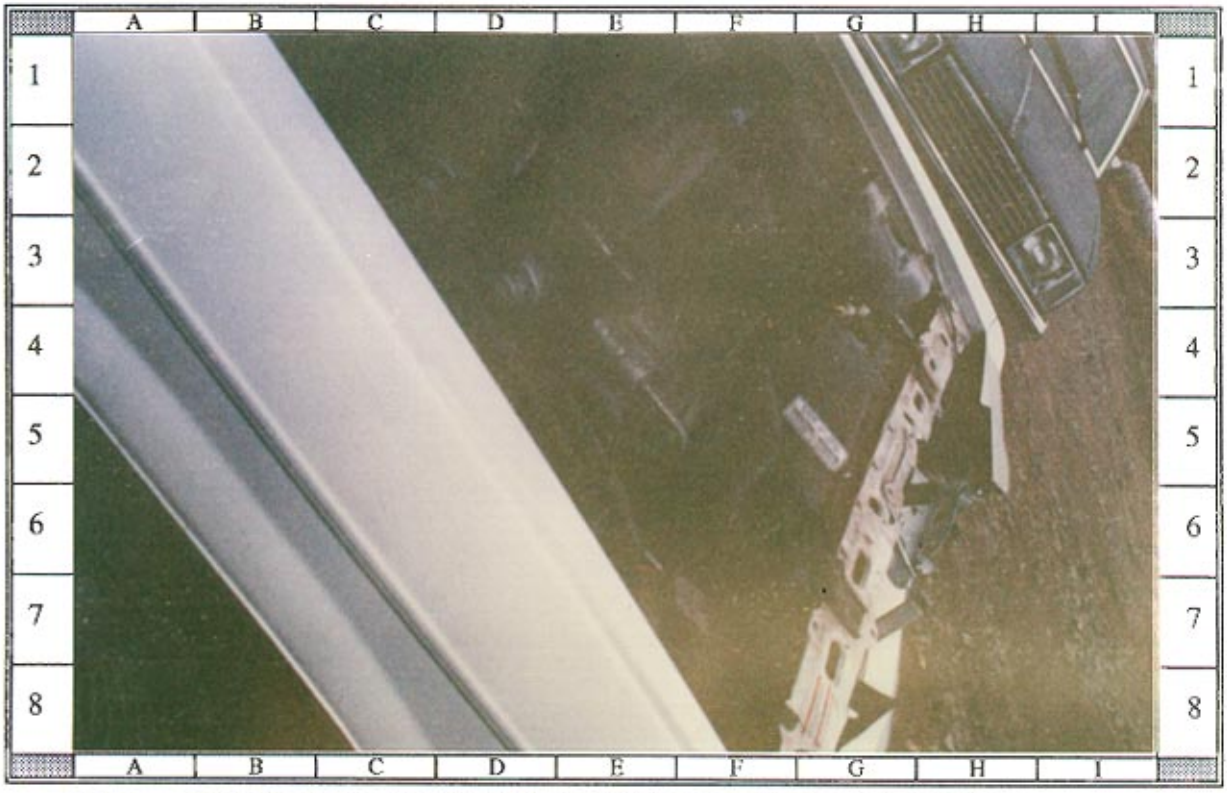
[4] The injury description "BLUNT THORACIC TRAUMA" is the best descriptor available within A.I.S. '90 to describe the inhalation-related condition that was cited on the medical records of the case vehicle's driver. The exact medical description can be found on page 45 and states: "exacerbation of Chronic Obstructive Pulmonary Disease secondary to chemical inhalation"; an ICD-9-CM code of "987.9" was assigned (i.e., TOXIC EFFECT OF OTHER GASES, FUMES, OR VAPORS--Unspecified gas, fume, or vapor). This contractor sought the opinion of a respiratory specialist concerning the issues raised in this investigation. The doctor indicated in his letter that at least one recent study has indicated "that aerosols generated by air bag deployment can evoke significant asthmatic reactions in certain individuals". This doctor's statement can be found in paragraph two on page 62, and the article he cited begins on page 63.

SELECTED PRINTS

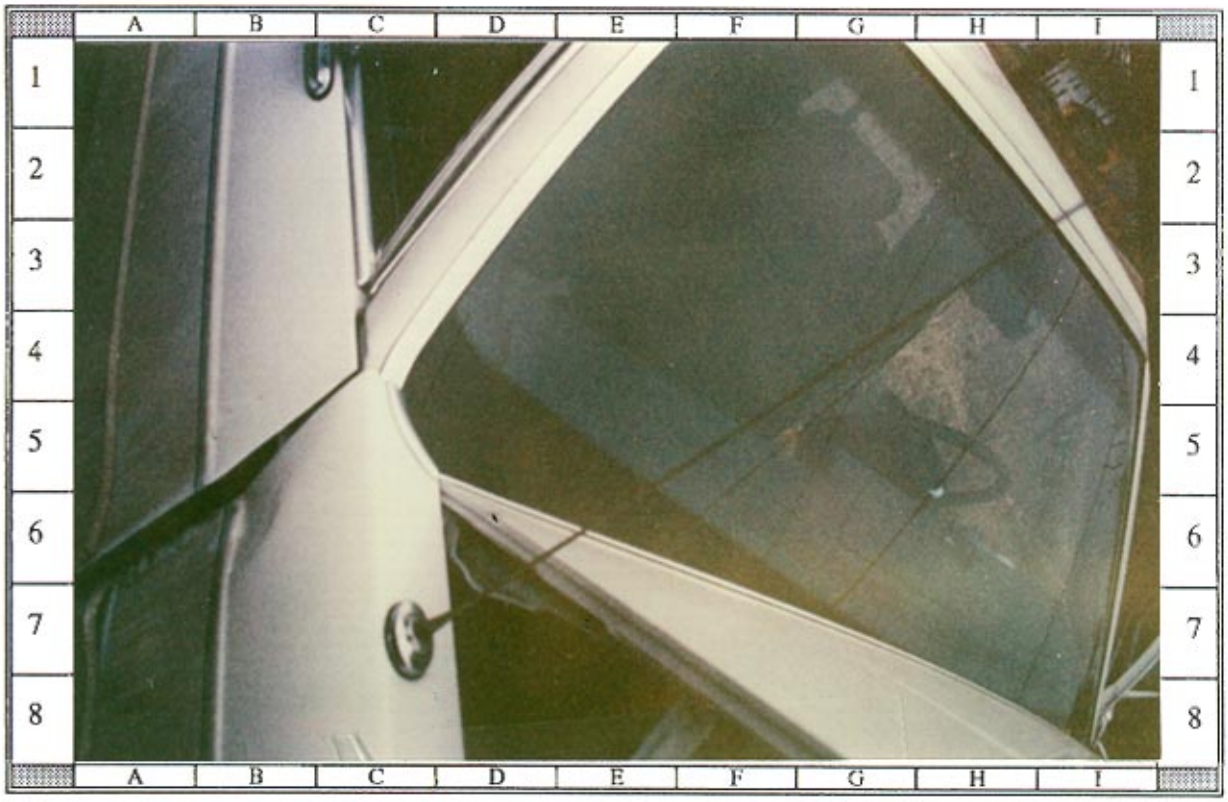
A total of four color copies of photographs are presented and referenced as Photograph **#01** through Photograph **#04**. All of these photographs were provided by the Case Vehicle's Insurance Company.

01 -- 1991 Ford Crown Victoria LX's front center & right damage viewed from front left

02 -- 1991 Ford Crown Victoria LX's front center & right damage viewed from front right; NOTE: induced damage near right front door



03 -- 1991 Ford Crown Victoria LX's engine compartment, viewed from right, possibly showing radiator & grille damage



04 -- 1991 Ford Crown Victoria LX's R fender & RF door showing induced damage from deer impact; NOTE: windshield damage not visible

Appendix A:

AUTO SAFETY HOTLINE NOTIFICATION

O.M.B. No. 2127-0008

US Department of Transportation
National Highway Traffic Safety Administration

Auto Safety Hotline

VEHICLE OWNER'S QUESTIONNAIRE

NATIONWIDE 1-800-424-9393
DC METRO AREA 202-366-0123

FOR AGENCY USE ONLY			
ID	REFERENCE NO.	DATE RECEIVED	od_or ___ rt_dt ___ od_rt ___ up_ltr ___
[redacted]	[redacted]	[redacted]95	

OWNER INFORMATION (TYPE OR PRINT)

NAME and ADDRESS	DAYTIME TELEPHONE NO. (AREA CODE)
[redacted] NB [redacted]	[redacted]

Do you authorize NHTSA to provide a copy of this report to the manufacturer of your vehicle? YES [✓] NO [ ]

In the absence of an authorization, NHTSA *WILL NOT* provide your name or address to the vehicle manufacturer.

SIGNATURE OF OWNER [redacted] DATE [redacted]95

VEHICLE INFORMATION

VEHICLE IDENTIFICATION NO.*	VEHICLE MAKE	VEHICLE MODEL	MODEL YEAR
2FACP74F3MX[redacted] *LOCATED AT BOTTOM OF WINDSHIELD ON DRIVER'S SIDE	FORD	CROWN VICTORIA	1991

CURRENT ODOMETER READING	DATE PURCHASED	DEALER'S NAME, CITY & STATE	ENGINE SIZE (CID/CC/L)	
65681	[redacted]91	[redacted] Motors	5L	[ ] TURBO [ ] DIESEL [✓] GAS [✓] FUEL INJECTION
	[ ] NEW [X] USED	[redacted] Tucs.	NO. CYCLINDERS 8	

TRANSMISSION TYPE	ANTILOCK BRAKES	RESTRAINT SYSTEM	CRUISE CONTROL	DRIVETRAIN	BODY STYLE
[ ] MANUAL [✓] AUTOMATIC	[ ] YES [✓] NO	[✓] DRIVER SIDE AIRBAG [ ] MOTORBELT [ ] PASSENGER SIDE AIRBAG [✓] 3-POINT BELT ? [ ] 2-POINT BELT	[✓] YES [ ] NO	[ ] FRONT [✓] REAR [ ] 4-WHEEL	STAWAG ___ 4 DR ✓ 2 DR ___ HATCH BK ___ VAN ___ PK UP TRK ___ OTHER ___

FAILED COMPONENTS(S)/PARTS(S) INFORMATION (REPORT TIRE INFORMATION ON BACK)

COMPONENT	PART NAME(S)	LOCATION	FAILED PART(S)
12111000		[ ] LEFT [ ] RIGHT [ ] FRONT [ ] REAR	[ ] ORIGINAL [ ] REPLACEMENT

NO. OF FAILURES	DATE(S) OF FAILURE(S)	MANUFACTURER CONTACTED	NHTSA PREVIOUSLY CONTACTED
	[redacted]94	[✓] YES [ ] NO	[✓] YES [ ] NO
	MILEAGE AT FAILURE(S) ~~66000~~ 65000+		
	VEHICLE SPEED AT FAILURE(S) 55		

APPLICABLE ACCIDENT INFORMATION YES NO

ACCIDENT	FIRE	NUMBER PERSONS INJURED	NUMBER OF FATALITIES	PROPERTY DAMAGE YES	POLICE REPORT FILED
[ ] YES [ ] NO	[ ] YES [ ] NO			EST $ 5734.61	[✓] YES [ ] NO

AIR BAG DEPLOYED, AND CAUSED ACUTE BRONCHITIS. TT

CONTINUE ON BACK IF NEEDED

The Privacy Act of 1974
Public Law 93-579

This information is requested pursuant to authority in the National Highway Traffic Safety Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

HS Form 350D-(5-93)

Form Approved: O.M.B. No. 2127-0008

US DEPARTMENT of Transportation

National Highway Traffic Safety Administration

Auto Safety Hotline

VEHICLE OWNER'S QUESTIONNAIRE

SUPPLEMENTAL ACCIDENT FORM

[redacted]

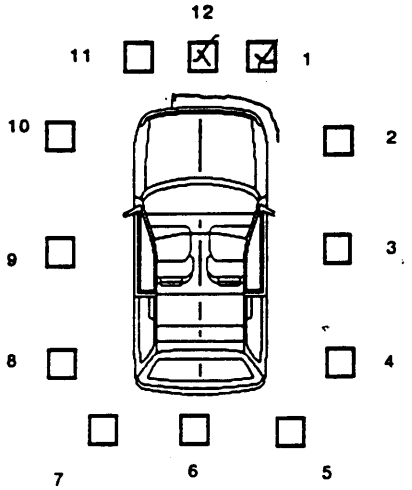
FOR AGENCY USE ONLY

ID	REFERENCE NO.	DATE RECEIVED	od_or rt_dt od_rt up_ltr
[redacted]	[redacted]	[redacted]95	___ ___ ___ ___

ACCIDENT INFORMATION

Location of initial impact (please mark appropriate box)

12:00



1991

FORD

CROWN VICTORIA

Vehicle speed: 55

Is vehicle equipped with a driver side airbag?

YES

☑ YES ☐ NO ☐ UNKNOWN

Is vehicle equipped with a passenger side airbag?

☐ YES ☒ NO ☐ UNKNOWN

Did driver side airbag deploy?

YES

☑ YES ☐ NO

Did passenger side airbag deploy?

☐ YES ☐ NO

Was the driver wearing a seatbelt?

LAP/SHOULDER

☐ LAP/SHOULDER ☐ LAP ONLY
☐ SHOULDER ONLY ☒ NO

Was the passenger wearing a seatbelt?

☐ LAP/SHOULDER ☐ LAP ONLY
☐ SHOULDER ONLY ☒ NOT WEARING
☐ NO PASSENGER

Location of the most severe injury sustained by the driver.

ARM-UPPER

☐ NO INJURY SUSTAINED BY DRIVER
☐ HEAD ☐ EYE ☐ NECK
☒ TORSO ☐ ARM/UPPER EXTREMITIES
BURN
☐ LEG/LOWER EXTREMITIES

Location of the most severe injury sustained by the passenger.

☒ NO INJURY SUSTAINED BY PASSENGER
☐ HEAD ☐ EYE ☐ NECK
☐ TORSO ☐ ARM/UPPER EXTREMITIES
☐ LEG/LOWER EXTREMITIES

Type of injury to driver.

BURN

☐ ABRASION ☐ LACERATION ☐ BREAK
☒ BURN ☐ TRAUMA

Type of injury to passenger.

☐ ABRASION ☐ LACERATION ☐ BREAK
☐ BURN ☐ TRAUMA

Severity of injury to driver.

NO TREATMENT

☐ NO TREATMENT ☐ EMERGENCY ROOM
☐ HOSPITALIZATION ☐ FATAL

Severity of injury to passenger.

☐ NO TREATMENT ☐ EMERGENCY ROOM
☐ HOSPITALIZATION ☐ FATAL

The Privacy Act of 1974
Public Law 93-579

This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

HS-Form 350(Rev. 11-86)

Appendix B:

POLICE ACCIDENT REPORT

BEST AVAILABLE COPY

INVESTIGATOR'S MOTOR VEHICLE ACCIDENT REPORT

Agency Case No.

Sheet 1 of 1

TOTAL NUMBER OF VEHICLES INVOLVED: 1

DATE OF ACCIDENT	MO. [redacted]	DA	YR 94	DAY OF ACCIDENT	Sun.	M	T	W	T	F	Sat.	TIME OF ACCIDENT	MILITARY TIME 1700 Hrs.	POLICE NOTIFIED 1720 Hrs.	FOR STATE USE ONLY
PLACE OF ACCIDENT	COUNTY [redacted]			CITY [redacted] TOWNSHIP										POLICE ARRIVED 1740 Hrs.	
ROAD ON WHICH ACCIDENT OCCURRED	STREET OR HIGHWAY NO: (If No Highway Number, Identify By Name) STATE HIGHWAY [redacted]												ONE-WAY STREET YES ☐ NO ☒	POSTED SPEED LIMIT 55 MPH	
DISTANCE FROM MILEPOST	FEET:	N ☐	S ☐	E ☐	W ☐	OF MILEPOST No.						HIGHWAY NO:	PRIVATE PROPERTY YES ☐ NO ☒	Dist.	

IF AT INTERSECTION

NAME OF INTERSECTING ROADWAY:

IF NOT AT INTERSECTION

FEET: N ☐ S ☐ E ☐ W ☐ OF NEAREST STREET OR HIGHWAY, BRIDGE, RAILROAD CROSSING OR MILEPOST:

IF ACCIDENT WAS OUTSIDE CITY LIMITS, INDICATE DISTANCE FROM NEAREST TOWN — MILES 5.5 N ☐ S ☐ E ☐ W XX AND MILES N ☐ S ☐ E ☐ W ☐ OF NEAREST CITY OR TOWN [redacted] CITY, NE.

VEHICLE NUMBER - 1

DRIVER [redacted] PHONE [redacted]

DRIVER'S ADDRESS [redacted] CITY, STATE, ZIP [redacted], NE. [redacted]

DRIVER'S LICENSE STATE NE NUMBER [redacted]74 DATE OF BIRTH [redacted]20 SEX M ☒ F ☐

VEHICLE — LICENSE PLATE YEAR 1995 STATE NE NUMBER PL 748 ESTIMATED DAMAGE $ 2,600.00

VEHICLE — YEAR 1991 MAKE FORD MODEL CRWN VICTRA BODY STYLE 4 DR COLOR WHITE

VEHICLE I.D. NUMBER (VIN) 2FACP74F3MX[redacted] CITATION YES ☐ NO ☒

OWNER [redacted] PHONE SAME

OWNER'S ADDRESS SAME CITY, STATE, ZIP

INSURANCE COMPANY [redacted]

POLICY NUMBER [redacted]

TOWED TO [redacted] TOWED BY [redacted]

VEHICLE NUMBER - 2

DRIVER NONE PHONE

DRIVER'S ADDRESS CITY, STATE, ZIP

DRIVER'S LICENSE STATE NUMBER DATE OF BIRTH SEX M ☐ F ☐

VEHICLE — LICENSE PLATE YEAR STATE NUMBER ESTIMATED DAMAGE $

VEHICLE — YEAR MAKE MODEL BODY STYLE COLOR

VEHICLE I.D. NUMBER (VIN) CITATION YES ☐ NO ☐

OWNER PHONE

OWNER'S ADDRESS CITY, STATE, ZIP

INSURANCE COMPANY

POLICY NUMBER

TOWED TO TOWED BY

VEHICLE MOVEMENT BEFORE COLLISION

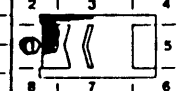
VEH NO	N	S	E	W	ROAD OR HIGHWAY NAME
1				XX	HY [redacted]
2					

VEHICLE 1 / 2

1. ☒ ☐ Going ahead
2. ☐ ☐ Passing
3. ☐ ☐ Turning right
4. ☐ ☐ Turning left
5. ☐ ☐ Making "U" turn
6. ☐ ☐ Slowing down
7. ☐ ☐ Starting in traffic lane
8. ☐ ☐ Starting from parked position
9. ☐ ☐ Backing up
10. ☐ ☐ Stopped in traffic lane
11. ☐ ☐ Stalled in traffic lane
12. ☐ ☐ Parked
13. ☐ ☐ Improperly parked
14. ☐ ☐ Merging
15. ☐ ☐ Changing lanes

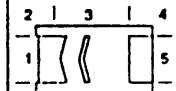
CIRCLE POINT OF IMPACT & SHADE DAMAGED AREA

VEH 1



9 ☐ Top & windows
10 ☐ Undercarriage
11 ☐ All areas
12 ☐ Unknown

VEH 2



9 ☐ Top & windows
10 ☐ Undercarriage
11 ☐ All areas
12 ☐ Unknown

DISPOSITION OF VEHICLE (Check one per vehicle)

VEHICLE 1 / 2

1. ☒ ☐ Towed due to damage
2. ☐ ☐ Towed other reasons
3. ☐ ☐ Left at scene
4. ☐ ☐ Driven away
5. ☐ ☐ Unknown

VEHICLE CONDITION (Check one per vehicle)

VEHICLE 1 / 2

1. ☒ ☐ No apparent defects
2. ☐ ☐ Defective brakes
3. ☐ ☐ Defective lights
4. ☐ ☐ Defective signals
5. ☐ ☐ Defective steering
6. ☐ ☐ Defective tires
7. ☐ ☐ Unknown
8. ☐ ☐ Other (Specify)

EXTENT OF VEHICLE DEFORMITY (Check one per vehicle)

VEHICLE 1 / 2

1. ☐ ☐ None
2. ☐ ☐ Minor
3. ☐ ☐ Moderate
4. ☒ ☐ Severe
5. ☐ ☐ Unknown

MAJOR REASON FOR NOT SEEING DANGER (Check one per vehicle)

VEHICLE 1 / 2

1. ☐ ☐ None
2. ☐ ☐ Rain, snow, or ice on windows
3. ☐ ☐ Dirty windows
4. ☐ ☐ Glare
5. ☐ ☐ Trees, crops, etc.
6. ☐ ☐ Buildings
7. ☐ ☐ Embankment
8. ☐ ☐ Traffic sign
9. ☐ ☐ Billboard
10. ☐ ☐ Parked vehicle
11. ☐ ☐ Moving vehicle
12. ☒ ☐ Other (Specify)

ANIMAL ON ROADWAY

DRIVER'S CONDITION (Check one per vehicle)

VEHICLE 1 / 2

1. ☒ ☐ Normal
2. ☐ ☐ Fatigue/Asleep
3. ☐ ☐ Illness
4. ☐ ☐ Drinking
5. ☐ ☐ Illegal drugs
6. ☐ ☐ Medication
7. ☐ ☐ Unknown
8. ☐ ☐ Other (Specify)

ALCOHOL TESTING

ALCOHOL LEVEL TESTED	Y	N
Driver No. 1		XX
Driver No. 2		
Pedestrian		

RESTRAINT USE — VEH 1

2 / 2

1 - No restraint available
2 - Restraint not used
3 - Lap belt
4 - Lap & shoulder belt
5 - Automatic belt
6 - Child restraint
7 - Unknown

AIR BAG SEAT POSITION	DID AIR BAG DEPLOY? YES	NO	(✓) IF NO AIR BAG AVAILABLE
Driver Seal	XX		
Front Passenger			XXX

HELMET USE	MOTORCYCLE YES	MOTORCYCLE NO	BICYCLE YES	BICYCLE NO
Operator				
Passenger				

RESTRAINT USE — VEH 2

1 - No restraint available
2 - Restraint not used
3 - Lap belt
4 - Lap & shoulder belt
5 - Automatic belt
6 - Child restraint
7 - Unknown

AIR BAG SEAT POSITION	DID AIR BAG DEPLOY? YES	NO	(✓) IF NO AIR BAG AVAILABLE
Driver Seal			
Front Passenger			

HELMET USE	MOTORCYCLE YES	MOTORCYCLE NO	BICYCLE YES	BICYCLE NO
Operator				
Passenger				

COMPLETE THIS SECTION FOR ALL INJURED PERSONS

(Complete a continuation report, if more than three were injured)

RESCUE UNITS AT SCENE 1. 2.

VEH. #	NAME	ADDRESS	DATE OF BIRTH	SEX M F	1 Seat Pos	2 Eject	3 Body Reg	4 Inj. Sev.	5 Trans.
VEH. #	NAME	ADDRESS							
VEH. #	NAME	ADDRESS							

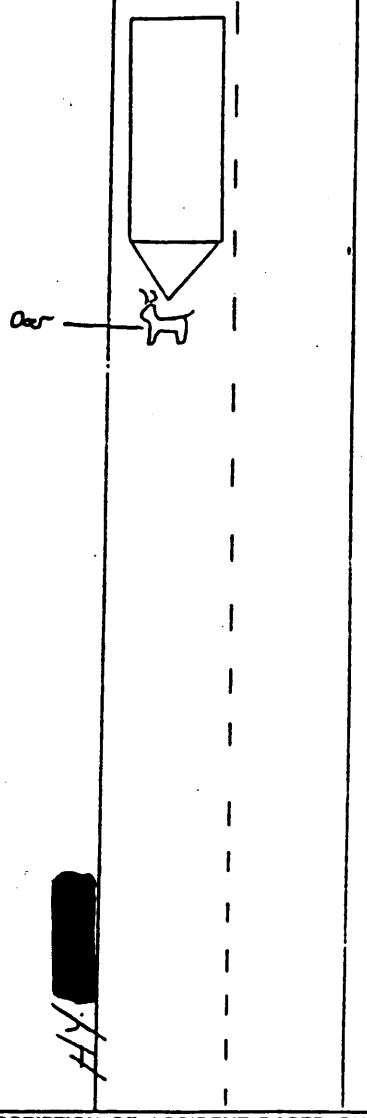
DR Form 40, Jan 93

THIS FORM REPLACES DR FORM 40, SEP 90. PREVIOUS EDITIONS WILL BE DESTROYED.

Printed on recycled

Indicate North by Arrow

INDICATE BY DIAGRAM WHAT HAPPENED



DESCRIPTION OF ACCIDENT BASED ON OFFICER'S INVESTIGATION

DRIVER OF VEHICLE 1 WAS WESTBOUND ON HY [redacted] WHEN A DEER RAN ONTO THE ROADWAY FROM THE SOUTH. DRIVER OF VEHICLE 1 WAS UNABLE TO AVOID HITTING THE DEER.

	OBJECT DAMAGED:	NAME OF OWNER:	ADDRESS:	PHONE:	APPROX COST OF DAMAGE:
PROPERTY	DEER	STATE OF NEBRASKA	[redacted]		$ Ø
	OBJECT DAMAGED:	NAME OF OWNER:	ADDRESS:	PHONE:	APPROX COST OF DAMAGE:
					$

	NAME:	ADDRESS:	PHONE:
WITNESSES		[redacted]	
	NAME:	ADDRESS:	PHONE

WAS INVESTIGATION MADE AT SCENE?	IS INVESTIGATION COMPLETE?	DRIVER'S REPORT FORM FURNISHED TO?	WERE PHOTOGRAPHS TAKEN?	SHOULD LOCATION HAVE AN ENGINEERING STUDY?	OFFICER NO:	DATE OF REPORT
■ YES ☐ NO	■ YES ☐ NO	☑ 1 ☐ 2	☐ YES ■ NO	☐ YES ■ NO	[redacted]	

INVESTIGATOR'S PRINTED OR TYPED NAME:	INVESTIGATOR'S SIGNATURE:	DEPARTMENT:	TROOP:	MO.	DAY	YR.
[redacted]	[redacted]	[redacted] COUNTY S.O.		[redacted]		94

INVESTIGATOR'S MOTOR VEHICLE ACCIDENT REPORT OVERLAY

Please explain any selection marked with an asterisk (*) in the accident description.

ACCIDENT CLASSIFICATION

A. Weather Condition *(Enter one)*

1. No adverse conditions
2. Rain
3. Sleet, hail, or freezing rain
4. Snow
5. Fog
6. High winds
* 7. Other

TEMPERATURE

B. Light Condition *(Enter one)*

1. Daylight
2. Dawn - Dusk
3. Dark - With street lighting
4. Dark

C. Traffic Control *(Enter up to two)*

1. None
2. Yield sign
3. Stop sign
4. All-Way stop
5. Flashing beacon
6. Traffic signal
7. Traffic signal in flashing mode
8. School speed zone
9. Roadwork signing
10. Pedestrian signal
11. Pedestrian crosswalk
12. Railroad gates and lights
13. Railroad flashing lights
14. Railroad crossing sign
15. Officer/Flagperson
16. No passing zone
* 17. Other

D. Road Character *(Enter one)*

1. Straight and level
2. Straight and on slope
3. Straight and on hilltop
4. Curved and level
5. Curved and on slope
6. Curved and on hilltop

E. Road Surface *(Enter one)*

1. Concrete
2. Asphalt
3. Brick
4. Gravel
5. Dirt
* 6. Other

F. Road Surface Condition *(Enter one)*

1. Dry
2. Wet
3. Snowy-Icy
* 4. Other

G. Total Number of Through Lanes *(Enter one)*

1. One lane
2. Two lanes
3. Three lanes
4. Four lanes
5. Five lanes
6. Six or more lanes

H. Median Type *(Enter one)*

1. Median Barrier
2. Raised median (Curbed)
3. Grass Median (No curb)
4. Painted (No curb)
5. None

I. Work Zone *(Enter one)*

1. Road construction zone
2. Road maintenance zone *(repair with traffic control)*
3. Road maintenance activity *(snowplowing, mowing, striping, etc.)*
4. Utility activity
5. None

J. Major Contributing Human Factor

(Enter one code per accident and the associated Vehicle Number)

1. Speed too fast for conditions
2. Exceeding speed limit
3. Backing unsafely
4. Ran stop sign
5. Disregarded traffic signal
6. Failure to yield
7. Following too closely
8. Improper right turn on red
9. Other improper turn
10. Improper or no turn signal
11. Wrong way in one-way traffic
12. Improper lane change
13. Drove left of center
14. Evasive action
15. Improper overtaking
16. Improper loading or securing of cargo
17. None
* 18. Other

K. Major Contributing Environmental Factor *(Enter one)*

1. Animal on roadway
2. Debris on roadway
3. Water standing on roadway
4. Pavement defect
5. Previous accident
6. Vision obstruction
7. Bad weather
8. None
* 9. Other

PEDESTRIAN CLASSIFICATION

Pedestrian Actions *(Enter one)* — L.

1. Properly crossing roadway
2. Improperly crossing roadway
3. Playing
4. Moving with traffic
5. Moving against traffic
6. Working on vehicle
7. Standing/sitting
8. Getting in/out vehicle
9. Lying down
* 10. Other

Pedestrian Location *(Enter one)* — M.

At Intersection
1. With signal
2. Without signal

Not at Intersection
3. Crosswalk with pedestrian signal
4. Crosswalk
5. On roadway
6. Off roadway

Pedestrian Condition *(Enter one)* — N.

1. Normal
2. Fatigue/asleep
3. Illness
4. Drinking
5. Illegal drugs
6. Medication
7. Unknown
* 8. Other

COMPLETE THIS SECTION FOR ALL INJURED PERSONS

Transported to Medical Facility *(Enter one)* — 5.

Was the individual transported from the crash site to a medical facility for treatment of injuries received in the crash?

1. Yes
2. No
3. Unknown

Injury Severity *(Enter one)* — 4.

1. Killed
2. Disabling - cannot leave scene without assistance *(broken bones, severe cuts, prolonged unconsciousness, etc.)*
3. Visible but not disabling *(minor cuts, swelling, etc.)*
4. Possible but not visible *(complaint of pain, etc.)*

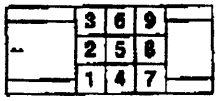
Body Region with Most Severe Injury *(Enter one)* — 3.

1. Head
2. Face
3. Neck
4. Chest
5. Back/spine
6. Shoulder/upper arm
7. Elbow/lower arm/hand
8. Abdomen/pelvis
9. Hip/upper leg
10. Knee/lower leg/foot
11. Entire body
12. Unknown

Ejected/Trapped *(Enter one)* — 2.

1. Not ejected or trapped
2. Partially ejected
3. Totally ejected
4. Trapped - Occupant removed without use of equipment
5. Trapped - Equipment used in extrication
6. Unknown

Seating Position *(Enter one)* — 1.



10. Other enclosed passenger/cargo area
11. Other unenclosed passenger/cargo area
12. Riding on vehicle exterior
13. Sleeper section of truck cab
14. Trailing unit
15. Moped
16. Motorcycle operator
17. Motorcycle passenger
18. Pedestrian
19. Bicycle
20. Unknown

Appendix C:

VEHICLE REPAIR ESTIMATE

Appraisers
NZ [redacted]

FAX NUMBER
Damage Assessed by: [redacted] Appraised For: [redacted]

********** [redacted] **********
THIS IS NOT AN AUTHORIZATION TO [redacted] ALL COSTS OF REPAIRS ARE THE SOLE RESPONSIBILITY OF THE VEHICLE OWNER, WHO ULTIMATELY MUST AUTHORIZE ALL REPAIRS. NO SUPPLEMENTS WILL BE HONORED WITH OUT THE PRIOR INSPECTION BY [redacted]
****
[redacted] SPECIFIES THAT ALL REPAIRS AND/OR PART REPLACEMENTS LISTED HEREIN BE MADE IN STRICT ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
****

Condition Code: Excellent Type of Loss: Comprehensive
Date of Loss: [redacted]
Pol./Claim No.: [redacted]
Insured: [redacted]
Claimant: [redacted]
Address: [redacted] NZ
Home Phone: [redacted]
[redacted] Service: [redacted]

Description: 1991 FORD CROWN VIC LX 4DR SED
VIN: 2FACP743MX[redacted] Mileage: 85,273

Color: WHITE
Options: STEREO RADIO, PREMIUM RADIO, CASSETTE, POWER STEERING, POWER BRAKES, AIR CONDITIONING, CRUISE CONTROL, TILT COLUMN, ELECTRIC DEFOGGER, POWER WINDOW, POWER REMOTE MIRROR, POWER DOOR LOCK, POWER SEATS, AUTOMATIC TRANSMISSION, V-8 ENGINE, REAR WHEEL DRIVE, REAR VINYL TOP, CENTER CONSOLE, TRIP COMPUTER, SPECIAL SEATS/INTERIOR, SPECIAL WHEELS/COVERS, POWER ANTENNA.

Line Item	Entry Number	Labor Type	Operation	Line Item Description	Part Type/ Part Number	Dollar Amount	Labor Unit
1	602210	BODY	REMOVE/INSTALL	FRT BUMPER ASSY			0.8
2	602630	BODY	REPAIR	*FRT BUMPER STONE DEFLECTOR			0.5*#
3		REFIN	REFINISH/REPAIR	FRT BUMPER STONE DEFLECTOR			1.0*
4	602840	BODY	REMOVE/REPLACE	GRILLE	E8AZ 8200 A	208.33	INCL
5	602860	BODY	REMOVE/REPLACE	GRILLE EMBLEM	E8AZ 8A223 A	16.90	INCL #
6	602890	BODY	REMOVE/REPLACE	GRILLE BRACKET	E8AZ 8B455 A	3.04	INCL #
7	602930	BODY	REMOVE/REPLACE	GRILLE HEADER PANEL	E9AZ 8190 A	369.52	3.0 #
8	AUTO	REFIN	REFINISH	HEADER PANEL			2.1
9	AUTO	REFIN	REFINISH	PANEL EDGE			0.5
10	AUTO	BODY	CHECK/ADJUST	HEADLAMPS			0.5
11	603040	BODY	REMOVE/REPLACE	GRILLE PANEL ORNAMENT	E8AZ 16850 A	28.92	INCL
12	603620	BODY	REMOVE/REPLACE	R H/LAMP BEZEL	E9AZ 13064 A	62.23	INCL #
13	603630	BODY	REMOVE/REPLACE	L H/LAMP BEZEL	E9AZ 13064 B	62.23	INCL #
14	603690	BODY	REMOVE/REPLACE	R H/LAMP RETAINING RING	D7OZ 13015 A	3.88	INCL

ESTIMATE RECALL NUMBER: [redacted] 23:49:06 4120247
[redacted] DEC_94_A

15	603720	BODY	REMOVE/REPLACE	R H/LAMP ADJUSTING RING		D70Z 13119 B	15.40	INCL	
16	603770	BODY	REMOVE/REPLACE	R H/LAMP SEALED BEAM		D94Y 13007 C	15.79	INCL	#
17	603790	BODY	REMOVE/REPLACE	R H/LAMP SEALED BEAM		D94Y 13007 A	15.79	INCL	#
18	603930	BODY	REMOVE/REPLACE	R PARKLAMP ASSEMBLY		E8AZ 13200 A	82.88	INCL	
19	603940	BODY	REMOVE/REPLACE	L PARKLAMP ASSEMBLY		E8AZ 13201 A	82.88	INCL	
20	604310	BODY	REMOVE/REPLACE	R MARKER LAMP ASSEMBLY		E8AZ 15A201 A	33.95	INCL	
21	604560	BODY	REMOVE/REPLACE	HOOD PANEL		E8AZ 16612 A	472.45	0.7	
22	AUTO	REFIN	REFINISH	HOOD OUTSIDE				2.8	
23	AUTO	REFIN	REFINISH	HOOD UNDERSIDE				1.3	
24	604590	BODY	REMOVE/REPLACE	R HOOD HINGE		E7AZ 16796 A	20.77	0.4	#
25	AUTO	REFIN	REFINISH	R HINGE				0.4	
26	604600	BODY	REMOVE/REPLACE	L HOOD HINGE		E7AZ 16797 A	20.77	0.2	#
27	AUTO	REFIN	REFINISH	L HINGE				0.4	
28	604660	BODY	REMOVE/REPLACE	HOOD PRIMARY LATCH		E1TZ 16700 A	26.67	INCL	
29	604670	BODY	REMOVE/REPLACE	HOOD SUPPORT		F0AZ 16707 A	21.18	INCL	#
30	604650	BODY	REMOVE/REPLACE	HOOD PRIMARY LATCH BRACKET		E8AZ 16747 A	11.45	INCL	#
31	605130	BODY	REMOVE/REPLACE	COOLING RADIATOR SUPPORT		F0AZ 16138 B	193.33	4.0	#
32	AUTO	REFIN	REFINISH	RADIATOR SUPPORT				1.5	
33	605210	BODY	REMOVE/REPLACE	R COOLING UPPER SUPPORT BRACKET		E6AZ 8A193 C	4.62		
34	605220	BODY	REMOVE/REPLACE	L COOLING UPPER SUPPORT BRACKET		E6AZ 8A193 D	4.62		
35	605230	MECH	REMOVE/REPLACE	COOLING AIR BAG SENSOR	-M	F1AZ 14B004 A	386.49	0.5	#
36	605290	BODY	REPAIR	*COOLING RADIATOR		SUBLET	225.00*		
37	605510	BODY	REMOVE/REPLACE	COOLING RADIATOR SHROUD		F0YY 8146 A	29.15	INCL	
38	606000	MECH	REMOVE/REPLACE	EVACUATE & RECHARGE AIR CONDITIONING	-M			1.4	
39	606030	MECH	REMOVE/REPLACE	AIR COND CONDENSER	-M	**QUAL REPL PART	175.00*	0.5	
40	607250	BODY	REMOVE/REPLACE	R FENDER PANEL		F0AZ 16005 A	367.92	3.7	#
41	AUTO	REFIN	REFINISH	R FENDER OUTSIDE				2.2	
42	AUTO	REFIN	REFINISH	R FENDER EDGE				0.5	
43	607260	BODY	REPAIR	*L FENDER PANEL				1.0*	#
44		REFIN	REFINISH/REPAIR	L FENDER PANEL				1.0*	
45	607900	BODY	REMOVE/REPLACE	R FENDER ADHESIVE MOULDING		E8AZ 16003 B7M	29.70	0.1	
46	608000	BODY	REMOVE/REPLACE	R FENDER WHEEL OPENING MLDG		D9NY 16038 B	29.38	0.3	
47	611270	MECH	REMOVE/REPLACE	STEERING AIR BAG MODULE	-M	F0AZ 54043B13 A	579.44	0.5	#
48	613930	GLASS	REMOVE/REPLACE	W/SHIELD GLASS		F0AZ 5403100 A	455.87	2.2	#
49				SUBJECT TO 40.00% GLASS DISCOUNT					
50	618720	BODY	REPAIR	*R PRT DOOR SHELL				3.0*	
51		REFIN	REFINISH/REPAIR	R PRT DOOR SHELL				2.0*	
52	619360	BODY	REMOVE/REPLACE	R PRT DOOR ADHESIVE MOULDING		ORDER FROM DEALER	23.30	0.2	
53	933002	REFIN	ADD'L LABOR OPR	CLEAR COAT				2.0*	
54	933012	REFIN	ADD'L LABOR OPR	STRIPE			10.00*	0.5*	
55	936000		ADD'L COST	FREON & OIL			20.00*		
56	936001		ADD'L COST	TONING			39.00*		
57	936012		ADD'L COST	HAZARDOUS WASTE DISPOSAL			2.00*		
58	AUTO		ADD'L COST	PAINT MATERIALS			291.20*		

* Judgement Item
\# Labor Note Applies

Remarks
NO LKQ PRT END LOCAL///[redacted]AUTO/[redacted]AUTO/[redacted]AUTO/[redacted]AUTO NO PARTS /CAR HAS CORNER LITES

5734.61

$315.22

ESTIMATE RECALL NUMBER: [redacted] 23:49:06 [redacted]
[redacted]: DEC_94_A

Prior Damage
NONE

I. Labor Subtotals	Units	Rate	Totals
Body	18.4	28.00	515.20
Refinish	18.2	28.00	509.60
Glass	2.2	28.00	61.60
Mechanical	2.9	45.00	130.50
Labor Subtotal			1,216.90
Labor Summary Totals	41.7		1,216.90

II. Part Replacement Summary		Amount
Taxable Parts		3,853.85
Glass Discount	40.00%	182.35-
Sales Tax @	6.50%	238.65
Non-Taxable Parts		225.00
Total Replacement Parts Amount:		4,135.15

III. Additional Costs		Amount
Taxable Costs		313.20
Sales Tax @	6.50%	20.36
Nontaxable Costs		49.00
Total Additional Costs:		382.56

I. Total Labor:	1,216.90
II. Total Replacement Parts:	4,135.15
III. Total Additional Costs:	382.56
Gross Total:	5,734.61
Net Total:	5,734.61

Customer Allowance: 0.00 Customer Responsibility: 0.00
Point of Impact: 12 FRONT CENTER Inspection Site: SHOP
Body Shop: [redacted] BODY SHOP Shop Phone: [redacted]
Address: [redacted] NE[redacted]

********** AGREED REPAIR COSTS **********
IT IS UNDERSTOOD THAT THE BODY SHOP LISTED ABOVE, IF ONE IS LISTED, AGREES TO COMPLETE AND GUARANTEE ALL REPAIRS LISTED ABOVE FOR THE AMOUNT LISTED ABOVE UNLESS A DIFFERENT AMOUNT IS LISTED HERE $_____.
BY: _____ DATE: [redacted]
****
THIS VEHICLE IS REPAIRABLE (X) A TOTAL LOSS ( ) BORDERLINE ( )
_____ DAYS WILL BE NEEDED TO COMPLETE REPAIRS
****

TIRE TREAD: LF 32 LR 32 RF 32 RR 32 SPARE 32 WSW___ RADIAL___
TIRE SIZE/TYPE: _____
SALVAGE BIDS: _____ _____
_____
_____
APPROXIMATE ACV: _____

VIN is unable to decode.

Appendix D:

NASS CDS ACCIDENT FORM

U.S. Department of Transportation
National Highway Traffic Safety Administration

ACCIDENT FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9503

IDENTIFICATION

3. Number of General Vehicle Forms Submitted: 01
4. Date of Accident (Month,Day,Year): [redacted] 94
5. Time of Accident: 1700

Code reported military time of accident.

NOTE: Midnight = 2400
Unknown = 9999

SPECIAL STUDIES - INDICATORS

Check (✓) each special study (SS15-SS18 below) that has been completed; code 1 for the checked special studies and 0 for the special studies not checked.

6. ___ SS15 Administrative Use: 0
7. ___ SS16 Pedestrian Crash Data Study: 0
   (Data for this special study available in a separate file.)
8. ___ SS17 Impact Fires: 0
9. ___ SS18 Unsafe Driver Actions: 0
10. ___ SS19 _____: 0

NUMBER OF EVENTS

11. Number of Recorded Events in This Accident: 01

Code the number of events which occurred in this accident.

ACCIDENT EVENTS

For each event that occurred in the accident, code the lowest numbered vehicle in the left columns and the other involved vehicle or object in the right columnns.

Accident Event Sequence Number	Vehicle Number	Class Of Vehicle	General Area of Damage	Vehicle Number or Object Contacted	Class Of Vehicle	General Area of Damage
12. 01	13. 01	14. 04	15. F	16. 76	17. 00	18. 0
19. 02	20.	21.	22.	23.	24.	25.
26. 03	27.	28.	29.	30.	31.	32.
33. 04	34.	35.	36.	37.	38.	39.
40. 05	41.	42.	43.	44.	45.	46.

IF GREATER THAN FIVE EVENTS, CONTINUE CODING ON THE ACCIDENT EVENT SUPPLEMENT

CODES FOR CLASS OF VEHICLE

(00) Not a motor vehicle
(01) Subcompact/mini (wheelbase < 254 cm)
(02) Compact (wheelbase ≥ 254 but < 265 cm)
(03) Intermediate (wheelbase ≥ 265 but ≤ 278 cm)
(04) Full size (wheelbase ≥ 278 but < 291 cm)
(05) Largest (wheelbase ≥ 291 cm)
(09) Unknown passenger car size
(14) Compact utility vehicle
(15) Large utility vehicle (≤ 4,500 kgs GVWR)
(16) Utility station wagon (≤ 4,500 kgs GVWR)
(19) Unknown utility type
(20) Minivan (≤ 4,500 kgs GVWR)
(21) Large van (≤ 4,500 kgs GVWR)
(24) Van Based school bus (≤ 4,500 kgs GVWR)
(28) Other van type (≤ 4,500 kgs GVWR)
(29) Unknown van type (≤ 4,500 kgs GVWR)
(30) Compact pickup truck (≤ 4,500 kgs GVWR)
(31) Large pickup truck (≤ 4,500 kgs GVWR)
(38) Other pickup truck (≤ 4,500 kgs GVWR)
(39) Unknown pickup truck type (≤ 4,500 kgs GVWR
(45) Other light truck (≤ 4,500 kgs GVWR)
(48) Unknown light truck type (≤ 4,500 kgs GVWR)
(49) Unknown light vehicle type
(50) School bus (excludes van based)(> 4,500 kgs GVWR
(58) Other bus (> 4,500 kgs GVWR)
(59) Unknown bus type
(60) Truck (> 4,500 kgs GVWR)
(67) Tractor without trailer
(68) Tractor-trailer(s)
(78) Unknown medium/heavy truck type
(79) Unknown light/medium/heavy truck type
(80) Motored cycle
(90) Other vehicle
(99) Unknown

CODES FOR GENERAL AREA OF DAMAGE (GAD)

CDS APPLICABLE AND OTHER VEHICLES	(0) Not a motor vehicle	(R) Right side	(T) Top
	(N) Noncollision	(L) Left side	(U) Undercarriage
	(F) Front	(B) Back	(9) Unknown

TDC APPLICABLE VEHICLES	(0) Not a motor vehicle	(L) Left side	(C) Rear of cab
	(N) Noncollision	(B) Back of unit with cargo area (rear of trailer or straight truck)	(V) Front of cargo area
	(F) Front		(T) Top
	(R) Right side	(D) Back (rear of tractor)	(U) Undercarriage
			(9) Unknown

CODES FOR VEHICLE NUMBER OR OBJECT CONTACTED

(01-30) — Vehicle Number

Noncollision
(31) Overturn — rollover (excludes end-over-end)
(32) Rollover — end-over-end
(33) Fire or explosion
(34) Jackknife
(35) Other intraunit damage (specify):

_____

(36) Noncollision injury
(38) Other noncollision (specify):

_____

(39) Noncollision — details unknown

Collision With Fixed Object
(41) Tree (≤ 10 cm in diameter)
(42) Tree (> 10 cm in diameter)
(43) Shrubbery or bush
(44) Embankment
(45) Breakaway pole or post (any diameter)

Nonbreakaway Pole or Post
(50) Pole or post (≤ 10 cm in diameter)
(51) Pole or post (> 10 cm but ≤ 30 cm in diameter)
(52) Pole or post (> 30 cm in diameter)
(53) Pole or post (diameter unknown)

(54) Concrete traffic barrier
(55) Impact attenuator
(56) Other traffic barrier (includes guardrail) (specify):_____
(57) Fence
(58) Wall
(59) Building
(60) Ditch or culvert
(61) Ground
(62) Fire hydrant
(63) Curb
(64) Bridge
(68) Other fixed object (specify):

_____

(69) Unknown fixed object

Collision with Nonfixed Object
(70) Passenger car, light truck, van, or other vehicle not in-transport
(71) Medium/heavy truck or bus not in-transport
(72) Pedestrian
(73) Cyclist or cycle
(74) Other nonmotorist or conveyance

_____

(75) Vehicle occupant
(76) Animal
(77) Train
(78) Trailer, disconnected in transport
(79) Object fell from vehicle in-transport
(88) Other nonfixed object (specify):

_____

(89) Unknown nonfixed object

(98) Other event (specify):

_____

(99) Unknown event or object

Appendix E:

NASS CDS General Vehicle Form: Case Vehicle

U.S. Department of Transportation
National Highway Traffic Safety Administration

GENERAL VEHICLE FORM

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9503
3. Vehicle Number: 01

VEHICLE IDENTIFICATION

4. Vehicle Model Year: 91
   Code the last two digits of the model year
   (99) Unknown

5. Vehicle Make (specify): FORD — 12
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (99) Unknown

6. Vehicle Model (specify): CROWN VICTORIA LX — 016
   Applicable codes are found in your NASS Data Collection, Coding and Editing Manual.
   (999) Unknown

7. Body Type: 04
   Note: Applicable codes may be found on the back of this page.

8. Vehicle Identification Number

2FACP74F3MX[redacted]

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

   Left justify; Slash zeros and letter Z (Ø and ~~Z~~)
   No VIN—Code all zeros Unknown—Code all nines

9. Vehicle Special Use (This Trip): 0
   (0) No special use
   (1) Taxi
   (2) Vehicle used as school bus
   (3) Vehicle used as other bus
   (4) Military
   (5) Police
   (6) Ambulance
   (7) Fire truck or car
   (8) Other (specify): _____
   (9) Unknown

OFFICIAL RECORDS

10. Police Reported Vehicle Disposition: 1
    (0) Not towed due to vehicle damage
    (1) Towed due to vehicle damage
    (9) Unknown

11. Police Reported Travel Speed: 999
    Code to the nearest kmph (NOTE: 000 means less than 0.5 kmph)
    (160) 159.5 kmph and above
    (999) Unknown

    ___ mph X 1.6093 = ___ kmph

12. Speed Limit: 089
    (000) No statutory limit
    Code posted or statutory speed limit in kmph
    (999) Unknown

    55 mph X 1.6093 = 88.51 kmph

13. Police Reported Alcohol Presence For Driver: 0
    (0) No alcohol present
    (1) Yes alcohol present
    (7) Not reported
    (8) No driver present
    (9) Unknown

14. Alcohol Test Result For Driver: 96
    Code actual value (decimal implied before first digit—0.xx)
    (95) Test refused
    (96) None given
    (97) AC test performed, results unknown
    (98) No driver present
    (99) Unknown

    Source: _____

15. Police Reported Other Drug Presence For Driver: 0
    (0) No other drug(s) present
    (1) Yes other drug(s) present
    (7) Not reported
    (8) No driver present
    (9) Unknown

16. Other Drug Specimen Test Result For Driver: 0
    (0) No specimen test given
    (1) Drug(s) not found in specimen
    (2) Drug(s) found in specimen, (specify): _____
    (3) Specimen test given, results unknown or not obtained
    (8) No driver present
    (9) Unknown if specimen test given

17. Driver's Zip Code [redacted]
    (00001) Driver not a resident of U.S. or territories
    _____ Code actual 5-digit zip code
    (99998) No driver present
    (99999) Unknown

18. Driver's Race/Ethnic Origin: 1
    (1) White (non-Hispanic)
    (2) Black (non-Hispanic)
    (3) White (Hispanic)
    (4) Black (Hispanic)
    (5) American Indian, Eskimo or Aleut
    (6) Asian or Pacific Islander
    (7) Other (specify): _____
    (8) No driver present
    (9) Unknown

CODES FOR BODY TYPE

CDS APPLICABLE VEHICLES

Automobiles

(01) Convertible (excludes sun-roof, t-bar)
(02) 2-door sedan, hardtop, coupe
(03) 3-door/2-door hatchback
(04) 4-door sedan, hardtop
(05) 5-door/4-door hatchback
(06) Station wagon (excluding van and truck based)
(07) Hatchback, number of doors unknown
(08) Other automobile type (specify):

_____

(09) Unknown automobile type

Automobile Derivatives

(10) Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
(11) Auto based panel (cargo station wagon, auto based ambulance/hearse)
(12) Large limousine - more than four side doors or stretched chassis
(13) Three-wheel automobile or automobile derivative

Utility Vehicles (≤ 4,500 kgs GVWR)

(14) Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Passport, Samurai, Sidekick, Rocky)
(15) Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Hummer, Landcruiser, Rover, Scout, Yukon)
(16) Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
(19) Utility, unknown body type

Van Based Light Trucks (≤ 4,500 kgs GVWR)

(20) Minivan (Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Vista, Aerostar, Windstar, Villager, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Expo Wagon, Vanagon/Camper.)
(21) Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
(22) Step van or walk-in van (≤ 4,500 kgs GVWR)
(23) Van based motorhome (≤ 4,500 kgs GVWR)
(24) Van based school bus (≤ 4,500 kgs GVWR)
(25) Van based other bus (≤ 4,500 kgs GVWR)
(28) Other van type (Hi-Cube Van, Kary) (specify):

_____

(29) Unknown van type

Light Conventional Trucks (Pickup style cab, ≤ 4,500 kgs GVWR)

(30) Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10 , T-10. LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
(31) Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500, T100)
(32) Pickup with slide-in camper
(33) Convertible pickup
(39) Unknown pickup style light conventional truck type

Other Light Trucks (≤ 4,500 kgs GVWR)

(40) Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
(41) Truck based panel
(42) Light truck based motorhome (chassis mounted)
(45) Other light conventional truck type
(48) Unknown light truck type
(49) Unknown light vehicle type (automobile, utility, van, or light truck)

OTHER VEHICLES

Buses (Excludes Van Based)

(50) School bus (designed to carry students, not cross country or transit)
(58) Other bus type (e.g., transit, intercity, bus based motorhome) (specify):

_____

(59) Unknown bus type

Medium/Heavy Trucks (> 4,500 kgs GVWR)

(60) Step van (> 4,500 kgs GVWR)
(61) Single unit straight truck (4,500 kgs < GVWR ≤ 8,850 kgs)
(62) Single unit straight truck (8,850 kgs < GVWR ≤ 12,000 kgs)
(63) Single unit straight truck (> 12,000 kgs GVWR)
(64) Single unit straight truck, GVWR unknown
(65) Medium/heavy truck based motorhome
(67) Truck-tractor with no cargo trailer
(68) Truck-tractor pulling one trailer
(69) Truck-tractor pulling two or more trailers
(70) Truck-tractor (unknown if pulling trailer)
(78) Unknown medium/heavy truck type
(79) Unknown truck type (light/medium/heavy)

Motored Cycles (Does Not Include All-Terrain Vehicles/Cycles)

(80) Motorcycle
(81) Moped (motorized bicycle)
(82) Three-wheel motorcycle or moped
(88) Other motored cycle (minibike, motorscooter) (specify):_____
(89) Unknown motored cycle type

Other Vehicles

(90) ATV (All-Terrain Vehicle) and ATC (All-Terrain Cycle)
(91) Snowmobile
(92) Farm equipment other than trucks
(93) Construction equipment other than trucks
(97) Other vehicle type
(99) Unknown body type

PRECRASH ENVIRONMENTAL DATA

19. Relation To Interchange Or Junction — 0
(0) Non-interchange area and non-junction
(1) Interchange area related

Non-Interchange junctions
(2) Intersection related
(3) Driveway, alley access related
(4) Other junction (specify)
_____
(5) Unknown type of junction

(9) Unknown

20. Trafficway Flow — 0
(0) Not physically divided (two way traffic)
(1) Divided trafficway-median strip without positive barrier
(2) Divided trafficway-median strip with positive barrier
(3) One way traffic
(9) Unknown

21. Number Of Travel Lanes — 2
(1) One
(2) Two
(3) Three
(4) Four
(5) Five
(6) Six
(7) Seven or more
(9) Unknown

22. Roadway Alignment — 1
(1) Straight
(2) Curve right
(3) Curve left
(9) Unknown

23. Roadway Profile — 1
(1) Level
(2) Uphill grade (>2%)
(3) Hill crest
(4) Downhill grade (>2%)
(5) Sag
(9) Unknown

24. Roadway Surface Type — 2
(1) Concrete
(2) Bituminous (asphalt)
(3) Brick or block
(4) Slag, gravel, or stone
(5) Dirt
(8) Other (specify): _____
(9) Unknown

25. Roadway Surface Condition — 1
(1) Dry
(2) Wet
(3) Snow or slush
(4) Ice
(5) Sand, dirt, or oil
(8) Other (specify): _____
(9) Unknown

26. Light Conditions — 5
(1) Daylight
(2) Dark
(3) Dark, but lighted
(4) Dawn
(5) Dusk
(9) Unknown

PER DRIVER, POLICE ARRIVED 40 MIN after ACCID.

27. Atmospheric Conditions — 0
(0) No adverse atmospheric-related driving conditions
(1) Rain
(2) Sleet/hail
(3) Snow
(4) Fog
(5) Rain and fog
(6) Sleet and fog
(7) Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify):
_____
(9) Unknown

28. Traffic Control Device — 5
(0) No traffic control(s)
(1) Traffic control signal (not RR crossing)

Regulatory
(2) Stop sign
(3) Yield sign
(4) School zone sign
(5) Other regulatory sign (specify): Speed Limit
(6) Warning sign (not RR crossing)
(7) Unknown sign
(8) Miscellaneous/other controls including RR controls (specify):
_____
(9) Unknown

29. Traffic Control Device Functioning — 2
(0) No traffic control device
(1) Traffic control device not functioning (specify): _____
(2) Traffic control device functioning properly
(9) Unknown

PRECRASH DRIVER RELATED DATA

30. Driver's Distraction/Inattention To Driving (Prior To Recognition Of Critical Event) 01
(00) No driver present
(01) Attentive or not distracted
(02) Looked but did not see

Distractions
(03) By other occupant(s), (specify):
(04) By moving object in vehicle (specify):
(05) While talking or listening to cellular phone (specify location and type of phone):
(06) While dialing cellular phone (specify location and type of phone):
(07) While adjusting climate controls
(08) While adjusting radio, cassette, CD (specify):
(09) While using other device/object in vehicle (specify):
(10) Sleepy or fell asleep
(11) Distracted by outside person, object, or event (specify):
(12) Eating or drinking
(13) Smoking related
(97) Distracted/inattentive, details unknown
(98) Other, distraction (specify):
(99) Unknown

31. Pre-Event Movement (Prior to Recognition of Critical Event) 01
(00) No driver present
(01) Going straight
(02) Decelerating in traffic lane
(03) Accelerating in traffic lane
(04) Starting in traffic lane
(05) Stopped in traffic lane
(06) Passing or overtaking another vehicle
(07) Disabled or parked in travel lane
(08) Leaving a parking position
(09) Entering a parking position
(10) Turning right
(11) Turning left
(12) Making a U-turn
(13) Backing up (other than for parking position)
(14) Negotiating a curve
(15) Changing lanes
(16) Merging
(17) Successful avoidance maneuver to a previous critical event
(97) Other (specify):
(99) Unknown

32. Critical Precrash Event 87
This Vehicle Loss of Control Due To:
(01) Blow out or flat tire
(02) Stalled engine
(03) Disabling vehicle failure (e.g., wheel fell off) (specify):
(04) Non-disabling vehicle problem (e.g., hood flew up) (specify):
(05) Poor road conditions (puddle, pot hole, ice, etc.) (specify):
(06) Traveling too fast for conditions
(08) Other cause of control loss (specify):
(09) Unknown cause of control loss

This Vehicle Traveling
(10) Over the lane line on left side of travel lane
(11) Over the lane line on right side of travel lane
(12) Off the edge of the road on the left side
(13) Off the edge of the road on the right side
(14) End departure
(15) Turning left at intersection
(16) Turning right at intersection
(17) Crossing over (passing through) intersection
(18) This vehicle decelerating
(19) Unknown travel direction

Other Motor Vehicle In Lane
(50) Other vehicle stopped
(51) Traveling in same direction with lower steady speed
(52) Traveling in same direction while decelerating
(53) Traveling in same direction with higher speed
(54) Traveling in opposite direction
(55) In crossover
(56) Backing
(59) Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane
(60) From adjacent lane (same direction)—over left lane line
(61) From adjacent lane (same direction)—over right lane line
(62) From opposite direction—over left lane line
(63) From opposite direction—over right lane line
(64) From parking lane
(65) From crossing street, turning into same direction
(66) From crossing street, across path
(67) From crossing street, turning into opposite direction
(68) From crossing street, intended path not known
(70) From driveway, turning into same direction
(71) From driveway, across path
(72) From driveway, turning into opposite direction
(73) From driveway, intended path not known
(74) From entrance to limited access highway
(78) Encroachment by other vehicle—details unknown

Pedestrian, Pedalcyclist, or Other Nonmotorist
(80) Pedestrian in roadway
(81) Pedestrian approaching roadway
(82) Pedestrian—unknown location
(83) Pedalcyclist or other nonmotorist in roadway (specify):
(84) Pedalcyclist or other nonmotorist approaching roadway, (specify):
(85) Pedalcyclist or other nonmotorist—unknown location (specify):

Object or Animal
(87) Animal in roadway
(88) Animal approaching roadway
(89) Animal—unknown location
(90) Object in roadway
(91) Object approaching roadway
(92) Object—unknown location
(98) Other critical precrash event (specify):
(99) Unknown

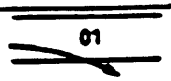
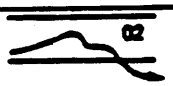
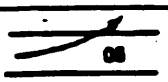
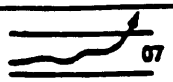
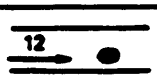
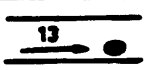
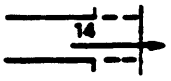
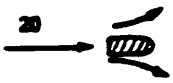
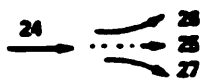
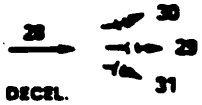
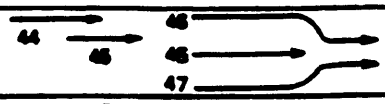
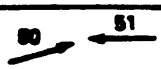
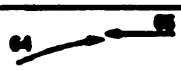
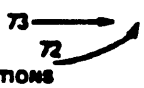
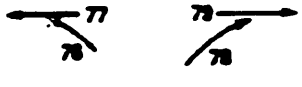
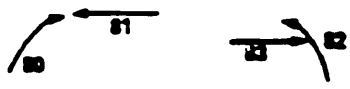
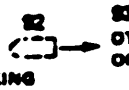
33. Attempted Avoidance Maneuver 01
(00) No driver present
(01) No avoidance maneuver
(02) Braking (no lockup)
(03) Braking (lockup)
(04) Braking (lockup unknown)
(05) Releasing brakes
(06) Steering left
(07) Steering right
(08) Braking and steering left
(09) Braking and steering right
(10) Accelerating
(11) Accelerating and steering left
(12) Accelerating and steering right
(98) Other action (specify): _____
(99) Unknown

34. Pre-Impact Stability 1
(0) No driver present
(1) Tracking
(2) Skidding longitudinally—rotation less than 30 degrees
(3) Skidding laterally—clockwise rotation
(4) Skidding laterally—counterclockwise rotation
(7) Other vehicle loss-of-control (specify): _____
(9) Precrash stability unknown

35. Pre-Impact Location 1
(0) No driver present
(1) Stayed in original travel lane
(2) Stayed on roadway but left original travel lane
(3) Stayed on roadway, not known if left original travel lane
(4) Departed roadway
(5) Remained off roadway
(6) Returned to roadway
(7) Entered roadway
(9) Unknown

36. Accident Type 13
(Note: Applicable codes on back of this page)
(00) No impact
Code the number of the diagram that best describes the accident circumstance
(98) Other accident type (specify): _____
(99) Unknown

STOP HERE IF GV07 DOES NOT EQUAL 01 - 49

Category	Configuration	ACCIDENT TYPES (Includes Intent)					
I Single Driver	A Right Roadside Departure	 01 DRIVE OFF ROAD	 02 CONTROL/ TRACTION LOSS	 03 AVOID COLLISION WITH VEH., PED., ANIM.	04 SPECIFICS OTHER	05 SPECIFICS UNKNOWN	
	B Left Roadside Departure	 06 DRIVE OFF ROAD	 07 CONTROL/ TRACTION LOSS	 08 AVOID COLLISION WITH VEH., PED., ANIM.	09 SPECIFICS OTHER	10 SPECIFICS UNKNOWN	
	C Forward Impact	 11 PARKED VEH.	 12 STA. OBJECT	 13 PEDESTRIAN/ ANIMAL	 14 END DEPARTURE	15 SPECIFICS OTHER	16 SPECIFICS UNKNOWN
II Same Trafficway Same Direction	D Rear-End	 20 22 21 23 STOPPED 21, 22, 23	 24 25 27 SLOWER 25, 26, 27	 28 30 29 31 DECEL. 29, 30, 31	(EACH • 32) SPECIFICS OTHER	(EACH • 33) SPECIFICS UNKNOWN	
	E Forward Impact	 34 35 CONTROL/ TRACTION LOSS	 36 37 CONTROL/ TRACTION LOSS	 38 AVOID COLLISION WITH VEH.	 40 41 AVOID COLLISION WITH OBJECT	(EACH • 42) SPECIFICS OTHER	(EACH • 43) SPECIFICS UNKNOWN
	F Sideswipe Angle	 44 45 46 47			(EACH • 48) SPECIFICS OTHER	(EACH • 49) SPECIFICS UNKNOWN	
III Same Trafficway Opposite Direction	G Head-On	 50 51 LATERAL MOVE	(EACH • 52) SPECIFICS OTHER		(EACH • 53) SPECIFICS UNKNOWN		
	H Forward Impact	 54 55 CONTROL/ TRACTION LOSS	 56 57 CONTROL/ TRACTION LOSS	 58 AVOID COLLISION WITH VEH.	 60 61 AVOID COLLISION WITH OBJECT	(EACH • 62) SPECIFICS OTHER	(EACH • 63) SPECIFICS UNKNOWN
	I Sideswipe Angle	 64 65 LATERAL MOVE	(EACH • 66) SPECIFICS OTHER		(EACH • 67) SPECIFICS UNKNOWN		
IV Change Trafficway Vehicle Turning	J Turn Across Path	 68 69 INITIAL OPPOSITE DIRECTIONS	 70 71 INITIAL SAME DIRECTIONS	 72 73		(EACH • 74) SPECIFICS OTHER	(EACH • 75) SPECIFICS UNKNOWN
	K Turn Into Path	 76 77 78 79 TURN INTO SAME DIRECTION	 80 81 82 TURN INTO OPPOSITE DIRECTIONS			(EACH • 84) SPECIFICS OTHER	(EACH • 85) SPECIFICS UNKNOWN
V Intersecting Paths (Vehicle Damage)	L Straight Paths	 86 87 88 89			(EACH • 90) SPECIFICS OTHER	(EACH • 91) SPECIFICS UNKNOWN	
VI Miscellaneous	M Backing Etc	 92 BACKING VEH. 93 OTHER VEH. OR OBJECT			98 Other Accident Type 99 Unknown Accident Type 00 No Impact		

OCCUPANT RELATED

37. Driver Presence in Vehicle **1**
(0) Driver not present
(1) Driver present
(9) Unknown

38. Number of Occupants This Vehicle **02**
(00-96) Code actual number of occupants for this vehicle
(97) 97 or more
(99) Unknown

39. Number of Occupant Forms Submitted **02**

AIR BAG RELATED

40. Is this an AOPS Vehicle? **1**
(0) No (includes unknown)
(1) Yes - researcher determined
(2) VIN determined air bag system
(3) VIN determined automatic (passive) belts
(4) VIN determined air bag and automatic (passive) belts

41. Air Bag(s) Deployment, First Seat Frontal **2**
(0) Not equipped or not available
(1) No air bags deployed

Single Air Bag Vehicle
(2) Driver air bag deployed
(3) Driver air bag, unknown if deployed

Multiple Air Bag Vehicle
(4) Driver side only deployed
(5) Passenger side only deployed
(6) Driver and passenger side deployed
(7) Driver and passenger side unknown if deployed
(8) Air bag(s) deployed, details unknown
(9) Unknown

42. Air Bag(s) Deployment, Other Than First Seat Frontal **0**
(0) Not equipped with an "other" air bag
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

Specify type of "other" air bag present: _____

_____

VEHICLE WEIGHT ITEMS

43. Vehicle Curb Weight **1,730**
____ Code weight to nearest 10 kilograms.
(045) Less than 450 kilograms
(610) 6,100 kilograms or more
(999) Unknown
3,822 lbs X .4536 = 1,734 kgs
Source: Auto NEWS 91'

44. Vehicle Cargo Weight **0,000**
____ Code weight to nearest 10 kilograms.
(000) Less than 5 kilograms
(450) 4,500 kilograms or more
(999) Unknown
____,___ lbs X .4536 = ___,___ kgs
Source: _____

ROLLOVER DATA

45. Rollover **00**
(00) No rollover (no overturning)

Rollover (primarily about the longitudinal axis)
(01-16) Code the number of quarter turns
(17) Rollover, 17 or more quarter turns (specify): _____
(98) Rollover--end-over-end (i.e., primarily about the lateral axis)
(99) Rollover (overturn), details unknown

46. Rollover Initiation Type **00**
(00) No rollover
(01) Trip-over
(02) Flip-over
(03) Turn-over
(04) Climb-over
(05) Fall-over
(06) Bounce-over
(07) Collision with another vehicle
(08) Other rollover initiation type specify):

(98) Rollover--end-over-end
(99) Unknown rollover initiation type

47. Location of Rollover Initiation **0**
(0) No rollover
(1) On roadway
(2) On shoulder—paved
(3) On shoulder—unpaved
(4) On roadside or divided trafficway median
(8) Rollover--end-over-end
(9) Unknown

48. Rollover Initiation Object Contacted **00**
(Note: Applicable codes on back of page)

49. Location on Vehicle Where Initial Principal Tripping Force Is Applied **0**
(0) No rollover
(1) Wheels/tires
(2) Side plane
(3) End plane
(4) Undercarriage
(5) Other location on vehicle (specify):

(6) Non-contact rollover forces (specify):

(8) Rollover--end-over-end
(9) Unknown

50. Direction of Initial Roll **0**
(0) No rollover
(1) Roll right - primarily about the longitudinal axis
(2) Roll left - primarily about the longitudinal axis
(8) Rollover--end-over-end
(9) Unknown roll direction

OVERRIDE/UNDERRIDE (THIS VEHICLE)

51. Front Override/Underride (this Vehicle) 0

52. Rear Override/Underride (this Vehicle) 0

(0) No override/underride, or not an end-to-end impact between two CDS applicable vehicles, and no medium/heavy truck or bus underride

Override (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(1) 1st CDC
(2) 2nd CDC
(3) Other not automated CDC (specify): _____

Underride (see specific CDC)
[Between 2 CDS applicable vehicles (Bodytype, GV07 = 1-49)]
(4) 1st CDC
(5) 2nd CDC
(6) Other not automated CDC (specify): _____

(7) Medium/heavy truck or bus override (of any configuration)
(9) Unknown

HEADING ANGLE AT IMPACT FOR HIGHEST DELTA V

Values: (000)-(359) Code actual value
(997) Noncollision
(998) Impact with object
(999) Unknown

53. Heading Angle For This Vehicle 998

54. Heading Angle For Other Vehicle 998

RECONSTRUCTION DATA

55. Towed Trailing Unit 0
(0) No towed unit
(1) Yes—towed trailing unit
(9) Unknown

56. Documentation of Trajectory Data for This Vehicle 0
(0) No
(1) Yes

57. Post Collision Condition of Tree or Pole (For Highest Delta V) 0
(0) Not collision (for highest delta V) with tree or pole
(1) Not damaged
(2) Cracked/sheared
(3) Tilted <45 degrees
(4) Tilted ≥45 degrees
(5) Uprooted tree
(6) Separated pole from base
(7) Pole replaced
(8) Other (specify): _____
(9) Unknown

ACCIDENT RECONSTRUCTION PROGRAMS HIGHEST DELTA V

58. Basis for Total (Resultant) Delta V (highest) 09

(00) No vehicle inspection

Delta V Calculated
(01) Reconstruction program -damage only routine
(02) Reconstruction program -damage and trajectory routine
(03) Missing vehicle algorithm

Delta V Not Calculated
(04) At least one vehicle (which may be this vehicle) is beyond the scope of an acceptable reconstruction program, regardless of collision conditions.

All vehicles within scope (CDC applicable) of reconstuction program but one of the collision conditions is beyond the scope of the reconstruction program or other acceptable reconstruction technique, regardless of adequacy of damage data.

(05) Rollover
(06) Other non-horizontal forces
(07) Sideswipe type damage
(08) Severe override
(09) Yielding object
(10) Overlapping damage
(11) All vehicle and collision conditions are within scope of one of the acceptable reconstruction programs, but there is insufficient data available, (specify): _____

(98) Other, (specify): _____

COMPUTER GENERATED CRASH SEVERITY

59. Total Delta V 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160)159.5 kmph and above
(999)Unknown

60. Longitudinal Component of Delta V (Highest) ± 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: _000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(_999) Unknown

61. Lateral Component of Delta V (Highest) ± 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: _000 means greater than −0.5 kmph and less than +0.5 kmph)
(±160) ±159.5 kmph and above
(_999) Unknown

62. Energy Absorption 9999.900

_____ Nearest 100 joules (highest)

_____ Nearest 100 joules (secondary)

(NOTE: 0000 means less than 50 joules)
(9997) 999,650 joules or more
(9999) Unknown

63. Impact Speed (Highest) 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(998) Trajectory algorithm not run
(999) Unknown

DELTA V CONFIDENCE LEVEL

64. Confidence In Reconstruction Program Results (For Highest Delta V) 0
(0) No reconstruction
(1) Collision fits model — results appear reasonable
(2) Collision fits model — results appear high
(3) Collision fits model — results appear low
(4) Borderline reconstruction — results appear reasonable

OTHER SPEED ESTIMATE

65. Barrier Equivalent Speed (Highest) 999

_____ Nearest kmph (highest)

_____ Nearest kmph (secondary)

(NOTE: 000 means less than 0.5 kmph)
(160) 159.5 kmph and above
(999) Unknown

IS MISSING VEHICLE ALGORITHM APPLICABLE FOR THIS VEHICLE? [ ] YES [✓] NO

IF YES: IS A COMPLETED PROGRAM SUMMARY INCLUDED? [ ] YES [ ] NO

ESTIMATED DELTA V

66. Estimated Highest Delta V (Researcher Determined) 3
    (0) Reconstruction Delta V coded

    Estimated Delta V
    (1) Less than 10 kmph
    (2) ≥ 10 kmph but < 25 kmph
    (3) ≥ 25 kmph but < 40 kmph
    (4) ≥ 40 kmph but < 55 kmph
    (5) ≥ 55 kmph

    Other estimates of damage severity
    (6) Minor
    (7) Moderate
    (8) Severe

    (9) Unknown

VEHICLE INSPECTION

67. Type of Vehicle Inspection 0
    (0) No inspection
    (1) Vehicle fully repaired-no damage evident
    (2) Partial inspection (specify): _____
    (3) Complete inspection

***** IF THE CDS APPLICABLE VEHICLE WAS NOT INSPECTED (I.E., GV67=0), *****

DO NOT COMPLETE THE EXTERIOR AND INTERIOR VEHICLE FORMS

***** IF GV07 DOES NOT EQUAL 01-49, DO NOT COMPLETE *****

THE EXTERIOR VEHICLE, INTERIOR VEHICLE,

OCCUPANT ASSESSMENT, AND OCCUPANT INJURY FORMS.

Appendix F:

NASS CDS Interview Form:

Case Vehicle Driver

U.S. Department of Transportation
National Highway Traffic Safety Administration

INTERVIEW FORM (A)

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9503
3. Vehicle Number: 01

Interviewee(s) Role or Name(s): DRIVER

Review all available information and interview questions prior to conducting interview(s) to ensure the acquisition of all pertinent data.

If the driver was not the person interviewed, was an appointment made for a follow-up interview?

DRIVER'S DESCRIPTION OF ACCIDENT EVENTS

I was W/B on Rt [redacted] sun going down on (L) (South) casting a shadow deer came from there I didn't see it until It was at door post. 2 lane road hit front end center to Right both side Panels hood, windshield went Approx 120' before stopping in W/B lane. the Deer ended up in the ditch disabled. Someone came along asked trooper if he could slaughter it Trooper said OK

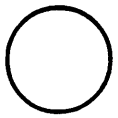
OCCUPANT'S DESCRIPTION OF ACCIDENT EVENTS

Coming home from shopping
DRIVE 18,000 miles a year AVG
very familiar w/ Rt

SPECIFIC QUESTIONS TO ASK INTERVIEWEE

ACCIDENT DIAGRAM

The use of this diagram is optional. It may serve to aid in relating interviewee accident trajectory data (i.e., pre-impact to FRP orientations) to identifiable objects in the environment.



NORTH

CRASH DATA INFORMATION

IF POSSIBLE OBTAIN THIS INFORMATION FROM THE DRIVER:

SOURCE OF INFORMATION:	[X] Driver [ ] Other occupant [ ] Relative/friend
In which direction were you traveling?	[ ] North [ ] South [ ] East [X] West (Or where were they coming from or going to?)
What lane were you in?	[X] 1 [ ] 2 [ ] 3 [ ] 4 [ ] Other **Note: lane 1 is the right curb lane**
What was the condition of the roadway?	[X] Dry [ ] Wet [ ] Snow [ ] Slush [ ] Ice [ ] Sand, dirt, oil [ ] Other (specify)
What was the weather like? (Check all that apply)	[ ] No adverse conditions PARTLY SUNNY [ ] Rain [ ] Fog [ ] Sleet [ ] Hail [ ] Snow [ ] Other (specify)
Was there any type of sign or signal present? (check all that apply)	[ ] Traffic control signal (includes flashing beacons, lane control signals, and green / amber / red signal) [ ] Stop sign [ ] Yield sign [ ] School zone sign [ ] Other regulatory sign (No "U" turn, left turn only, wrong way, etc.) specify: SPEED LIMIT [ ] Warning sign (Winding road sign, stop ahead, intersection signs, etc.) specify: [ ] Miscellaneous control (including railroad controls) specify: _____ [ ] None [ ] Unknown
If a traffic control device was present, was it functioning properly at the time of the crash?	[X] No traffic control device present [ ] Not functioning properly (includes defaced, badly worn, covered with snow, rotated etc.) specify: [ ] Functioning properly [ ] Unknown
Can you estimate your travel speed before the crash? (in mph)	[ ] Stopped [ ] 11-20 [ ] 31-40 [X] 51-60 [ ] 70+ [ ] 1-10 [ ] 21-30 [ ] 41-50 [ ] 61-70 [ ] Unknown
Just before the crash, what were you doing or intending to do? (check all that apply)	[X] Going straight [ ] Stopped [ ] Turning left [ ] Turning right [ ] Slowing [ ] Accelerating [ ] Backing [ ] Changing lanes to right [ ] Other (specify): [ ] Changing lanes to left
Did vehicle lose control due to weather or mechanical problems?	[X] No [ ] Unknown [ ] Yes (describe)
Did driver take avoidance actions? [ ] Yes (Check all that apply) → [X] No [ ] Unknown	[ ] Braking with lock-up [ ] Accelerating [ ] Other (specify): [ ] Braking without lock-up [ ] Steering left [ ] Releasing brakes [ ] Steering right
Where was vehicle at time of collision?	[X] Original travel lane [ ] Different travel lane [ ] In intersection [ ] Off roadway to right [ ] Off roadway to left [ ] Other (specify): _____
Can you estimate your travel speed at the time of collision? (in mph)	[ ] Stopped [ ] 11-20 [ ] 31-40 [X] 51-60 [ ] 70+ [ ] 1-10 [ ] 21-30 [ ] 41-50 [ ] 61-70 [ ] Unknown
Describe all the impacts to the vehicle, including what the vehicle contacted) and how this vehicle moved to its stopped position, after the collision?	only 1 impact
What race does the driver consider themself?	[X] White [ ] American Indian, Eskimo or Aleut, Asian or Pacific Islander [ ] Black [ ] Other (specify): _____ [ ] Unknown
Is the driver of Hispanic origin?	[X] No [ ] Yes [ ] Unknown

VEHICLE INFORMATION

ROLLOVER DATA

DID THIS VEHICLE ROLL OVER DURING THE CRASH?

[ ] YES - - ASK THE FOLLOWING QUESTIONS
[X] NO - - SKIP TO "FIRE DATA" BELOW
[ ] UNKNOWN - - SKIP TO "FIRE DATA" BELOW

Describe where the rollover began	[ ] On roadway [ ] On shoulder [ ] On roadside or median [ ] Unknown
What caused the vehicle to roll over?	[ ] Other vehicle (specify vehicle number) ____ [ ] Contact to object (specify):_____ [ ] Other cause (specify):_____ [ ] Unknown
Which direction did the vehicle roll?	[ ] Toward the right (passenger side) [ ] Toward the left (driver side) [ ] End-over-end [ ] Unknown
Estimate the number of quarter turns (each side) or complete turns (4 quarter turns) the vehicle did	____ Number of **quarter turns** [ ] Unknown ____ Number of **complete turns**
When the vehicle stopped rolling over, which side was in contact with the ground?	[ ] Left side [ ] Top [ ] Right side [ ] Wheels [ ] Unknown

FIRE DATA

DID THIS VEHICLE EXPERIENCE A FIRE?

[ ] YES - - ASK THE FOLLOWING QUESTIONS
[X] NO - - SKIP THIS SECTION
[ ] UNKNOWN - - SKIP THIS SECTION

Describe where the fire started, or where the smoke was first seen	[ ] Under the hood [ ] In the trunk/cargo area [ ] Behind the instrument panel [ ] Under the vehicle [ ] In the passenger compartment [ ] From other involved vehicle [ ] Unknown
Did the fire start with the electrical system?	[ ] No [ ] Yes (specify): [ ] Unknown
Did the fire start with the fuel system?	[ ] No [ ] Yes (specify): [ ] Unknown
ASK IF THE FIRE INVOLVED THE FUEL SYSTEM Which part of the fuel system may have been involved?	[ ] Fuel tank [ ] Fuel lines [ ] Engine compartment (specify component if known) [ ] Unknown

Describe any additional rollover or fire information here:

ADDITIONAL VEHICLE INFORMATION

IF THIS VEHICLE HAS NOT BEEN INSPECTED ASK THIS QUESTION: **What is the year, make and model of your vehicle?**	Year: 19 91 Make: FORD Model: CROWN VIC LX
Was there any damage to the vehicle that is not related to this crash?	[X] No [ ] Yes - describe: [ ] Unknown
Did any of the doors or hatch come open during the crash?	[X] No [ ] Yes - describe: [ ] Unknown
Did any of the windows break during the crash?	[ ] No [X] Yes - describe: W.S. by hood hitting it [ ] Unknown
Were any windows open (O) or partially open (P) prior to the crash?	[X] No [ ] Yes* * "O" = open "P" = partially open [ ] WS [ ] LF [ ] RF [ ] LR [ ] RR [ ] BL [ ] Roof [ ] Other [ ] Unknown
Did the glove compartment door come open during the crash?	[X] No [ ] Yes - describe: [ ] Unknown
Was there any cargo in the vehicle at the time of the crash?	[X] No [ ] Yes - describe: Approximate weight - _____ pounds [ ] Unknown
Approximate mileage on the vehicle?	165000 + miles [ ] Unknown
[redacted]	[redacted]

Detail any notes, questions to ask interviewee (i.e., rescue personnel damage to vehicle) or directions to vehicle location here:

OCCUPANT DATA QUESTIONS

How many people were in your vehicle at the time of the crash? ____

	DRIVER	OCCUPANT # 2	OCCUPANT # ___
Where was this person sitting in the vehicle? Front Left (FL) — Second Left (2L) Front Middle (FM) — Second Middle (2M) Front Right (FR) — Second Right (2R) Third Left (3L) — Other (SPECIFY in block) Third Middle (3M) Third Right (3R)	**FRONT LEFT**	F. R	
What is the Sex, Height, Weight, and Age of each occupant?	[X] M [ ] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: 58" WEIGHT: 148 AGE: 74	[ ] M [X] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: 4 11 WEIGHT: 130 AGE: 74	[ ] M [ ] F - Not pregnant [ ] F - Pregnant - # of months ____ [ ] F - Unk. if pregnant HEIGHT: _____ WEIGHT: _____ AGE: _____
Describe how occupant was seated A) Kneeling or standing on seat B) Lying on or across seat C) Kneeling, standing or sitting in front of seat D) Sitting sideways, turned to side or back E) Sitting on console F) Lying back in reclined position G) Other (specify) H Unknown	[ ] Leaning to left [ ] Leaning to right [X] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [X] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above	[ ] Leaning to left [ ] Leaning to right [ ] Sitting upright [ ] Unknown Indicate all letters that apply and describe if other than above
Describe feet and hands/arms location just prior to impact (indicate all that apply) **FEET** A) On floor or foot controls B) One or both on dash C) One or both on seat D) Other (specify) E) Unknown **HANDS / ARMS** F) Both hands on steering wheel G) One on wheel, other hand resting or adjusting a control (specify hand on wheel and control involved) H) Dialing a cellular phone (specify location and type of phone) I) Holding a cellular phone (specify location and type of phone) J) Bracing with one or both hands K) On lap L) One or both out of window (specify) M) Other (specify) N) Unknown	Indicate all letters that apply and further describe as needed (L) on floor (B) on gas (R) arm on armrest Both hands on steering wheel.	Indicate all letters that apply and further describe as needed Both feet on floor Both Folded on Lap	Indicate all letters that apply and further describe as needed

Describe any additional information here:

OCCUPANT DATA CONTINUED ON NEXT PAGE

OCCUPANT DATA QUESTIONS (continued)

	DRIVER	OCCUPANT # 2	OCCUPANT # ___
Was your / their back up against the seat back?	[ ] No (describe) [X] Yes [ ] Unknown	[ ] No (describe) [X] Yes [ ] Unknown	[ ] No (describe) [ ] Yes [ ] Unknown
Does this seat position have an adjustable seat *track*, if so where was the seat located prior to impact?	[ ] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [X] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown	[ ] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [X] Seat all the way rearward [ ] Unknown	[ ] Not adjustable [ ] Seat all the way forward [ ] Between forward and middle [ ] At middle position [ ] Between middle and rear position [ ] Seat all the way rearward [ ] Unknown
Does this seat position have an adjustable seat *back*, if so where was the seat *back* located prior to impact?	[ ] Not adjustable [X] Completely upright [ ] Slightly reclined [ ] Completely reclined	[ ] Not adjustable [X] Completely upright [ ] Slightly reclined [ ] Completely reclined	[ ] Not adjustable [ ] Completely upright [ ] Slightly reclined [ ] Completely reclined
If this seat position has an adjustable seat *back*, where was the seat *back* located after impact?	[ ] Not adjustable [X] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[ ] Not adjustable [X] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown	[ ] Not adjustable [ ] Did not move (retained original position) [ ] Completely reclined [ ] Slightly reclined [ ] Completely upright [ ] Slightly forward of upright [ ] Completely forward [ ] Unknown

Did this vehicle have a cellular phone in it during the crash?

[X] No
[ ] Yes - describe type: _____
(e.g., portable, mounted in vehicle, flip phone, etc.)
[ ] Unknown

(Note to researcher: try to determine any driver distractions without implying fault)

Was the driver doing any of the following? **(check all that apply - and specify)**

[ ] Talking to or listening to another occupant (specify):
[ ] Was there a moving object in vehicle (specify):
[ ] Talking or listening on a cellular phone (specify):
[ ] Dialing a cellular phone (specify):
[ ] Adjusting climate control (specify):
[ ] Adjusting radio, CD or cassette player (specify):
[ ] Using other device or object in vehicle (specify):
[ ] Sleepy / asleep (specify):
[ ] Distracted by outside person, object, or event (specify):
[ ] Eating or drinking (specify):
[ ] Smoking related (specify):
[ ] Other (specify):
[ ] Unknown

Describe any additional information here:

RESTRAINT INFORMATION

	DRIVER	OCCUPANT # ___	OCCUPANT # ___
Describe the seat belt available for the seat position **NOTE: If a belt is not available for a seat position -- describe if removed or not functional.**	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [X] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [X] Lap & Shoulder [ ] Not available * * Describe:	[ ] Unknown [ ] Lap belt [ ] Shoulder belt [ ] Lap & Shoulder [ ] Not available * * Describe:
[illegible]	[ ] Unknown [X] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [X] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", were they working properly?** [ ] Yes [ ] No (describe):
[illegible]	[ ] Unknown [X] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [X] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both	[ ] Unknown [ ] No [ ] Yes * * **If "Yes", does it cross:** ___ Chest ___ Lap ___ Both
Were you [and other occupant(s)] wearing a seat belt during the accident?	[X] No [ ] Yes [ ] Unknown	[X] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown

SKIP THE FOLLOWING IF NO SEAT BELT WAS WORN

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

Describe any breaks, tears, or failures to any of the seat belts:

EJECTION, ENTRAPMENT, MOBILITY INFORMATION

	DRIVER	OCCUPANT # ___	OCCUPANT # ___
Was any part of your body thrown outside the vehicle during the crash?	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[X] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.	[ ] No [ ] Yes * [ ] Unknown * If "Yes" - what part(s) were ejected, and what area of the vehicle was involved.
Was anyone pinned in the vehicle?	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment	[X] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment	[ ] No [ ] Yes ___ physically pinned ___ jammed doors ___ fire, etc. [ ] Unknown Detail any entrapment
How did you [and other occupant(s)] exit the vehicle?	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [X] Exited under own power [ ] Fully ejected [ ] Unknown	[ ] Fatal before removed [ ] Removed while unconscious or disoriented [ ] Removed due to injuries [ ] Exited with some assistance [ ] Exited under own power [ ] Fully ejected [ ] Unknown

Further describe any ejection, entrapment, or mobility information here:

AIR BAG INFORMATION

WAS THIS VEHICLE EVER EQUIPPED WITH AN AIR BAG?

☒ YES (IF "YES" COMPLETE THIS SECTION)

☐ NO ☐ UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # 1	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __	"OTHER" AIR BAG SPECIFY: ______ OCCUPANT # __
Had this vehicle been in any previous crashes? ☒ NO ☐ YES - continue to right ☐ UNKNOWN - go to box below	☐ Prior crash without deployment ☐ One prior crash with deployment ☐ >1, with at least one deployment ☐ Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT ☐ CHECK IF NOT REINSTALLED	☐ Prior crash without deployment ☐ One prior crash with deployment ☐ >1, with at least one deployment ☐ Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT ☐ CHECK IF NOT REINSTALLED	☐ Prior crash without deployment ☐ One prior crash with deployment ☐ >1, with at least one deployment ☐ Previous accident(s) unknown if deployed IF PRIOR DEPLOYMENT ☐ CHECK IF NOT REINSTALLED
Type of air bag?	☒ Original equipment ☐ Retrofitted ☐ Replacement ☐ Unknown	☐ Original equipment ☐ Retrofitted ☐ Replacement ☐ Unknown	☐ Original equipment ☐ Retrofitted ☐ Replacement ☐ Unknown
Had any prior maintenance / service been performed on the air bag system?	☒ No ☐ Unknown ☐ Yes - Specify:	☐ No ☐ Unknown ☐ Yes - Specify:	☐ No ☐ Unknown ☐ Yes - Specify:
Did the air bag inflate during this crash?	☒ Yes ☐ Unknown ☐ No If "NO" was the wiring disconnected prior to the crash? ☐ Yes ☐ No ☐ Unk	☐ Yes ☐ Unknown ☐ No If "NO" was the wiring disconnected prior to the crash? ☐ Yes ☐ No ☐ Unk	☐ Yes ☐ Unknown ☐ No If "NO" was the wiring disconnected prior to the crash? ☐ Yes ☐ No ☐ Unk
Was the person in this position wearing any type of eye-wear? (Eyeglasses, sunglasses, contact lenses)	☐ No ☐ Unknown ☒ Yes - Specify: EYEGlASSES	☐ No ☐ Unknown ☒ Yes - Specify: Eye GlASSES	☐ No ☐ Unknown ☐ Yes - Specify:
Was the air bag in this position contacted by another occupant?	☒ No ☐ Unknown ☐ Yes - Specify:	☐ No ☐ Unknown ☐ Yes - Specify:	☐ No ☐ Unknown ☐ Yes - Specify:

Describe any additional information here:

DR

TREATED previously

DR

TREATED

CHILD SAFETY SEAT INFORMATION

WAS THERE A PERSON IN A CHILD SAFETY SEAT IN THIS VEHICLE?

[ ] YES (IF "YES" COMPLETE THIS SECTION)

[X] NO [ ] UNKNOWN (IF "NO" OR "UNKNOWN" SKIP THIS SECTION)

	DRIVER	OCCUPANT # ___	OCCUPANT # ___
Manufacturer and model of the safety seat?			
Type of safety seat?		[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: _____ [ ] Unknown	[ ] Infant [ ] Toddler [ ] Convertible [ ] Booster [ ] Integral [ ] Other Specify: _____ [ ] Unknown
What direction was it facing prior to the crash?		[ ] Front [ ] Rearward [ ] Unknown	[ ] Front [ ] Rearward [ ] Unknown
Was a seat belt used to hold the seat in place?		[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
How was the seat belt secured to the child seat?		[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): _____ [ ] Unknown	[ ] Looped through designated rear framing studs [ ] Looped through arm rest slots [ ] Belt across safety shield [ ] Looped through rear frame outside the designated framing struts [ ] Other (specify): _____ [ ] Unknown
What was the safety seat equipped with at time of purchase?		[ ] Harness [ ] Shield [ ] Tether [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] Unknown
Were any of these added after they owned the safety seat?		[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown	[ ] Harness [ ] Shield [ ] Tether [ ] None [ ] Unknown

Describe any additional information here:

INJURY INFORMATION

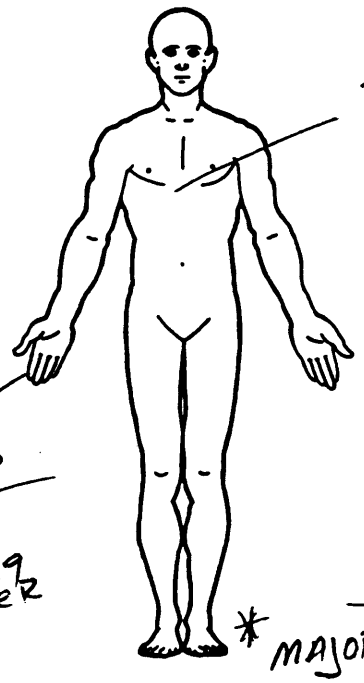
	DRIVER	OCCUPANT # ___	OCCUPANT # ___
Were you (or any other occupants) injured? ▸ *If "YES" go to manikin page and record injuries in detail* ▸ *If "NO" ask next questions*	[ ] No [X] Yes [ ] Unknown	[X] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
Did you (or any other occupants) receive any of the following: *(If any injuries are checked, go to the manikin page and record location, lesion, and source)*	[ ] Cuts [ ] Abrasions [X] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):	[ ] Cuts [ ] Abrasions [ ] Bruises [ ] Broken bones [ ] Head, skull, brain [ ] Internal injury [ ] Sprains, strains [ ] Other (specify):
DETAIL INJURY LOCATION, LESION AND SOURCE ON THE MANIKIN PAGE(S)			
Did you (or any other occupants) receive any medical treatment? (check all that apply)	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [X] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown	[ ] Hospital [ ] Medical clinic [ ] Paramedics at scene [ ] Doctor's office [ ] Treated by self [ ] Unknown
Were you (or any other occupants) hospitalized?	[X] No [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Yes - number of days ____ [ ] Unknown
Were you (or any other occupants) treated and released from the emergency room?	[X] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown	[ ] No [ ] Yes [ ] Unknown
Name of medical treatment facility?			
Have you (or any other occupants) received any follow-up treatment?	[ ] No [X] Yes - describe: DR DR. [ ] Unknown	[ ] No [ ] Yes - describe: [ ] Unknown	[ ] No [ ] Yes - describe: [ ] Unknown
Have you (or any other occupants) lost any days from work or school (college) due to the crash?	[X] No [ ] Not working prior to crash [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Not working prior to crash [ ] Yes - number of days ____ [ ] Unknown	[ ] No [ ] Not working prior to crash [ ] Yes - number of days ____ [ ] Unknown
IF REQUIRED: **Will you sign a medical release?** ** If not an in-person interview, make appointment to have release signed*	[ ] No [X] Yes* [ ] Unknown DATE: ____ TIME: ____ PLACE: ____	[ ] No [ ] Yes* [ ] Unknown DATE: ____ TIME: ____ PLACE: ____	[ ] No [ ] Yes* [ ] Unknown DATE: ____ TIME: ____ PLACE: ____

PSU Number 10 Case Number—Stratum 9503 Vehicle Number 01 Occupant Number 01

INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): DRIVER

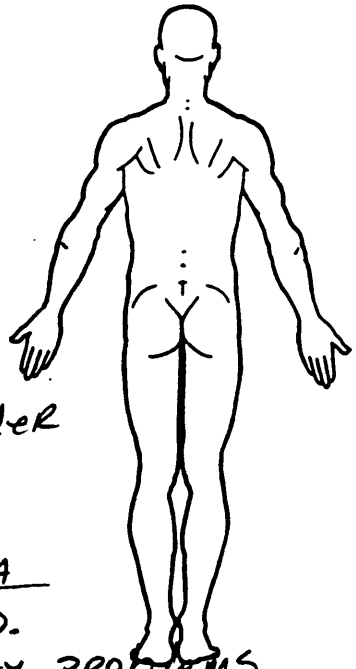
SOFT TISSUE/INTERNAL INJURIES



Burn on chest AIR BAG

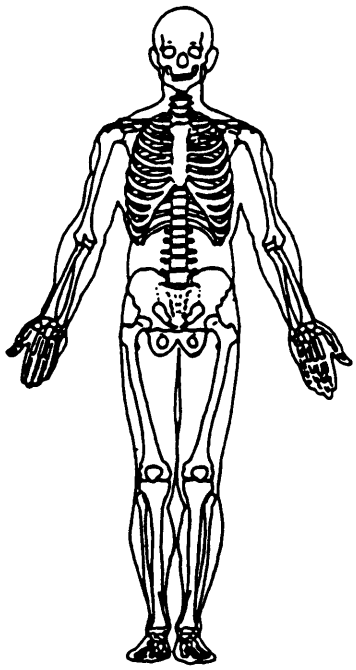
(R) inder BRUISED UNK AIR BAG COVER

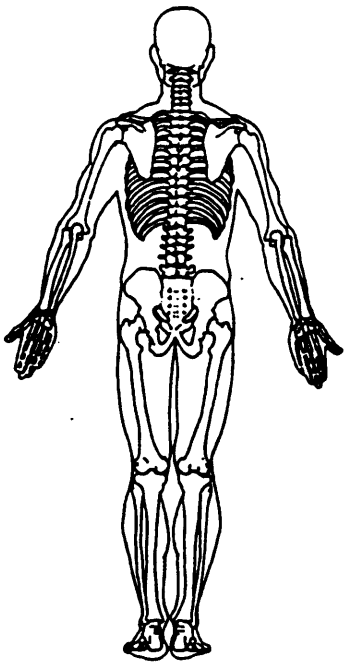
talcum powder WORSENED his EMPHYSEMA



* MAJOR POST ACCID. RESPIRATORY PROBLEMS.

SKELETAL INJURIES





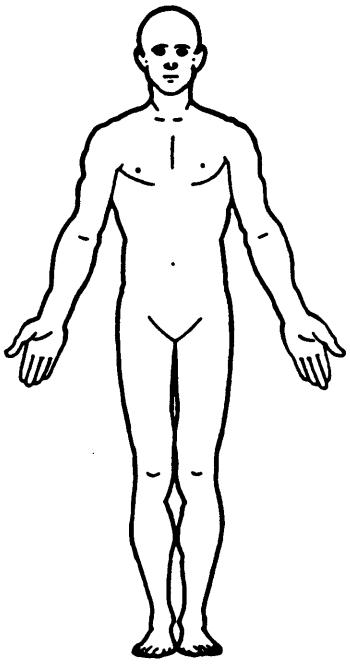
The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

PSU Number 10 Case Number—Stratum 9503 Vehicle Number 01 Occupant Number 02

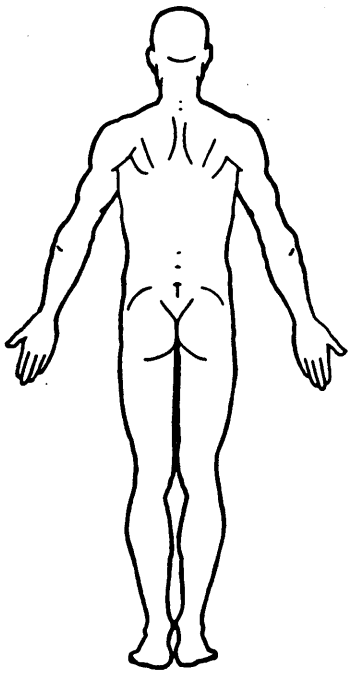
INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): DRIVER

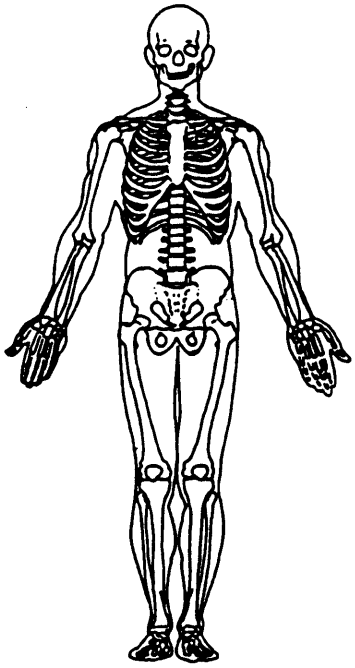
SOFT TISSUE/INTERNAL INJURIES

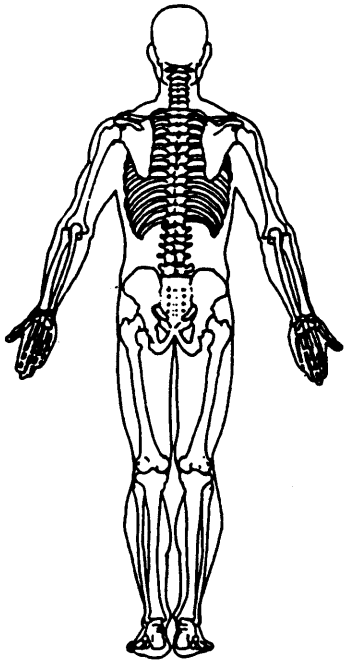


NONE



SKELETAL INJURIES





The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

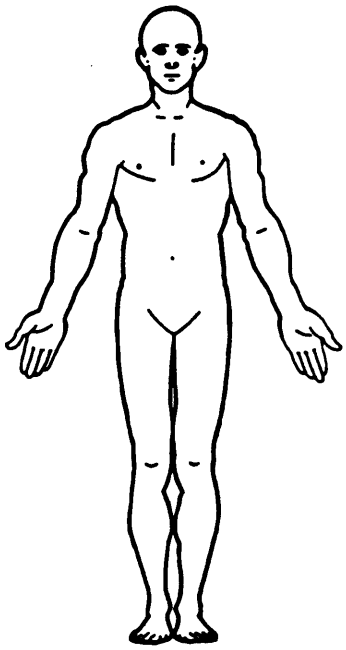
PSU Number 10 Case Number–Stratum ____ Vehicle Number ____ Occupant Number ____

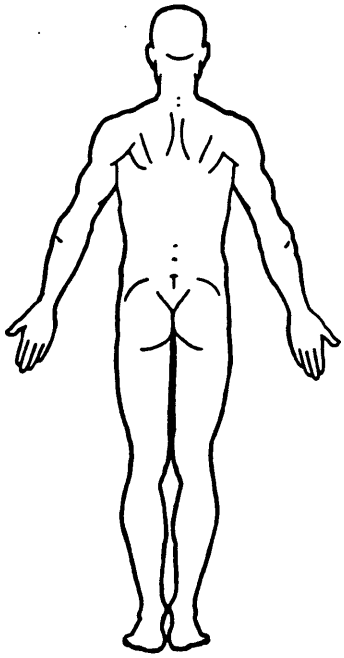
INJURY DATA FROM INTERVIEWEE(S)

Indicate the *Location, Lesion, Detail, and Source* of all injuries. Specify interviewee(s): _____

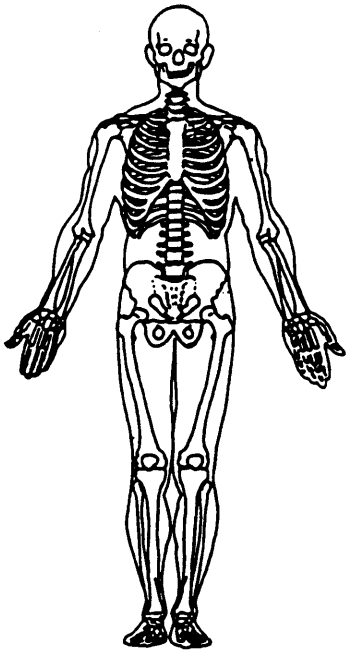
_____

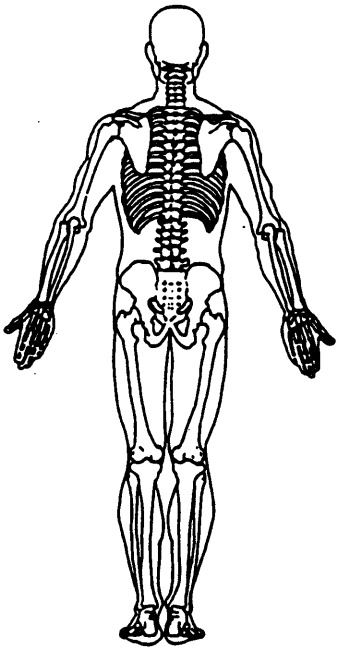
SOFT TISSUE/INTERNAL INJURIES





SKELETAL INJURIES





The space provided on the back of this page may be used to further detail injuries noted by the interviewee(s).

Appendix G:

NASS CDS Occupant Assessment Form:

Case Vehicle Driver

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9503
3. Vehicle Number: 01
4. Occupant Number: 01

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: 74
   Code actual age at time of accident.
   (00) Less than one year old (specify by month): _____
   (97) 97 years and older
   (99) Unknown

6. Occupant's Sex: 1
   (1) Male
   (2) Female-not reported pregnant
   (3) Female-pregnant-1st trimester(1st-3rd month)
   (4) Female-pregnant-2nd trimester(4th-6th month)
   (5) Female-pregnant-3rd trimester(7th-9th month)
   (6) Female-pregnant-term unknown
   (9) Unknown

7. Occupant's Height: 173
   Code actual height to the nearest centimeter.
   (999) Unknown
   68 inches X 2.54 = 172.72 centimeters

8. Occupant's Weight: 067
   Code actual weight to the nearest kilogram.
   (999)Unknown
   148 pounds X .4536 = 067 kilograms

9. Occupant's Role: 1
   (1) Driver
   (2) Passenger
   (9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 11
   Front Seat
   (11) Left side
   (12) Middle
   (13) Right side
   (14) Other (specify): _____
   (15) On or in the lap of another occupant

   Second Seat
   (21) Left side
   (22) Middle
   (23) Right side
   (24) Other (specify): _____
   (25) On or in the lap of another occupant

   Third Seat
   (31) Left side
   (32) Middle
   (33) Right side
   (34) Other (specify): _____
   (35) On or in the lap of another occupant

   Fourth Seat
   (41) Left side
   (42) Middle
   (43) Right side
   (44) Other (specify): _____
   (45) On or in the lap of another occupant

   (97) In or on unenclosed area
   (98) Other seat (specify): _____
   (99) Unknown

11. Occupant's Posture: 0
   (0) Normal posture

   Abnormal posture
   (1) Kneeling or standing on seat
   (2) Lying on or across seat
   (3) Kneeling, standing or sitting in front of seat
   (4) Sitting sideways or turned to talk with another occupant or to look out a rear window
   (5) Sitting on a console
   (6) Lying back in a reclined seat position
   (7) Bracing with feet or hands on a surface in front of seat
   (8) Other abnormal posture (specify): _____
   (9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify):

(9) Unknown

19. Manual (Active) Belt System Use 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify):

(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify):

(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify):
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of manual belt system (specify):

(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 0
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):

(8) Other manual belt failure (specify):

(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 9
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify):
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify):

(8) Other improper use of automatic belt system (specify):
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify):

(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify):

(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 0
    (0) None used
    (1) Police did not indicate belt use
    (2) Shoulder belt
    (3) Lap belt
    (4) Lap and shoulder belt
    (5) Belt used, type not specified
    (6) Child safety seat
    (7) Automatic belt
    (8) Other type belt, (specify): _____
    (9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 2
    (0) No air bag available
    (1) Police did not indicate air bag availability/function
    (2) Deployed
    (3) Not deployed
    (4) Unknown if deployed
    (9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[✓] Driver/occupant interview
[ ] Other (specify): _____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 1
    (0) Not equipped/not available
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
    (0) Not equipped/not available
    (1) Air bag

    Non-functional
    (2) Air bag disconnected (specify): _____
    (3) Air bag not reinstalled
    (9) Unknown

    Specify type of "other" air bag present: _____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
    (0) Not equipped with an "other" air bag
    (1) Deployed during accident (as a result of impact)
    (2) Deployed inadvertently just prior to accident
    (3) Deployed, details unknown
    (4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
    (5) Unknown if deployed
    (7) Nondeployed
    (9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 1
    (0) Not equipped/not available
    (1) No
    (2) Yes (specify): _____
    (9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 1
(0) Not equipped/not available
(1) No previous accidents

Yes
(2) Previous accident(s) without deployment(s)
(3) One previous accident with deployment
(4) More than one previous accident with at least one deployment
(8) Previous accidents, unknown deployment status
(9) Unknown

36. Type of Air Bag 1
(0) Not equipped/not available
(1) Original manufacturer installed system
(2) Retrofitted air bag
(3) Replacement air bag
(8) Unknown type of air bag
(9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 1
(0) Not equipped/not available
(1) No prior maintenance
(2) Yes, prior maintenance (specify): _____
(9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 01
(00) Not equipped/not available
____ Code the accident event sequence number that initiated the air bag deployment
(96) Deployed, unknown event
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

39. CDC For Air Bag Deployment Impact 1
(0) Not equipped/not available
(1) Highest delta V
(2) Second highest delta V
(3) Other non-coded delta V (specify): _____
(6) Deployed, unknown event
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact +/- 996
(_000) Not equipped/not available
Code the value of the delta V for the impact that initiated the air bag deployment
(_996) Deployment, unknown longitudinal Delta V
(_997) Not deployed
(_998) Unknown if deployed
(_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 9
(0) Not equipped/not available
(1) No
(2) Yes
(3) Deployed, unknown if flap(s) opened at designated tear points
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 9
(0) Not equipped/not available
(1) No
(2) Yes (specify): _____
(3) Deployed, unknown if air bag module cover flap(s) damaged
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

43. Was There Damage To The Air Bag? 99
(00) Not equipped/not available
(01) Not damaged

Yes - Air Bag Damage
(02) Ruptured
(03) Cut
(04) Torn
(05) Holed
(06) Burned
(07) Abraded
(88) Other damage (specify): _____
(95) Damaged, details unknown
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 99
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
_____
(03) Object carried by occupant, (specify):
_____
(04) Adaptive/assistive controls, (specify):
_____
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
_____
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 3
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
_____
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 3
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
_____
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 1
(0) Not equipped/not available
(1) No
(2) Yes (specify):
_____
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 2
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
_____
(9) Unknown

50. Seat Type (this Occupant Position) 99
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
_____
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
_____
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 5
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

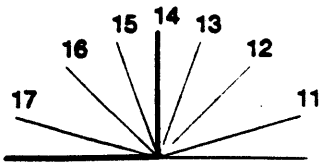
53. Seat Back Incline Prior and Post Impact 14
    (00) Occupant not seated or no seat
    (01) Not adjustable

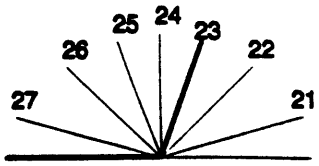
    Upright prior to impact
    (11) Moved to completely rearward position
    (12) Moved to rearward midrange position
    (13) Moved to slightly rearward position
    (14) Retained pre-impact position
    (15) Moved to slightly forward position
    (16) Moved to forward midrange position
    (17) Moved to completely forward position

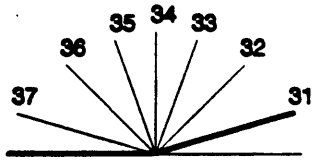
    Slightly reclined prior to impact
    (21) Moved to completely rearward position
    (22) Moved to rearward midrange position
    (23) Retained pre-impact position
    (24) Moved to upright position
    (25) Moved to slightly forward position
    (26) Moved to forward midrange position
    (27) Moved to completely forward position

    Completely reclined prior to impact
    (31) Retained pre-impact position
    (32) Moved to rearward midrange position
    (33) Moved to slightly rearward position
    (34) Moved to upright position
    (35) Moved to slightly forward position
    (36) Moved to forward midrange position
    (37) Moved to completely forward position

    (99) Unknown







54. Seat Performance (this Occupant Position) 9
    (0) Occupant not seated or no seat
    (1) No seat performance failure(s)
    (2) Seat adjusters failed
    (3) Seat back folding locks or "seat back" failed (specify):_____
    (4) Seat track/anchors failed
    (5) Deformed by impact of occupant
    (6) Deformed by passenger compartment intrusion, (specify):_____
    (7) Combination of above (specify):_____
    (8) Other (specify): _____
    (9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 00

59. Child Safety Seat Shield Usage 00

60. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 6

(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____

(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 5

(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____

(9) Unknown

64. Hospital Stay 00

(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97

____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 0 0
____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 0 0

68. 2nd Medically Reported Cause of Death 0 0

69. 3rd Medically Reported Cause of Death 0 0
____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 0 4
4 Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 0 2
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) - HCO_3 0 1
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix H:

NASS CDS Occupant Injury Form:

Case Vehicle Driver

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT INJURY FORM

Form Approved
O.M.B. No. 2127-0021
NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number	10	3. Vehicle Number	01
2. Case Number - Stratum	9503	4. Occupant Number	01

INJURY DATA

Record below the actual injuries sustained by this occupant that were identified from the official and unofficial data sources. Remember not to double count an injury just because it was identified from two different sources. If greater than ten injuries have been documented, encode the balance on the Occupant Injury Supplement.

	Source of Injury Data	A.I.S. - 90 Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity	Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
1st	5. 3	6. 4	7. 9	8. 02	9. 02	10. 1	11. 4	12. 170	13. 1	14. 1	15. 00
2nd	16. 3	17. 4	18. 9	19. 04	20. 02	21. 1	22. 4	23. 170	24. 1	25. 1	26. 00
3rd	27. 3	28. 7	29. 9	30. 04	31. 02	32. 1	33. 1	34. 170	35. 1	36. 1	37. 00
4th	38. 3	39. 4	40. 1	41. 50	42. 99	43. 7	44. 0	45. 170	46. 3	47. 1	48. 00
5th	49.	50.	51.	52.	53.	54.	55.	56.	57.	58.	59.
6th	60.	61.	62.	63.	64.	65.	66.	67.	68.	69.	70.
7th	71.	72.	73.	74.	75.	76.	77.	78.	79.	80.	81.
8th	82.	83.	84.	85.	86.	87.	88.	89.	90.	91.	92.
9th	93.	94.	95.	96.	97.	98.	99.	100.	101.	102.	103.
10th	104.	105.	106.	107.	108.	109.	110.	111.	112.	113.	114.

OCCUPANT INJURY DATA

	Source of Injury Data	A.I.S. - 90					Aspect	Injury Source	Injury Source Confidence Level	Direct/ Indirect Injury	Occupant Area Intrusion Number
		Body Region	Type of Anatomic Structure	Specific Anatomic Structure	Level of Injury	A.I.S. Severity					
11th											
12th											
13th											
14th											
15th											
16th											
17th											
18th											
19th											
20th											
21st											
22nd											
23rd											
24th											
25th											

OCCUPANT INJURY CLASSIFICATION

Body Region

(1) Head
(2) Face
(3) Neck
(4) Thorax
(5) Abdomen
(6) Spine
(7) Upper Extremity
(8) Lower Extremity
(9) Unspecified

Type of Anatomic Structure

(1) Whole Area
(2) Vessels
(3) Nerves
(4) Organs (includes Muscles/ligaments)
(5) Skeletal (includes joints)
(6) Head - LOC
(9) Skin

Specific Anatomic Structure

Vessels, Nerves, Organs, Bones, Joints are assigned consecutive two digit numbers beginning with 02.

The exceptions to this rule apply to:

Whole Area
(02) Skin - Abrasion
(04) Skin - Contusion
(06) Skin - Laceration
(08) Skin - Avulsion
(10) Amputation
(20) Burn
(30) Crush
(40) Degloving
(50) Injury - NFS
(90) Trauma, other than mechanical

Head - LOC
(02) Length of LOC
(04) Level
(06) of
(08) Consciousness
(10) Concussion

Spine
(02) Cervical
(04) Thoracic
(06) Lumbar

Level of Injury

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Abbreviated Injury Scale

(1) Minor Injury
(2) Moderate Injury
(3) Serious Injury
(4) Severe Injury
(5) Critical Injury
(6) Maximum (untreatable)
(7) Injured, unknown severity

Aspect

(1) Right
(2) Left
(3) Bilateral
(4) Central
(5) Anterior
(6) Posterior
(7) Superior
(8) Inferior
(9) Unknown
(0) Whole region

SOURCE OF INJURY DATA

OFFICIAL RECORDS
(1) Autopsy records with or without hospital/medical records
(2) Hospital/medical records other than emergency room (e.g., discharge summary)
(3) Emergency room records only (including associated X-rays or other lab reports)
(4) Private physician, walk-in or emergency clinic

UNOFFICIAL RECORDS
(5) Lay coroner report
(6) E.M.S. personnel
(7) Interviewee
(8) Other source (specify): _____
(9) Police

INJURY SOURCE CONFIDENCE LEVEL

(1) Certain
(2) Probable
(3) Possible
(9) Unknown

DIRECT/INDIRECT INJURY

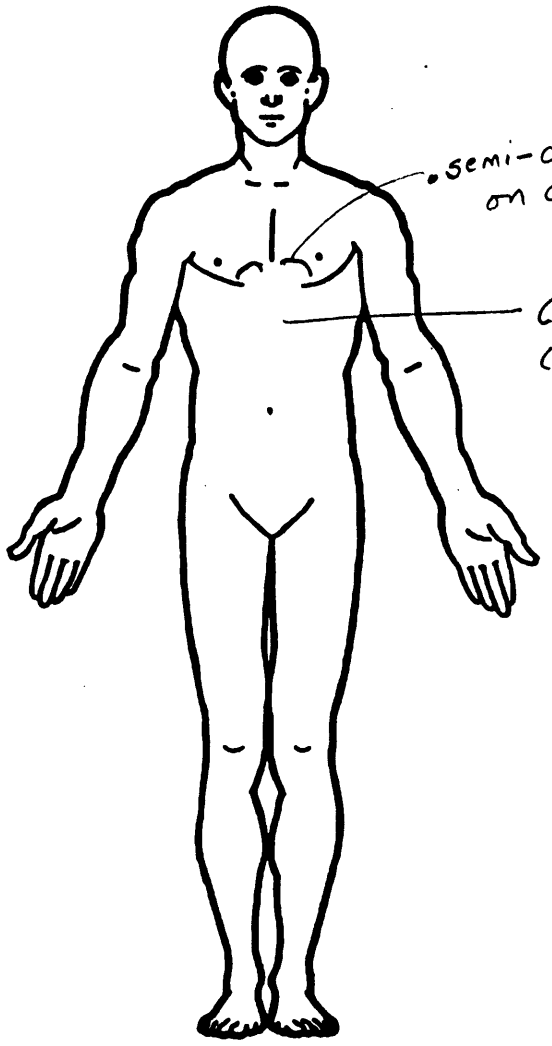
(1) Direct contact injury
(2) Indirect contact injury
(3) Noncontact injury
(7) Injured, unknown source

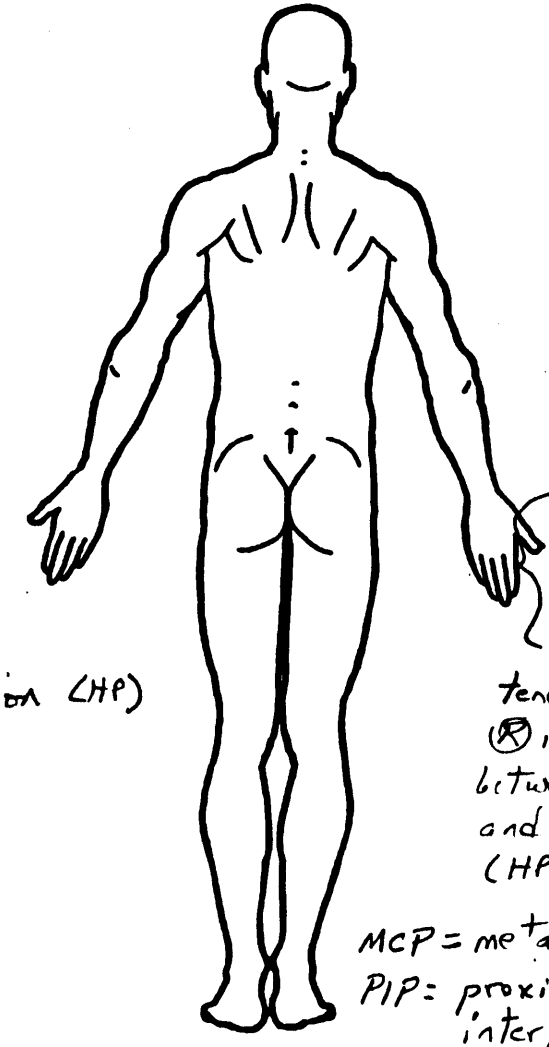
OFFICIAL INJURY DATA — SOFT TISSUE INJURIES

"feels that he was able to slow down enough before impact that he probably would not have been thrown forward" (HP)

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

Air bag struck him in chest and right hand (HP)





Dx: Contusion (HP)

MCP = metacarpophalangeal
PIP = proximal interphalangeal

• wife unable to open door post-crash (HP)

OFFICIAL INJURY DATA — SKELETAL INJURIES

Restrained?

✓ No (CHP)

__ Yes

Air Bag activated (CHP)

Blood Alcohol Level (mg/dl)

BAL = ____

Glasgow Coma Scale Score

GCSS = ____

Units of Blood Given

Units = ____

Arterial Blood Gases

pH = __.__

PO_2 = ____

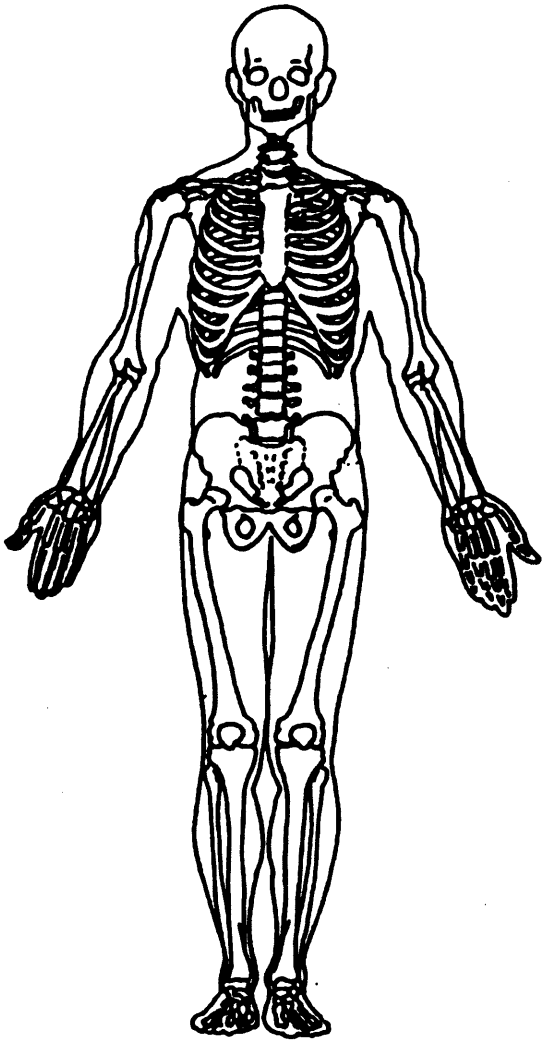
PCO_2 ____

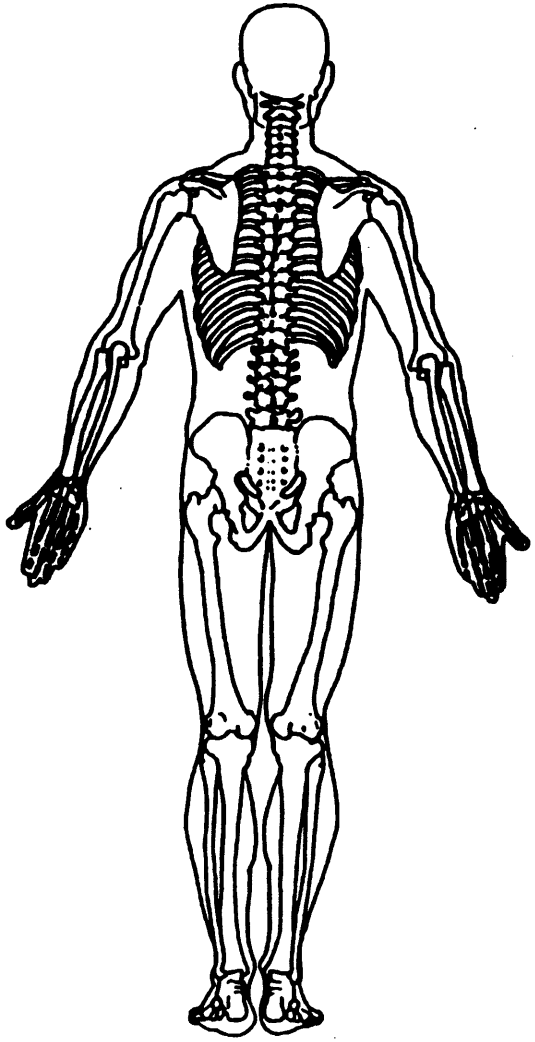
HCO_3 ____

He was not wearing a seatbelt (CHP)

• Applied the brakes (CHP)

Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)





INJURY SOURCES

FRONT
(001) Windshield
(002) Mirror
(003) Sunvisor
(004) Steering wheel rim
(005) Steering wheel hub/spoke
(006) Steering wheel (combination of codes 004 and 005)
(007) Steering column, transmission selector lever, other attachment
(008) Cellular telephone or CB radio
(009) Add on equipment (e.g., tape deck, air conditioner)
(010) Left instrument panel and below
(011) Center instrument panel and below
(012) Right instrument panel and below
(013) Glove compartment door
(014) Knee bolster
(015) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, mirror, or steering assembly (driver side only)
(016) Windshield including one or more of the following: front header, A (A1/A2)-pillar, instrument panel, or mirror (passenger side only)
(017) Windshield reinforced by exterior object (specify)

(019) Other front object (specify):

LEFT SIDE
(051) Left side interior surface, excluding hardware or armrests
(052) Left side hardware or armrest
(053) Left A (A1/A2)-pillar
(054) Left B-pillar
(055) Other left pillar (specify):

(056) Left side window glass
(057) Left side window frame
(058) Left side window sill
(059) Left side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(060) Other left side object (specify):

RIGHT SIDE
(101) Right side interior surface, excluding hardware or armrests
(102) Right side hardware or armrest
(103) Right A (A1/A2)-pillar
(104) Right B-pillar
(105) Other right pillar (specify):

(106) Right side window glass
(107) Right side window frame
(108) Right side window sill
(109) Right side window glass including one or more of the following: frame, window sill, A (A1/A2)-pillar, B-pillar, or roof side rail.
(110) Other right side object (specify):

INTERIOR
(151) Seat, back support
(152) Belt restraint webbing/buckle
(153) Belt restraint B-pillar or door frame attachment point
(154) Other restraint system component (specify):

(155) Head restraint system
(160) Other occupants (specify):

(161) Interior loose objects
(162) Child safety seat (specify):

(163) Other interior object (specify):

AIR BAG
(170) Air bag-driver side
(171) Air bag-driver side and eyewear
(172) Air bag-driver side and jewelry
(173) Air bag-driver side and object held
(174) Air bag-driver side and object in mouth
(175) Air bag compartment cover-driver side
(176) Air bag compartment cover-driver side and eyewear
(177) Air bag compartment cover-driver side and jewelry
(178) Air bag compartment cover-driver side and object held
(179) Air bag compartment cover-driver side and object in mouth
(180) Air bag-passenger side
(181) Air bag-passenger side and eyewear
(182) Air bag-passenger side and jewelry
(183) Air bag-passenger side and object held
(184) Air bag-passenger side and object in mouth
(185) Air bag compartment cover-passenger side
(186) Air bag compartment cover-passenger side and eyewear
(187) Air bag compartment cover-passenger side and jewelry
(188) Air bag compartment cover-passenger side and object held
(189) Air bag compartment cover-passenger side and object in mouth
(190) Other air bag (specify)

(195) Other air bag compartment cover (specify)

ROOF
(201) Front header
(202) Rear header
(203) Roof left side rail
(204) Roof right side rail
(205) Roof or convertible top

FLOOR
(251) Floor (including toe pan)
(252) Floor or console mounted transmission lever, including console
(253) Parking brake handle
(254) Foot controls including parking brake

REAR
(301) Backlight (rear window)
(302) Backlight storage rack, door, etc.
(303) Other rear object (specify):

ADAPTIVE (ASSISTIVE) DRIVING EQUIPMENT
(401) Hand controls for braking/acceleration
(402) Steering control devices (attached to OEM steering wheel)
(403) Steering knob attached to steering wheel
(405) Replacement steering wheel (i.e., reduced diameter)
(406) Joy stick steering controls
(407) Wheelchair tie-downs
(408) Modification to seat belts, (specify):
(409) Additional or relocated switches, (specify):

(410) Raised roof
(411) Wall mounted head rest (used behind wheel chair)
(412) Other adaptive device (specify):

EXTERIOR of OCCUPANT'S VEHICLE
(451) Hood
(452) Outside hardware (e.g., outside mirror, antenna)
(453) Other exterior surface or tires (specify):

(454) Unknown exterior objects

EXTERIOR OF OTHER MOTOR VEHICLE
(501) Front bumper
(502) Hood edge
(503) Other front of vehicle (specify):

(504) Hood
(505) Hood ornament
(506) Windshield, roof rail, A-pillar
(507) Side surface
(508) Side mirrors
(509) Other side protrusions (specify):

(510) Rear surface
(511) Undercarriage
(512) Tires and wheels
(513) Other exterior of other motor vehicle (specify):

(514) Unknown exterior of other motor vehicle

OTHER VEHICLE OR OBJECT IN THE ENVIRONMENT
(551) Ground
(598) Other vehicle or object (specify):

(599) Unknown vehicle or object

NONCONTACT INJURY
(601) Fire in vehicle
(602) Flying glass
(603) Other noncontact injury source (specify):
(604) Air bag exhaust gases
(697) Injured, unknown source

OFFICIAL INJURY DATA – INTERNAL INJURIES

Air bag produced a cloud of mist that irritated his lungs (HP)

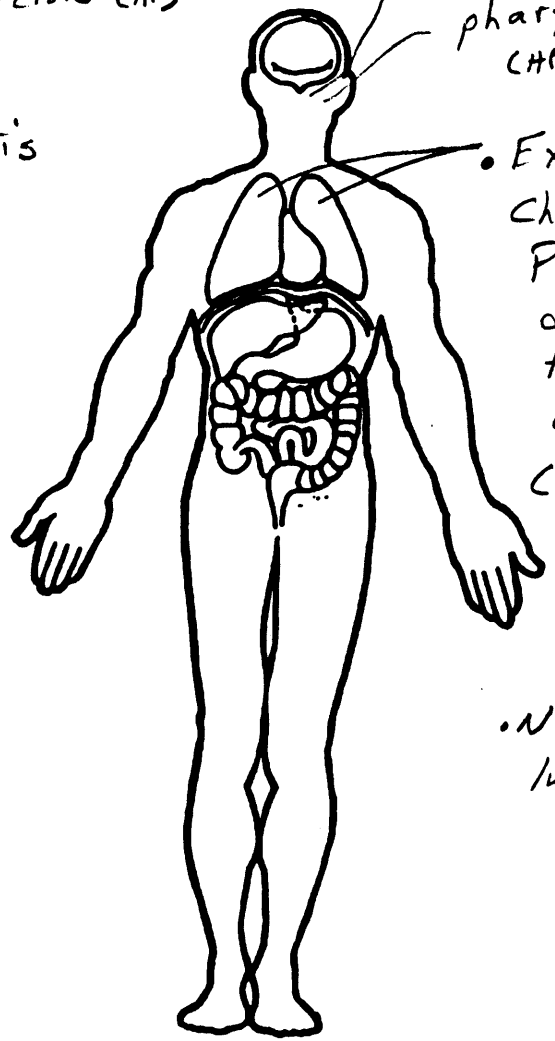
Indicate the Location, Specific Anatomic Structure, Detail (size, depth, fracture type, head injury clinical signs and neurological deficits), and Source of all injuries indicated by official sources (or from PAR or other unofficial sources if medical records and interviewee data are unavailable.)

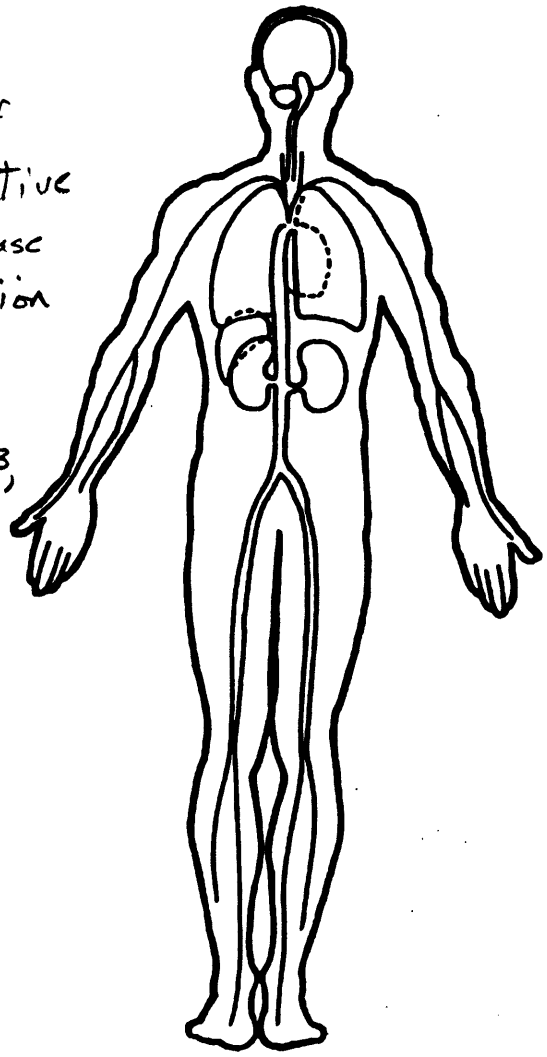
- dyspneic with any exertion (HP)

Hx: Bronchitis (FU3)

nasopharyngeal erythema, minimal (FU1)

pharyngeal erythema, minimal (HP)





- Exacerbation of Chronic obstructive Pulmonary Disease due to inhalation from air bag deployment (ED, HP, FU1, FU3, PS)

- No bacteria in lungs (FU2)

CAUSE OF DEATH

Not applicable

ICD-9-CM

922.1
923.20
987.9

496 {COPD}

E 819
E 849.5

OTHER DRUGS (GV16)

Specimen Test Type	Drug(s)	Drug Type
___ Blood and urine tests ___ Blood test only ___ Urine test only ___ Other test ___ Unspecified None		

MEDICAL RECORD ABBREVIATIONS

Symbol	Record Type Description
A	Autopsy--medical information based upon an invasive examination of a body
ME	Medical examiner's record--where the information reported on the patient is based on a non-invasive examination of the body
AR	Admission record/summary--any medical information on this record should be considered as post-ER since it summarizes the patient's admission; these records are common in short hospitalizations and usually only contain: admission DX(s), final DX(s), and a listing of surgical treatments; ICD-9-CM codes are frequently available.
FS	Admission/discharge face sheet--face sheets are essentially the same as admission record/summaries and contain the same types of information as discussed above
DS	Discharge summary--shorten history of a patient's hospitalization highlighting the patient's major injuries; this record is often written from the perspective of its author which in many cases is a consultant
OS	Operative record--summary of a performed surgical operation often providing detailed information about a specific trauma; patients who survive the surgery are normally admitted; thus, this record is normally considered post-ER; however, if this record results from an outpatient surgery, then treat it as emergency-room related
PX	Radiographic records--taken after the patient has been admitted, or while in surgery or intensive care
PN	Patient progress notes--supplemental record containing additional nurses notes taken after the patient's admission
HP	History and physical exam--medical history and the results of the physical exam obtained by the emergency room physician assigned to the patient upon arrival at the emergency room
CN	Consultation record--consultations are in essence additional history and physicial exams performed by doctors whose expertise was requested by the emergency room physician; the consultation may occur during the emergency room visit or after admission
ER	Emergency room report--where the author of this information is undefined
EN	Emergency room nurse--"nurse/complaint of" section on the emergency room report
ED	Emergency room doctor--"objective/physical exam" section plus "diagnosis and treatment" sections (i.e., doctor portion of emergency room report)
NN	Nurse notes--supplemental record containing additional notes taken by the emergency room nurse(s)
EX	Radiographic records--taken during the patients stay in the emergency room
CV	Coroner's verdict--statement of cause of death for legal specific regarding injuries; care must be exercised to ascertain the credentials of the verdict's author.
CR	Coroner's report--medical information based upon a noninvasive examination performed by a person who is not a doctor but who has the title of a coroner
ET	Emergency medical technician--report by a person who qualifies as an emergency medical services technician (EMS or EMT)
O	Other source--medical information based on an other source (e.g., newspaper, DVM--Doctor of Veterinary Medicine)

FU = Follow-up physician visit
PS = Pulmonary Specialist

Nebraska[redacted]

ADM NO	PT TYPE	MED RECORD NO	ARRIVAL TIME
[redacted]	MD CLIN	[redacted]	15.45 AM PM

PATIENT NAME (LAST NAME FIRST AND INITIAL)	MAIDEN/FORMER NAME	ADMIT DATE	DISCHARGE TIME
[redacted]		[redacted]94 AM PM	AM PM

STREET ADDRESS	CITY	COUNTY	STATE	ZIP	SEX	CIVIL STATUS
[redacted]	[redacted]		NE	[redacted]	M	MARRIED

AGE	DATE OF BIRTH	SOCIAL SECURITY NO	HOME PHONE	ARRIVAL	☐ UNACCOMPANIED ☐ ACCOMPANIED	METHOD	☐ AMBULANCE ☐ OTHER
74	[redacted]	[redacted]	[redacted]				

OCCUPATION	EMPLOYER	EMPLOYER ADDRESS
RETIRED		

OCCUPATION	SPOUSE OR PARENT EMPLOYER	ADDRESS
RETIRED		

EMERGENCY NOTIFICATION NAME	RELATIONSHIP	ADDRESS	TELEPHONE
[redacted]	SPOUSE	[redacted] NE. [redacted]	[redacted]

GUARANTOR NO	GUARANTOR NAME	ADDRESS
[redacted]	[redacted]	[redacted] NE [redacted]

FIN CLASS	INSURANCE/PRIMARY AND ADDRESS	CONTRACT/GROUP NO
[redacted]	MEDICARE [redacted], NE	[redacted]

OTHER INSURANCE AND ADDRESS	CONTRACT/GROUP NO
[redacted]	[redacted]

ADMIT/ATTENDING PHYSICIAN	PREV. ADM. DATE	CLERK
[redacted]	[redacted]92	[redacted]

Accident: Y ☐ N ☐ Date: ______ Time: ______ Work Related: Y ☐ N ☐

Details: ______

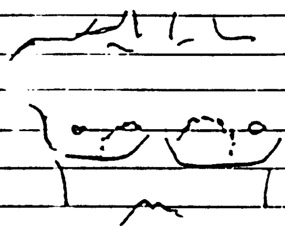
NATURE OF ACCIDENT OR ILLNESS:

TETANUS	B/P	TEMP	PULSE	RESP.	WT.
	122/68	96.4	78	24	152#

ALLERGIES: Sumycin

CHIEF COMPLAINT: F/u accident

PHYSICIANS ORDERS:



CURRENT MEDS:
Dyphylline 600mg.
JT 400 noon 600 PM
400 HS
Albuterol 4mg qid
ASA ÷ qid
Prednisone 20mg qd
Guaifenesin 600mg q AB
Amoxil
Doxycycline } x14 days
Seldane ÷ puffs BI
Atrovent 4 puffs qid
Azmacort 4 puffs BI
Brethaire PRN

Diagnosis: Contusions to chest, (R) hand - MVA.
exacerbation of COPD 2° to 496
Treatment: chemical inhalation
987.9 E849.5 923.20
E819 922.1

INSTRUCTIONS TO PATIENT:

NURSES SIGNATURE:

PATIENT SIGNATURE: **PHYSICIAN SIGNATURE:**

[redacted]/94

S-On [redacted]94 he was driving west on Highway [redacted] approximately 2 miles east of his home and a deer suddenly jumped in front of his vehicle. He applied the brakes and hit the deer. He was not wearing a seatbelt, but feels that he was able to slow down enough before impact that he probably would not have been thrown forward. Nonetheless, the supplemental restrain system (airbag) activated striking him in the chest and right hand. He said the car filled with a cloud of mist that obscured his vision and irritated his lungs. He was able to stop the car without going into the other lane. He got out, inspected the damage and found that his wife was unable to open her door. She was somewhat shaken by the incident, but she was not injured. He since then has noticed increasing cough, SOB, production of yellow sputum and when he has done his pulmonary rehabilitation exercises, he has noted a significant increase in his heart rate. He said he immediately felt a burning sensation on his chest after the airbag deployed and he had to hold his clothes away from his chest to reduce the burning. HP

O-He is dyspneic with any exertion, but not at rest. HEENT: Minimal pharyngeal erythema. CHEST: He has diminished breath sounds, few coarse inspiratory crackles and faint late expiratory wheezes. HEART: Reg. without murmurs. There are semi-circular burns on the pectoral regions bilat. (see diagram). There is some erythema and tenderness over the dorsal aspect of the rt. index finger between the MCP and PIP joints.

A-Contusion, burns, inhalation injury secondary to supplemental restraint deployment in MVA.

P-Increase Prednisone to 40 mg daily for 3 days, then go back to 20 mg q.o.d. regimen. Augmentin 250 t.i.d. p.c., return as sched., sooner prn.

[redacted]95

S-he cont. to have probs. with shortness of breath, cough. He has tachycardia with his exercise routine and he has had to cut it short. He has been on Cipro 250 b.i.d. He recalls that last year he was on Augmentin 500 t.i.d. or Cipro 500 b.i.d. He wonders if he could be getting Dyphylline toxicity since he is having problems with increasing headache. He used to get headaches as a side effect of Theophylline. Fu 1

O-He gets slightly short of breath with exertion. HEENT: Minimal nasopharyngeal erythema. NECK: Normal. CHEST: Diminshed breath sounds. Occasional crackles and rhonchi.

A-Acute exacerbation of COPD.

P-Increase Prednisone to 40 mg daily, increase Cipro to 500 b.i.d. Take Augmentin 500 t.i.d. We obtained a sputum for C&S. We may need to change his regimen after getting the C&S back.

[redacted] BEST AVAILABLE COPY

, NEBRASKA[redacted]

[redacted] 1995

Dear

Fu2

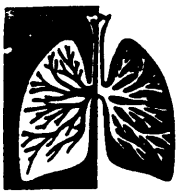
your sputum culture did not show any predominant organisms - we'll have to base our antibiotic selection on your clinical situation - how you seem to do -

MD

Fu 3

[redacted]

S-He is here for f/u with his bronchitis. It doesn't seem to be getting any better. He has been suffering with it for about a mo. ever since he had an airbag go off when he was in a minor accident. He hasn't noted a fever and the material he is coughing up is pale yellow in color. He is just finishing up a course of Cipro right now. O-Throat clear. He had some inspiratory wheezes, high-pitched bilat. in the lowre lung fields.. HEART: He may have had a 1/2 systolic murmur, but was difficult to hear because of his noisy breathing. EXTREMITIES: He had 1+ edema of his rt. ankle, but he said that's about normal for him. It hasn't gotten worse or changed lately. A-Bronchitis, continuing exacerbation of COPD. Bronchitis, continued COPD P-Since he is not running a fever and the sputum he is coughing up is not colored, he probably is not having an infection going on. He can stop the Cipro. Increase Diphylline to 5 q. day instead of 4 daily, add Mucomyst 20% take 1-2 cc q.i.d. via nebulizer and he can increase Azmacort prn.



, M.D.
, M.D.

[redacted] 1995

, M.D.

, NE [redacted]

RE: [redacted]

Dear [redacted]:

I saw Mr. [redacted] in pulmonary follow-up today. As you are well aware, since his last visit, he was hit by a deer and had what appears to be an exacerbation of his COPD due to a chemical injury from the discharge of the airbag. This accident happened on December [redacted] While the patient admits that he is somewhat improved from what he had been, he feels he is still not back to baseline. He has increased sputum production, up to 1-2 tablespoons daily, and it has been discolored now since his accident. He is trying to keep up with his exercise program but is having a little more difficulty now. He has not been running any fevers, or had any chills or sweats.

Medications at this point include Dyphylline 600 mg. tid, Albuterol tablets 4 mg. qid, Aspirin qid, Guiafenesin bid, Prednisone 20 mg. every other day, Serevent 2 puffs bid, Atrovent 4 puffs qid, Azmacort 3 puffs qid.

Exam: Vitals: BP 130/60, P 82, R 24, T 96.9° HEENT exam shows his tympanic membranes were clear, his oropharynx was benign without lesions. Neck was supple, chest showed decreased breath sounds in all lung fields with hyperresonance to percussion, he does have expiratory wheezes and rhonchi with cough. Cardiac exam showed a regular rate and rhythm without a murmur or gallop. Extremities showed trace of edema.

It sounds to me as if Mr. [redacted] did have an exacerbation of his chronic bronchitis and emphysema probably due to a chemical injury from the discharge of the airbag. While he is improving, he is still having symptoms that are probably related to this. We did do pulmonary functions here in [redacted] and he does still have severe obstruction although this is comparable to the post spirometry test he had done in [redacted] a couple of years ago. I have asked him to increase his Prednisone to 20 mg every day for a month and then go back down to 20 mg. every other day. I have recommended he take his regularly scheduled Doxycycline this month. I have asked him to return in two months but to call if he has any further problems.

Please don't hesitate to call if you have any questions or comments regarding this patient. Thank you for allowing me to participate in his care.

Sincerely,

PS

, M.D.

copy-patient
copy-[redacted] Hospital

INFORMATION FROM CASE VEHICLE DRIVER

PERTAINING TO

CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Dr. [redacted]
HEALTH REPORT

No. 20 *By [redacted] M.D.*

LIVING WITH CHRONIC LUNG DISEASE

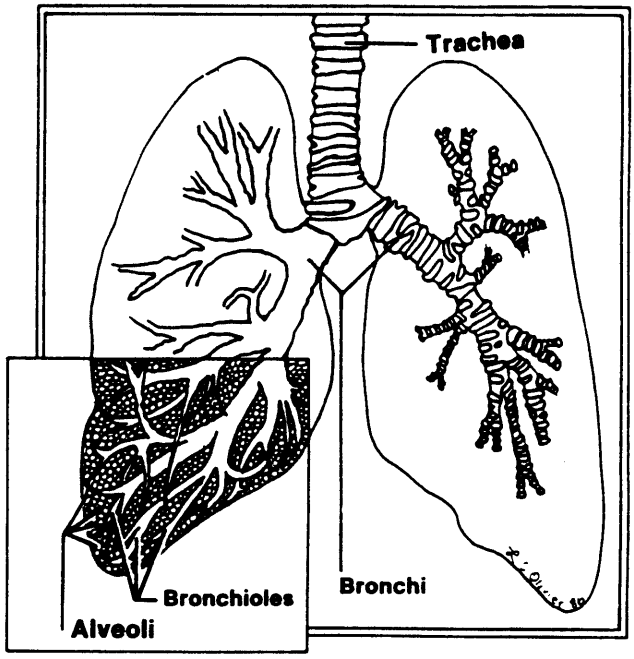
Chronic bronchitis and emphysema together are known as *chronic obstructive pulmonary disease*, or COPD. About 25 million Americans have COPD, and it is one of the fastest growing health problems in the United States. There are approximately 50,000 deaths each year from COPD, and the death rate has been doubling about every five years. It is second only to heart disease as a cause of disability. The disease is eight to 10 times more common in men than in women, presumably because more men are cigarette smokers. However, the incidence in women now appears to be increasing as more women have been regular smokers.

How the lungs work

To understand the effects of COPD, it is first necessary to understand something about the structure and function of the lungs.

Inhaled air passes through the nose and mouth into the trachea, a large duct that branches like a tree into smaller ducts, the *bronchi* and *bronchioles*. At the end of the bronchioles are tiny air sacs called *alveoli*, the site at which red blood cells release carbon dioxide and pick up oxygen to deliver to the rest of the body. Tiny elastic fibers that support the alveoli enable the lung to resume its shape after being distended by air, a property called *elastic recoil*.

The bronchial "tree" is lined with two special types of cells. One type secretes mucus to protect against injury and irritation. The second type is covered with fine hairlike projections called cilia that wave toward the mouth, helping to remove bacteria and irritating substances from the respiratory tract.



Chronic bronchitis

Chronic bronchitis is a condition associated with prolonged exposure to irritants, usually cigarette smoke, resulting in excessive secretion of mucus. The disease is characterized by a daily cough that produces sputum (mucus) or frequent clearing of the throat. A morning cough is usually the first sign of excessive mucus production. As irritation continues, coughing occurs throughout the day.

The excess mucus provides food for bacteria, so that infection is superimposed on irritation. White blood cells begin to fight the invading bacteria, changing the color of the mucus from clear to yellow. If the bacteria are not killed, the infection can destroy the bronchial wall in spots. Cells become replaced with scar tissue that leads to areas of narrowing. This can accompany *bronchospasm*, or tightening of the muscles of the bronchial tree.

Exposure to cigarette smoke can paralyze the cilia for several minutes. With continual exposure, the cilia lose their ability to beat efficiently to remove mucus and other irritants. Some of these ciliated cells eventually die and are not replaced by other ciliated cells. As bacteria multiply, more white blood cells attempt to fight them. These white blood cells produce enzymes to kill the bacteria, but these enzymes can also damage or destroy the supporting

structures of the cells that line the bronchial tree and the membranes of the alveoli.

Emphysema

In emphysema, destructive changes occur in the alveolar walls as a result of the enzymes that are released from the white blood cells as they respond to chronic irritation. There are natural defense systems to inhibit these enzymes from destroying lung tissue, but these defense systems seem to be impaired in smokers. Some individuals have an inherited deficiency in an enzyme inhibitor and may develop emphysema early in life. As a result of this tissue destruction, the lung loses its elastic recoil.

Bronchitis + emphysema

Obstruction of the airways is common in both bronchitis and emphysema. This obstruction is defined as increased resistance to airflow during forced expiration (exhaling). The obstruction may result from narrowing or obliteration of the airways because of bronchitis or from collapse of the airways because of emphysema.

Most patients with COPD have some combination of chronic bronchitis and emphysema. It is not clear whether the overlap results from a common cause or whether having one of the diseases predisposes to having the other one.

Because of obliterated and collapsed airways and the loss of elastic recoil, breathing, particularly exhaling, becomes a slow, difficult process. Where there are mucus plugs, air cannot easily reach the alveoli, so the blood that circulates through the alveoli to pick up oxygen does not get a sufficient amount. In other areas of the lung, the alveoli are ruptured and the number of blood vessels greatly reduced so that when oxygen arrives in the alveoli, there are insufficient blood vessels to pick it up. All this results in what is called a ventilation (air)-perfusion (blood) abnormality.

Signs and symptoms of COPD

The most common initial symptom is difficulty in breathing upon exertion, which becomes progressively worse. Other early signs are cough, wheezing, recurrent respiratory infections and sometimes weakness, weight loss, and lack of libido. Cough and sputum production are variable. Coughing may be limited to clearing the chest in the morning or be severely disabling throughout the day. Sputum can be clear and small in amount, or the patient may cough up large quantities of infected material.

A consistent abnormality, resulting from the loss of elastic recoil in the lungs, is obstruction to expiratory airflow. A normal person who takes a deep breath and then empties the lungs as quickly as possible will do so in about four seconds. The process takes much longer in COPD.

In COPD, respiratory infections become more frequent and last longer. Patients tire easily, and walking fast or going up a flight of stairs produces shortness of breath. Over time, this becomes a choking feeling. Periods of breathlessness become more intense, especially when associated with infections and exposure to irritants, high humidity or cold air. Intensive therapy becomes necessary, often in a hospital, and some patients need artificial ventilation.

Therapy for COPD

Therapy for COPD does not result in a cure, but it does relieve symptoms and control the progression of the disorder. The aims of treatment are to alleviate the conditions that cause symptoms and excessive disability. Therapeutic measures are directed toward preventing infection, relieving bronchospasm, controlling mucus production, improving oxygen delivery to the tissues and increasing physical ability and endurance.

Drugs and COPD

Bronchodilators are drugs usually prescribed to relieve brochospasm, alleviate wheezing and shortness of breath and improve respiratory muscle function. Tablet, liquid and aerosol forms are available. Generic names of some of these drugs include theophylline, terbutaline, albuterol and metaproterenol.

Steroid hormones are not used very often in COPD, but for some patients these are the only means of controlling bronchospasm. The lowest possible dose that relieves symptoms is used for maintenance. Some patients can control their symptoms by taking steroids on alternate days rather than every day.

A unique type of drug, cromolyn sodium, inhibits the release of the chemicals that cause wheezing and bronchospasm. It is inhaled one to four times a day.

Antibiotics, such as the tetracyclines, penicillins, cephalosporins and erythromycin, are used to clear purulent sputum and at the first sign of bronchial infection. Patients who have frequent infections may need to take

regular courses of antibiotics.

Expectorants are taken to thin the mucus secretions. Diuretics may be prescribed to prevent excessive fluid retention. Cardiac problems sometimes associated with COPD may require the use of special drugs.

Inhalation therapy

Inhalation therapy equipment, such a nebulizers, help deliver bronchodilators deep into the respiratory tract. It can also be used to deliver other types of drugs. Lightweight nebulizers driven by air compressors and hand-held non-motorized models are available. This equipment must be cleaned thoroughly and disinfected daily according to instructions supplied by the physician or respiratory therapist.

Metered dose inhalers are the easiest type of inhalation therapy device presently available. These must be used carefully according to instructions and require synchronizing breathing with aerosol release.

Oxygen therapy

Not everyone with COPD needs supplemental oxygen. Analysis of the level of oxygen in the blood can help determine this need. Some people with COPD may need oxygen only during sleep or exercise, while those with extremely low oxygen levels may need it continuously. Portable and wearable oxygen units are available.

Postural drainage

Postural drainage, especially after using a bronchodilator, helps some people to clear mucus secretions. Drainage can be done in bed by lying on two or three pillows, first on the abdomen and then on each side, for five minutes in each position, followed each time by coughing. If a second person is available, cupping or vibration over the chest and back can help loosen secretions. If postural drainage is helpful, it should be performed in the morning on awakening and in the evening before retiring. An adequate fluid intake each day will also help loosen secretions and thin the mucus.

Exercise

Prolonged inactivity can lead to excessive disability in people who have COPD, so a regular exercise program is very important. A graded exercise program, supervised by a physician with the aid of a physical therapist, will increase fitness and endurance, making it easier to accomplish the activities of daily living without undue fatigue.

Before beginning an exercise program, COPD patients may be asked to take an exercise tolerance or stress test to determine cardiopulmonary responses to increasing levels of physical work. This test is performed on a treadmill or stationary bicycle while heart and lung function are monitored as the level of exertion increases. The test may sometimes be performed a second time using a portable oxygen device to see if the use of oxygen increases endurance. The results of the test will also show the safe heart rate range for an exercise program.

The exercise program should consist of initial stretching and flexibility exercises, a warm-up period, walking to get the heart rate in the target zone (as determined by taking the pulse), a cool-down period to bring the heart rate back down and a repeat of the stretching and flexibility exercises. The details of the program will be specified by the physician. Local hospitals often conduct supervised cardiac-rehabilitation exercise programs that are suitable for COPD patients, and some have pulmonary-rehabilitation exercise programs specifically for these patients. Outdoor exercising should not be undertaken in very cold or very hot weather or when the humidity is high.

Dealing with relapse

Relapses or exacerbations, often related to bronchial infections, are usually a part of the course of the disease. Their severity, however, can be minimized by carefully adhering to the prescribed therapeutic program.

Keeping a daily record of physical condition, activity, symptoms and medications is very helpful in making any needed adjustments to the therapeutic regimen when exacerbations occur. The diary can record, for example, the character of the sputum, degree of wheezing and fluid retention, functional capacity, amount and kind of drugs taken and other therapeutic manipulations. Knowing this information will make it easier for the physician to determine what changes need to be made when the disease worsens temporarily and what therapeutic measures are most effective for a particular patient.

Coping with COPD

Many people with COPD are smokers, and smoking is the major cause of chronic bronchitis and emphysema. Perhaps the most important first step any COPD patient who smokes can take is to quit. It is obviously irrational to expect to prevent

progression of the disease or to bring about improvement if there is continual exposure to one of the underlying causes. Quitting is an uncomfortable process and often difficult to accomplish alone. The [redacted] local hospitals and other groups have stop-smoking programs that provide guidance, support and reinforcement.

Other people's smoking is also a hazard the COPD patient should avoid. This means not staying in the same room where there is smoking and not allowing smoking in the home.

Other forms of indoor air pollution can make breathing more difficult for the COPD patient. These include oxides emitted from kerosene heaters and wood- or coal-burning stoves, animal dander, house dust, talcum powder and hair sprays. Air conditioning is a great help in controlling indoor temperature and humidity and making breathing more comfortable.

COPD patients should not go outdoors in smog and should avoid walking near heavy traffic. Media reports on the air-quality index should be followed as a guide to the amount of time spent outdoors. Excessively cold air can induce bronchospasm in some COPD patients, and COPD patients should definitely not exercise outdoors in high heat and humidity.

Summing up

Chronic obstructive pulmonary disease, a combination of bronchitis and emphysema, is becoming a significant health problem in the United States. Smoking is a major cause, and its discontinuation should be a primary step in therapy. The disease cannot be cured, but many effective measures, including drugs, can help control it.

Appendix I:

NASS CDS Occupant Assessment Form:

Case Vehicle Passenger

U.S. Department of Transportation
National Highway Traffic Safety Administration

OCCUPANT ASSESSMENT FORM

Form Approved
O.M.B. No. 2127-0021

NATIONAL ACCIDENT SAMPLING SYSTEM
CRASHWORTHINESS DATA SYSTEM

1. Primary Sampling Unit Number: 10
2. Case Number - Stratum: 9503
3. Vehicle Number: 01
4. Occupant Number: 02

OCCUPANT'S CHARACTERISTICS

5. Occupant's Age: 74
Code actual age at time of accident.
(00) Less than one year old (specify by month): _____
(97) 97 years and older
(99) Unknown

6. Occupant's Sex: 2
(1) Male
(2) Female-not reported pregnant
(3) Female-pregnant-1st trimester(1st-3rd month)
(4) Female-pregnant-2nd trimester(4th-6th month)
(5) Female-pregnant-3rd trimester(7th-9th month)
(6) Female-pregnant-term unknown
(9) Unknown

7. Occupant's Height: 150
Code actual height to the nearest centimeter.
(999) Unknown
59 inches X 2.54 = 149.86 centimeters

8. Occupant's Weight: 059
Code actual weight to the nearest kilogram.
(999)Unknown
130 pounds X .4536 = 058.96 kilograms

9. Occupant's Role: 2
(1) Driver
(2) Passenger
(9) Unknown

OCCUPANT'S SEATING

10. Occupant's Seat Position: 13
Front Seat
(11) Left side
(12) Middle
(13) Right side
(14) Other (specify): _____
(15) On or in the lap of another occupant

Second Seat
(21) Left side
(22) Middle
(23) Right side
(24) Other (specify): _____
(25) On or in the lap of another occupant

Third Seat
(31) Left side
(32) Middle
(33) Right side
(34) Other (specify): _____
(35) On or in the lap of another occupant

Fourth Seat
(41) Left side
(42) Middle
(43) Right side
(44) Other (specify): _____
(45) On or in the lap of another occupant

(97) In or on unenclosed area
(98) Other seat (specify): _____
(99) Unknown

11. Occupant's Posture: 0
(0) Normal posture

Abnormal posture
(1) Kneeling or standing on seat
(2) Lying on or across seat
(3) Kneeling, standing or sitting in front of seat
(4) Sitting sideways or turned to talk with another occupant or to look out a rear window
(5) Sitting on a console
(6) Lying back in a reclined seat position
(7) Bracing with feet or hands on a surface in front of seat
(8) Other abnormal posture (specify): _____
(9) Unknown

EJECTION/ENTRAPMENT

12. Ejection 0
    (0) No ejection
    (1) Complete ejection
    (2) Partial ejection
    (3) Ejection, unknown degree
    (9) Unknown

13. Ejection Area 0
    (0) No ejection
    (1) Windshield
    (2) Left front
    (3) Right front
    (4) Left rear
    (5) Right rear
    (6) Rear
    (7) Roof
    (8) Other area (e.g., back of pickup, etc.)
    (specify):_____
    (9) Unknown

14. Ejection Medium 0
    (0) No ejection
    (1) Door/hatch/tailgate
    (2) Nonfixed roof structure
    (3) Fixed glazing
    (4) Nonfixed glazing (specify):
    _____
    (5) Integral structure
    (8) Other medium (specify):
    _____
    (9) Unknown

15. Medium Status (Immediately Prior To Impact) 0
    (0) No ejection
    (1) Open
    (2) Closed
    (3) Integral structure
    (9) Unknown

16. Entrapment 0
    (0) Not entrapped/exit not inhibited
    (1) Entrapped/pinned - mechanically restrained
    (2) Could not exit vehicle due to jammed doors, fire, etc.
    (specify):_____
    _____
    (9) Unknown

17. Occupant Mobility 4
    (0) Occupant fatal before removed from vehicle
    (1) Removed from vehicle while unconscious or disoriented
    (2) Removed from vehicle due to injuries
    (3) Exited vehicle with some assistance
    (4) Exited vehicle under own power
    (5) Occupant fully ejected
    (9) Unknown

BELT SYSTEM FUNCTION

18. Manual (Active) Belt System Availability 4
(0) None available
(1) Belt removed/destroyed
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt available—type unknown

Integral Belt Partially Destroyed
(6) Shoulder belt (lap belt destroyed/removed)
(7) Lap belt (shoulder belt destroyed/removed)
(8) Other belt (specify): _____
(9) Unknown

19. Manual (Active) Belt System Use 00
(00) None used, not available, or belt removed/destroyed
(01) Inoperative (specify): _____
(02) Shoulder belt
(03) Lap belt
(04) Lap and shoulder belt
(05) Belt used—type unknown
(08) Other belt used (specify): _____
(12) Shoulder belt used with child safety seat
(13) Lap belt used with child safety seat
(14) Lap and shoulder belt used with child safety seat
(15) Belt used with child safety seat—type unknown
(18) Other belt used with child safety seat (specify): _____
(99) Unknown if belt used

20. Proper Use of Manual (Active) Belts 0
(0) None used or not available
(1) Belt used properly
(2) Belt used properly with child safety seat

Belt Used Improperly
(3) Shoulder belt worn under arm
(4) Shoulder belt worn behind back or seat
(5) Belt worn around more than one person
(6) Lap belt worn on abdomen
(7) Lap belt or lap and shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of manual belt system (specify): _____
(9) Unknown

21. Manual (Active) Belt Failure Modes During Accident 0
(0) No manual belt used or not available
(1) No manual belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify): _____
(8) Other manual belt failure (specify): _____
(9) Unknown

22. Shoulder Belt Upper Anchorage Adjustment 9
(0) No shoulder belt
(1) No upper anchorage adjustment for shoulder belt

Adjustable shoulder Belt Upper Anchorage
(2) In full up position
(3) In mid position
(4) In full down position
(5) Position unknown
(9) Unknown if position has adjustable upper anchorage adjustment

23. Automatic (Passive) Belt System Availability/ Function 0
(0) Not equipped/not available
(1) 2 point automatic belts
(2) 3 point automatic belts
(3) Automatic belts - type unknown

Non-functional
(4) Automatic belts destroyed or rendered inoperative
(9) Unknown

24. Automatic (Passive) Belt System Use 0
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Automatic belt in use
(2) Automatic belt not in use (manually disconnected, motorized track inoperative) (specify): _____
(3) Automatic belt use unknown
(9) Unknown

25. Automatic (Passive) Belt System Type 0
(0) Not equipped/not available
(1) Non-motorized system
(2) Motorized system
(9) Unknown

26. Proper Use of Automatic (Passive) Belt System 0
(0) Not equipped/not available/not used
(1) Automatic belt used properly
(2) Automatic belt used properly with child safety seat

Automatic Belt Used Improperly
(3) Automatic shoulder belt worn under arm
(4) Automatic shoulder belt worn behind back
(5) Automatic belt worn around more than one person
(6) Lap portion of automatic belt worn on abdomen
(7) Automatic lap and shoulder belt or automatic shoulder belt used improperly with child safety seat (specify): _____
(8) Other improper use of automatic belt system (specify): _____
(9) Unknown

27. Automatic (Passive) Belt Failure Modes During Accident 0
(0) Not equipped/not available/not in use
(1) No automatic belt failure(s)
(2) Torn webbing (stretched webbing not included)
(3) Broken buckle or latchplate
(4) Upper anchorage separated
(5) Other anchorage separated (specify): _____
(6) Broken retractor
(7) Combination of above (specify):
(8) Other automatic belt failure (specify): _____
(9) Unknown

POLICE REPORTED RESTRAINT USE

28. Police Reported Belt Use 0
(0) None used
(1) Police did not indicate belt use
(2) Shoulder belt
(3) Lap belt
(4) Lap and shoulder belt
(5) Belt used, type not specified
(6) Child safety seat
(7) Automatic belt
(8) Other type belt, (specify):
_____
(9) Police indicated "unknown"

29. Police Reported Air Bag Availability/Function 0
(0) No air bag available
(1) Police did not indicate air bag availability/function
(2) Deployed
(3) Not deployed
(4) Unknown if deployed
(9) Police indicated "unknown"

Check the Primary Source Used In Determining Belt Use.

[ ] Not equipped/not available/destroyed or rendered inoperative
[ ] Vehicle inspection
[ ] Official injury data
[✓] Driver/occupant interview
[ ] Other (specify):
_____
[ ] Unknown if belt used

AIR BAG SYSTEM FUNCTION

30. Frontal Air Bag System Availability/Function (This Occupant Position) 0
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify):
_____
(3) Air bag not reinstalled
(9) Unknown

31. Frontal Air Bag System Deployment (This Occupant Position) 0
(0) Not equipped/not available
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

32. Other Than First Seat Frontal Air Bag Availability/Function (This Occupant Position) 0
(0) Not equipped/not available
(1) Air bag

Non-functional
(2) Air bag disconnected (specify):
_____
(3) Air bag not reinstalled
(9) Unknown

Specify type of "other" air bag present:
_____

33. Air Bag(s) Deployment, Other Than First Seat Frontal (This Occupant Position) 0
(0) Not equipped with an "other" air bag
(1) Deployed during accident (as a result of impact)
(2) Deployed inadvertently just prior to accident
(3) Deployed, details unknown
(4) Deployed as a result of a noncollision event during accident sequence (e.g., fire, explosion, electrical)
(5) Unknown if deployed
(7) Nondeployed
(9) Unknown

34. Are There Indications of Air Bag System Failure? (This Occupant Position) 0
(0) Not equipped/not available
(1) No
(2) Yes (specify):
_____
(9) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION

35. Had Vehicle Been in Previous Accident(s)? 0
- (0) Not equipped/not available
- (1) No previous accidents

Yes
- (2) Previous accident(s) without deployment(s)
- (3) One previous accident with deployment
- (4) More than one previous accident with at least one deployment
- (8) Previous accidents, unknown deployment status
- (9) Unknown

36. Type of Air Bag 0
- (0) Not equipped/not available
- (1) Original manufacturer installed system
- (2) Retrofitted air bag
- (3) Replacement air bag
- (8) Unknown type of air bag
- (9) Unknown

37. Had Any Prior Maintenance/Service Been Performed On This Air Bag System? 0
- (0) Not equipped/not available
- (1) No prior maintenance
- (2) Yes, prior maintenance (specify): _____
- (9) Unknown

38. Air Bag Deployment Accident Event Sequence Number 00
- (00) Not equipped/not available
- _____ Code the accident event sequence number that initiated the air bag deployment
- (96) Deployed, unknown event
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

39. CDC For Air Bag Deployment Impact 0
- (0) Not equipped/not available
- (1) Highest delta V
- (2) Second highest delta V
- (3) Other non-coded delta V (specify): _____
- (6) Deployed, unknown event
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

40. Longitudinal Component of Delta V For Air Bag Deployment Impact + - 000
- (_000) Not equipped/not available
  Code the value of the delta V for the impact that initiated the air bag deployment
- (_996) Deployment, unknown longitudinal Delta V
- (_997) Not deployed
- (_998) Unknown if deployed
- (_999) Unknown

41. Did Air Bag Module Cover Flap(s) Open At Designated Tear Points? 0
- (0) Not equipped/not available
- (1) No
- (2) Yes
- (3) Deployed, unknown if flap(s) opened at designated tear points
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

42. Were Air Bag Module Cover Flap(s) Damaged? 0
- (0) Not equipped/not available
- (1) No
- (2) Yes (specify): _____
- (3) Deployed, unknown if air bag module cover flap(s) damaged
- (7) Not deployed
- (8) Unknown if deployed
- (9) Unknown

43. Was There Damage To The Air Bag? 00
- (00) Not equipped/not available
- (01) Not damaged

Yes - Air Bag Damage
- (02) Ruptured
- (03) Cut
- (04) Torn
- (05) Holed
- (06) Burned
- (07) Abraded
- (88) Other damage (specify): _____
- (95) Damaged, details unknown
- (96) Deployed, unknown if damaged
- (97) Not deployed
- (98) Unknown if deployed
- (99) Unknown

FIRST SEAT FRONTAL AIR BAG SYSTEM EVALUATION *continued*

44. Source of Air Bag Damage 00
(00) Not equipped/not available
(01) Not damaged
(02) Object worn by occupant, (specify):
_____
(03) Object carried by occupant, (specify):
_____
(04) Adaptive/assistive controls, (specify):
_____
(05) Fire in vehicle
(06) Thermal burns
(07) Rescue or emergency efforts
(88) Other damage source (specify):
_____
(95) Damaged, unknown source
(96) Deployed, unknown if damaged
(97) Not deployed
(98) Unknown if deployed
(99) Unknown

45. Was The Air Bag Tethered? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of tether straps):
_____
(3) Deployed, unknown if tethered
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

46. Did The Air Bag Have Vent Ports? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify number of vent ports):
_____
(3) Deployed, unknown if vent ports present
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

47. Was the Air Bag in this Occupant's Position Contacted by Another Occupant? 0
(0) Not equipped/not available
(1) No
(2) Yes (specify):
_____
(3) Deployed, unknown if other occupant contact to air bag
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

48. Was This Occupant Wearing Eye-wear? 0
(0) Not equipped/not available
(1) No
(2) Eyeglasses/sunglasses
(3) Contact lenses
(4) Deployed, unknown if eyewear worn
(7) Not deployed
(8) Unknown if deployed
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION

49. Head Restraint Type/Damage by Occupant at This Occupant Position 9
(0) No head restraints
(1) Integral—no damage
(2) Integral—damaged during accident
(3) Adjustable—no damage
(4) Adjustable—damaged during accident
(5) Add-on—no damage
(6) Add-on—damaged during accident
(8) Other (specify):
_____
(9) Unknown

50. Seat Type (this Occupant Position) 99
(00) Occupant not seated or no seat
(01) Bucket
(02) Bucket with folding back
(03) Bench
(04) Bench with separate back cushions
(05) Bench with folding back(s)
(06) Split bench with separate back cushions
(07) Split bench with folding back(s)
(08) Pedestal (i.e., column supported)
(09) Box mounted seat (i.e., van type)
(10) Other seat type (specify):
_____
(99) Unknown

51. Seat Orientation (this Occupant Position) 9
(0) Occupant not seated or no seat
(1) Forward facing seat
(2) Rear facing seat
(3) Side facing seat (inward)
(4) Side facing seat (outward)
(8) Other (specify):
_____
(9) Unknown

52. Seat Track Adjusted Position Prior To Impact 6
(0) Occupant not seated or no seat
(1) Non-adjustable seat track

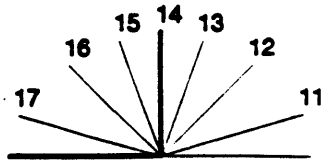
Adjustable Seat Track
(2) Seat at forward most track position
(3) Seat between forward most and middle track positions
(4) Seat at middle track position
(5) Seat between middle and rear most track positions
(6) Seat at rear most track position
(9) Unknown

HEAD RESTRAINT AND SEAT EVALUATION *continued*

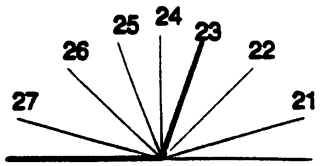
53. Seat Back Incline Prior and Post Impact 14

(00) Occupant not seated or no seat
(01) Not adjustable

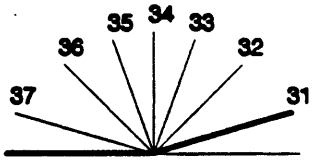
Upright prior to impact
(11) Moved to completely rearward position
(12) Moved to rearward midrange position
(13) Moved to slightly rearward position
(14) Retained pre-impact position
(15) Moved to slightly forward position
(16) Moved to forward midrange position
(17) Moved to completely forward position



Slightly reclined prior to impact
(21) Moved to completely rearward position
(22) Moved to rearward midrange position
(23) Retained pre-impact position
(24) Moved to upright position
(25) Moved to slightly forward position
(26) Moved to forward midrange position
(27) Moved to completely forward position



Completely reclined prior to impact
(31) Retained pre-impact position
(32) Moved to rearward midrange position
(33) Moved to slightly rearward position
(34) Moved to upright position
(35) Moved to slightly forward position
(36) Moved to forward midrange position
(37) Moved to completely forward position



(99) Unknown

54. Seat Performance (this Occupant Position) 9

(0) Occupant not seated or no seat
(1) No seat performance failure(s)
(2) Seat adjusters failed
(3) Seat back folding locks or "seat back" failed (specify):_____
(4) Seat track/anchors failed
(5) Deformed by impact of occupant
(6) Deformed by passenger compartment intrusion, (specify):_____
(7) Combination of above (specify):_____
(8) Other (specify): _____
(9) Unknown

CHILD SAFETY SEAT

55. Child Safety Seat Make/Model 000
(000) No child safety seat
Applicable codes are found in your NASS CDS Data Collection, Coding and Editing
(950) Built-in child safety seat
(997) Other make/model (specify):
_____
(998) Unknown make/model
(999) Unknown if child safety seat used

56. Type of Child Safety Seat 0
(0) No child safety seat
(1) Infant seat
(2) Toddler seat
(3) Convertible seat
(4) Booster seat - with shield
(5) Booster seat - without shield
(7) Other type child safety seat (specify):
_____
(8) Unknown child safety seat type
(9) Unknown if child safety seat used

57. Child Safety Seat Orientation 00
(00) No child safety seat

Designed for Rear Facing for This Age/Weight
(01) Rear facing
(02) Forward facing
(08) Other orientation (specify):
_____
(09) Unknown orientation

Designed For Forward Facing for This Age/Weight
(11) Rear facing
(12) Forward facing
(18) Other orientation (specify):
_____
(19) Unknown orientation

Unknown Design or Orientation For This Age/Weight, or Unknown Age/Weight
(21) Rear facing
(22) Forward facing
(28) Other orientation (specify):
_____
(29) Unknown orientation

(99) Unknown if child safety seat used

58. Child Safety Seat Harness Usage 00

59. Child Safety Seat Shield Usage 00

60. Child Safety Seat Tether Usage 00

Note: Options below applicable to Variables OA58-OA60.
(00) No child safety seat

Not Designed With Harness/Shield/Tether
(01) After market harness/shield/tether added, not used
(02) After market harness/shield/tether used
(03) Child safety seat used, but no after market harness/shield/tether added
(09) Unknown if harness/shield/tether added or used

Designed With Harness/Shield/Tether
(11) Harness/shield/tether not used
(12) Harness/shield/tether used
(19) Unknown if harness/shield/tether used

Unknown If Designed With Harness/Shield/Tether
(21) Harness/shield/tether not used
(22) Harness/shield/tether used
(29) Unknown if harness/shield/tether used

(99) Unknown if child safety seat used

INJURY CONSEQUENCES

61. Injury Severity (Police Rating) 0

(0) O - No injury
(1) C - Possible injury
(2) B - Nonincapacitating injury
(3) A - Incapacitating injury
(4) K - Killed
(5) U - Injury, severity unknown
(6) Died prior to accident
(9) Unknown

62. Treatment - Mortality 0
(0) No treatment
(1) Fatal
(2) Fatal - ruled disease (specify):

_____

Nonfatal
(3) Hospitalization
(4) Transported and released
(5) Treatment at scene - nontransported
(6) Treatment later
(7) Treatment - other (specify):

_____
(8) Transported to a medical facility-unknown if treated
(9) Unknown

63. Type Of Medical Facility (for Initial Treatment) 0
(0) Not treated at a medical facility
(1) Trauma center
(2) Hospital
(3) Medical clinic
(4) Physician's office
(5) Treatment later at medical facility
(8) Other (specify):

_____
(9) Unknown

64. Hospital Stay 00
(00) Not Hospitalized
____Code the number of days (up through 60) that the occupant stayed in hospital.
(61) 61 days or more
(99) Unknown

65. Working Days Lost 97
____Code the number of days (up through 60) that the occupant lost from work due to the accident
(00) No working days lost
(61) 61 days or more
(62) Fatally injured
(97) Not working prior to accident
(99) Unknown

STOP WORK HERE

VARIABLES 66-74

TO BE CODED BY THE ZONE CENTER

TO BE CODED BY THE ZONE CENTER

INJURY CONSEQUENCES

66. Time to Death 00
____Code number of hours from time of accident to time of death up through 24 hours. If time of death is greater than 24 hours, code number of days. (Note: 1 day = 31, 2 days = 32, ... n days = 30 +n up through 30 days = 60)
(00) Not fatal
(96) Fatal - ruled disease
(99) Unknown

67. 1st Medically Reported Cause of Death 00

68. 2nd Medically Reported Cause of Death 00

69. 3rd Medically Reported Cause of Death 00
____Code the Occupant Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this occupant's death
(00) Not fatal or no additional causes
(96) Mode of death given but specific injuries are not linked to cause of death. (specify):
_____
(97) Other result (includes fatal ruled disease) (specify):
_____
(99) Unknown

70. Number of Recorded Injuries for This Occupant 00
____Code the actual number of injuries recorded for this occupant.
(00) No recorded injuries
(97) Injured, details unknown
(99) Unknown if injured

TRAUMA DATA

71. Glasgow Coma Scale (GCS) Score (at Medical Facility) 00
(00) Not injured
(01) Injured - not treated at medical facility
(02) No GCS Score at medical facility
(03-15) Code the actual value of the initial GCS Score recorded at medical facility.
(97) Injured, details unknown
(99) Unknown if injured

72. Was the Occupant Given Blood? 1
(1) No - blood not given
(2) Yes - blood given
(specify units):_____
(9) Unknown if blood given

73. Arterial Blood Gases (ABG) – HCO_3 00
(00) Not injured
(01) Injured, ABGs not measured or reported
(02-50) Code the actual value of the HCO_3
(96) ABGs reported , HCO_3 unknown
(97) Injured, details unknown
(99) Unknown if injured

BELT USE DETERMINATION

74. Primary Source of Belt Use Determination 3
(0) Not equipped/not available/destroyed or rendered inoperative
(1) Vehicle inspection
(2) Official injury data
(3) Driver/occupant interview
(8) Other (specify):_____
(9) Unknown if belt used

Appendix J:

CORRESPONDENCE BETWEEN CASE VEHICLE DRIVER AND FORD MOTOR COMPANY

[redacted]

Office of the General Counsel

[redacted] Company
[redacted]
[redacted]
[redacted]1994

Mr. [redacted]
[redacted] NE [redacted]

Re: 1991 Crown Victoria
D/Event: [redacted]1994

Dear Mr. [redacted]:

We received information from our Customer Assistance Center relating to your unfortunate accident. We were advised of your concern pertaining to the injuries you received as a result of the air bag.

Attached please find a copy of "Peace of Mind - A Saleperson's Guide to the Air Bag Supplement Restraint System" and an excerpt from the [redacted]s entitled, "What You Should know About Air Bags."

The main objective of the Air Bag Supplement Restraint System is to reduce the severity of injuries. Injuries, such as scrapes and bruises, can occur. An abrasion can often be mistaken for a burn. This occurs when the body comes in contact and rubs against the air bag. These injuries are minor compared to injuries which could have occurred without the air bag.

Also, please note the information also states that "People often see what they think is smoke. But there is no fire. What they see is usually airborne corn starch or talcum powder, which are used to pack the air bag in its container and help it unfold quickly."

We hope the attached information provides the answers you are looking for.

If you would like us to review your accident further, please forward the following information for our review.

1. A copy of the police report.
2. A description of your injuries.
3. Copies of your medical bills and reports.

4. Photographs of the vehicle's collision damage.
5. Repair estimate of the vehicle's damage

Sincerely,

Claims Analyst

nw

enclosure

[redacted]

NOTIFICATION FOR LOADING OF DANGEROUS GOODS (PART B) 5 STAY WITH PACKAGE

Press Hard—5 Part Form—USE BALL POINT PEN ONLY

Employee No.	Origin:	Dest:	Date:
[redacted]	[redacted]		

Proper Shipping Name, Class or Division, UN or ID No., Subsidiary Risk (Per Title 49 CFR & IATA/ICAO)	PAX	CAO	No. of Pkgs	Net Qty Per Pkg	Airbill Number/ Customer Number	Container No./ Belly Comp In	Container No./ Belly Comp Out
FLAMMABLE SOLID N. O. S. (SODIUM AZIDE, CUPRIC OXIDE) 4. 1, UN1325, II DOT-E 8236		X	1	2. 0KGS	[redacted]		

EMERGENCY RESPONSE CONTACT 24 HR. #

1-800-

TRUCK PLACARD BOX WEIGHT

CARGO AIRCRAFT O[illegible] APPLICABLE

FedEx M-0390B 6/93 LOGOS # 107539 ©199[illegible]

DANGER POISON

KEEP OUT OF THE REACH OF CHILDREN

DANGER: Contains Sodium Azide and Sodium Nitrate. Contents are Poisonous and Extremely Flam[illegible]. DO NOT dismantle or Incinera[illegible] unit. DO NOT Probe with Electrical Test Devices. Dispose as Instructed in the Ford Air Bag Shop Manual.

DANGER: Contient de l azide de sodium et du nitrate de sodium. Contenu toxique et extrêmement inflammable. NE PAS démonter NI incinérer ce dispositif. NE PAS palper avec la sonde d un appareil de contrôle de circuits électriques. Mettre au rebut conformément aux instructions du manuel technique Ford sur les coussins de sécurité.

DANGER POISON

GARDER HORS D'ATTEINTE DES ENFANTS

This is off of the air bag that inflated. I took the label off the air bag after it had been removed from the car.

Said it also contained Sodium Hydrochloride

WHAT YOU SHOULD KNOW ABOUT AIR BAGS:

1. Air bags are not substitutes for seat belts; they work with them. The belt keeps you in position so the air bag can cushion your head and chest. A seat belt also will protect you in low-speed crashes when an air bag would not be activated.

2. Air bags are designed to work only in frontal crashes, which account for 63 percent of serious wrecks. They offer little or no protection in most side, rear and rollover crashes.

3. Bags don't stay inflated, or else they might trap you in your car or suffocate you. If they didn't deflate, it would be like hitting a fabric-covered brick wall. The deflation is what cushions your head and body; the entire process happens in a fraction of a second.

4. The gas used to inflate the air bag is nitrogen, a harmless element that is a primary ingredient in the air. The sodium azide used to produce the nitrogen is toxic, but is sealed in an air-tight container.

5. When an air bag is triggered, people often see what they think is smoke. But there is no fire. What they see is usually airborne corn starch or talcum powder, which are used to pack the air bag in its container and help it unfold quickly.

6. The only potentially dangerous substance produced by an air bag deployment is a tiny amount of sodium hydroxide, or lye, as found in Drano drain cleaner. Since this corrosive substance might be mixed with residual powder from the air bag, poison control experts say you should wash exposed skin and eyes thoroughly. If you don't, chemical burns or eye damage could result.

7. Inflating bags sometimes cause injuries, such as facial scrapes and bruises. Typically, these are minor, compared with the injuries that could have occurred without the air bag.

8. Serious injuries from air bags are rare. The government has found only a handful of cases in which an air bag contributed to a motorist's death. Air bags are credited with saving more than 300 lives and preventing thousands of crippling injuries.

9. Air bags are triggered by three to five sensors in the front of the vehicle, designed to tell the difference between major and minor impacts. They won't inflate at low speeds or in fender-benders. While a typical laboratory inflation speed is 12 m.p.h. into an immovable barrier, in real driving that's like hitting a parked car at about 25 m.p.h. At 45 m.p.h., you can rear-end a 40-m.p.h. car and your bag probably won't inflate.

10. The sound of air bag deployment is loud, but many people don't remember the noise because of the sound of the crash and the excitement of the accident. Tests show that bags usually cause no problems for drivers with eyeglasses or for those who are smoking cigarettes.

11. Child safety seats in air-bag-equipped cars require special attention. Many infant safety seats, when used in the front seat, put the child facing backward. But that puts the baby's head too close to the dashboard, and a passenger-side air bag could knock the seat up and over the seat back. Instead, the infant seat should face forward, or better yet, be placed in the rear seat.

12. Air bag systems must be replaced after the bag is triggered. Insurers usually pay the cost, ranging from a few hundred dollars for most cars to $2,000 or more in some cases. You can't just stuff the old bag back into its container. Having an air bag usually cuts your insurance rate; ask your company.

13. Bags are highly reliable and don't wear out. The government says they inflate when they are supposed to more than 99 percent of the time. Only a few cases of inadvertent deployment have been recorded, and all were due to improper repairs, improper installation or a driver ignoring a warning light.

[redacted]

page (1)

[redacted]

[redacted]

DOT-E 8236
(FIFTH REVISION)

1. [redacted], Mesa, AZ, is hereby granted an exemption from certain provisions of this Department's Hazardous Materials Regulations to offer packages prescribed herein of a passive restraint system, and its inflator, for transportation in commerce subject to the limitations and special requirements specified herein. This exemption authorizes the transportation of inflators and modules for passenger restraining systems as flammable solids, and provides no relief from any regulation other than as specifically stated. NOTE: Reference to 49 CFR sections in this exemption are to regulations in effect on September 30, 1990. Each of the following is hereby granted the status of a party to this exemption:

[redacted] MI - PTE-1.
[redacted], MI - PTE-2.
[redacted] PTE-3.
[redacted], CA -PTE 4.
[redacted] PTE5.
[redacted], NJ - PTE-6.

2. BASIS. This exemption is based on [redacted] application dated [redacted], 1991, submitted in accordance with 49 CFR 107.105 and supplemental letters dated [redacted], 1989 and [redacted], 1992. The granting of party status is based on the following applications submitted in accordance with 49 CFR 107.111 and the public proceeding thereon and 107.105.

[redacted] application dated [redacted] 25, 1991.
[redacted] application dated [redacted] 1991.
[redacted] application dated [redacted] 1991.
[redacted] application dated [redacted]
[redacted] application dated [redacted] 1991.
[redacted] application dated [redacted] 1992.

3. HAZARDOUS MATERIALS (Descriptor and class).

a. Passive restraint inflators for, and systems generally identified as Part Nos. 91880-1, 91880-3, 91880-7, 98020- 1, 98020-3, 98020-5, ES3B-54042B72 and ES3B-54043B13 containing not to exceed 105 grams of a propellant identified as TAL 1101 and not to exceed 13 grams of a mixture of boron and potassium nitrate identified in Bureau of Explosives report dated June 21, 1968 as Ignition Composition 1P60 and not to exceed 150 milligrams of a mixture of titanium and potassium perchlorate identified in Bureau of Explosives letter dated February 27, 1984, as Igniter Part Number 174-00381 (DOT approval June 5, 1984, EX-8406010 Class C Explosive). This passive restraint inflator, and this system are classed as flammable solids".

b. Inflators for passenger restraint systems deemed to be scrap material may be classed as flammable solid when packed in accordance with paragraph 7.b. of this exemption.

4. PROPER SHIPPING NAME (49 CFR 172.101). Flammable solid, n.o.s.

5. REGULATION AFFECTED. 49 CFR 171.11 (see paragraph 8) 173.153, 173.154, 175.3.

6. MODES OF TRANSPORTATION AUTHORIZED. Motor vehicle, rail freight, cargo vessel, cargo aircraft only.

7. SAFETY CONTROL MEASURES.

a. Outside packaging prescribed is a DOT Specification 12B or 12B fiberboard box. Packaging of units identified as P/N ES3B-54042B72 must also comply with the packaging description on page 3 and Appendix D of the Ford applications.

b. Scrap inflators may be packed and shipped in a DOT Specification 17H drum for disposal purposes only.

8. SPECIAL PROVISIONS

a. Persons who receive packages covered by this exemption may reoffer them for transportation provided no modifications or changes are made to the packages, all terms of this exemption are complied with, and a current copy of this exemption is maintained at each facility from which such reoffering occurs.

b. A copy of this exemption must be carried aboard each vessel and aircraft used to transport packages covered by this exemption.

c. An inflator or a module identified in paragraph 3 above is exempt from the requirements of 49 CFR Parts 100-199 when installed in a motor vehicle. All other packages shipped under the terms of this exemption, must bear FLAMMABLE SOLID labels regardless of net weight of the flammable solid in each inside package. In addition, for cargo vessel shipments only, all vehicles and freight containers containing packages under the terms of this exemption must be placarded FLAMMABLE SOLID.

d. Domestic shipments via air may be made per the requirements of 49 CFR 171.11. This provision also constitutes an exemption under Part 1; 1.1 of the ICAO Technical Instructions to authorize the domestic transportation of inflators and modules for passenger vehicle restraint systems on cargo aircraft using the proper shipping name, hazard class, and UN number (Flammable solid, n.o.s., 4.1, and UN 1325). The inflators and modules must be packaged in accordance with the provisions of the Safety Control Measures prescribed in paragraph 7 of this exemption.

e. The "FLIGHTS OF CARGO-AIRCRAFT ONLY" requirements of Appendix B to 49 CFR Part 107 do not apply to operations subject to this exemption.

f. This exemption does not grant authority to use foreign airspace or airports outside the United States.

9. REPORTING REQUIREMENTS. Any incident involving loss of packaging contents or packaging failure must be reported to the Associate Administrator for Hazardous Materials Safety as soon as practicable. (49 CFR 171.15 and 171.16 apply to any activity undertaken under the authority of this exemption.)

10. EXPIRATION DATE. [redacted] 1993.

Issued at Washington, D.C.:

[redacted] [redacted]
(DATE)

[redacted]
Associate Administrator
for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Research and Special Programs Administration, Department of Transportation, Washington, D.C. 20590. Attention: Exemptions Program.

Dist: FHWA, FRA, USCG, FAA.

Re [redacted]

[redacted] 1995

[redacted]

Re 1991 Crown Victoria
D/Event: [redacted] 1994

[redacted]:

Enclosed is the information you requested in your letter of [redacted] 94.

1. Police report.
2. Injuries — A bruise on my chest as described in the enclosed Dr. report, bruised thumb and a acute case of lung infection as a result of the discharge of the air bag.
3. Medical bills and reports are not all in at this time & I am still under Dr. care.
4. Photo of Vehicle's damage
5. Repair estimate.

I have called your customer service and asked for a treatment for the lung infection possibly caused by the Sodium Azide and I

have had only your letter in response

I am very disappointed in your Cus. Service. I would still like an answer to the treatment used to counteract the bronchial effects of exposure to the Product used in the air Bag, Sodium Azide and any other irritant or possible irritant that may have been associated with the activation of the air bag

There was definately a burn on my chest as described in the Dr's report. I received this burn through a Cotton T Shirt, a flannel shirt and a sweater vest. The burn would have been more severe had I not held my clothing away from my body until my Clothing cooled.

The only human damage caused by this event was totally caused by the air bag as neither I or my Passenger was thrown forward or our Seals

Sincerely

P.S. We feel that the air Bag should not have been activated by this impact this may not be exactly the same as the one I sent in for.

[redacted]

Office of the General Counsel

[redacted]

[redacted] 1995

Mr. [redacted]

[redacted] NE [redacted]

Re: CMS No: [redacted]
1991 Crown Victoria
D/Event: [redacted] 1994

Dear Mr. [redacted]:

I am in receipt of your letter dated [redacted] 1995. Please be advised that the Air Bag Supplement Restraint System is designed to reduce fatalities, not prevent injuries. The medical and police report indicates you were not wearing your seat belt at the time of the accident. Please note that the 1991 Crown Victoria's Owner's Manual stresses the importance of wearing the safety belt even with an air bag system. Please note that the safety belt helps keep you in the proper position when the air bag inflates. I enclose a copy of the excerpt from the Owner's Manual.

Although you indicate that the impact should not have been severe enough to deploy the air bag, the police report indicates that the posted speed limit was 55 mph. Please note that the information previously given to you indicates that the air bag is designed to deploy in moderate to severe impact at speeds at approximately 28 mph or greater.

Please be advised that we are not physicians and are unable to respond to your question pertaining to the treatment of inhaling either talcum powder or corn starch from the deployment of the air bag. This should be addressed with your own physician.

Sincerely,

[redacted]

Claims Analyst

Lap belts with retractors — wagon model with the optional Dual Facing Rear Seat only

To fasten the belt, pull the belt across your hips and insert the tongue into the correct buckle on your seat until you hear a snap and feel it lock. Make sure the buckle is securely fastened.

To unfasten the belt, push the release button in the center of the buckle. This allows the tongue to unlatch from the buckle. While the belt retracts, guide the tongue to its original position so it does not strike you or part of your vehicle.

Safety Belt Extension Assembly

A safety belt that is too short even when fully extended can be lengthened. Available from your dealer is a safety belt extension assembly (611C22). This assembly will add approximately eight inches (20 cm) to the length of the belt.

Warning: To ensure that the safety belt extension assembly will hold in the event of a collision, only safety belt extensions manufactured by the same supplier as the safety belt should be used. Manufacturer identification is located at the end of the webbing on a label.

Supplemental Air Bag Restraint System (SRS)

Driver Side Only

Your car is equipped with an air bag for the driver. This air bag is a supplemental restraint system. It is designed to be used in addition to safety belts to help protect against head and chest injuries in certain moderate to severe frontal collisions.

Warning: Safety belts must be worn by all vehicle occupants to help reduce the risk of injury in an accident.

The Importance of Wearing Safety Belts

There are four very important reasons to use safety belts even with an air bag system. Use your safety belts to:

- help keep you in the proper position when the air bag inflates
- reduce the risk of harm in rollover, side or rear impact accidents, since an air bag is not designed to inflate in such situations
- reduce the risk of harm in frontal collisions that are not severe enough to activate the air bag
- reduce the risk of being thrown from your car

The Importance of Proper Seated Position

In an accident, air bags must inflate extremely fast to help provide additional protection for you. In order to do this, the air bags must inflate with considerable force. If you are not seated in a normal riding position with your back against the seat back, the air bag may not protect you properly and could possibly hurt you as it inflates.

Appendix K:

Response from Internal Medicine Doctor and Medical Journal Article

[redacted] 1995

Internal Medicine & Diagnosis

M.D.

M.D.

M.D.

[redacted], IN [redacted]

Dear Mr. [redacted]

I have received your letter of [redacted] I have enclosed a copy of an article that may be pertinent.

Cardiology

M.D.

M.D.

M.D.

M.D.

M.D.

As I am sure you are aware the majority of problems associated with the deployment of air bags are with localized facial injuries with driver side air bags. It is of interest that the information enclosed from GM suggests that air bag deployment poses no respiratory system hazard to asthmatics. I believe this probably references a study reported in 1991. However, these same investigators recently reported a repeat of this study and did in fact show that aerosols generated by air bag deployment can evoke significant asthmatic reactions in certain individuals. I have enclosed a copy of that article which was published in [redacted] 1994. It is the general consensus that the precipitation of these bronchospastic reactions is due to a chemical gases rather than the inhalation of talc.

Gastroenterology

M.D.

M.D.

From a standpoint of talc itself the majority of problems related to talc are found in intravenous drug abusers who use talc to cut their drug, which leads to significant problems. Inhaling talc particularly in an acute situation is less well described to cause significant problems. There is some suggestion of chronic talc inhalation leading to a pneumoconiosis, but this would certainly not be pertinent to the case that you mentioned. I suppose that in high concentrations the inhalation of talc could lead to an acute irritant or bronchospastic reaction if this patient was susceptible. From a review of literature over the last five years I could not find any cases of an acute pneumonitis related to deployment of an air bag. The case in question apparently is a claim that a gentleman seated in the right rear position and that he suffered pneumonia from the deployment of the driver side air bag. "Pneumonia" is somewhat of a generic term. It would seem to me highly unlikely if not impossible for a gentleman to develop a bacterial infectious process from this type exposure. Whether or not he has underlying bronchospastic lung disease and may have developed an episode of bronchospasm and was given a clinical diagnosis of pneumonia or perhaps developed some irritant type symptoms and was told he had pneumonia without really definitive x-ray and other studies, I could not be certain.

Pulmonary Diseases

M.D.

M.D.

Infectious Disease

In this letter, the doctor responded to questions raised by this contractor concerning two air bag-related respiratory cases that were under investigation by this contractor. The third paragraph in the letter concerns "pneumonia" which is not an issue in this specific case but is an issue in TRC/IU Case Number: 95-02, Task 9510.

I hope that in some way this information is useful in your research. If I could provide anything else or give any further assistance to you please let me know.

Sincerely

[redacted]

[redacted]

enclosure

ACUTE PULMONARY RESPONSE OF ASTHMATICS TO AEROSOLS AND GASES GENERATED BY AIRBAG DEPLOYMENT

The purpose of this study was to determine whether the aerosols and gases that vent into an automobile's passenger compartment after airbag deployment pose a risk to the asthmatic population. After baseline pulmonary function measurements were taken, 24 diagnosed asthmatic subjects were placed in the rear seat of an automobile, and a driver-passenger airbag system was deployed. Subjects remained in the vehicle with the windows closed and no ventilation for 20 min or until they perceived or demonstrated signs of chest tightness and bronchoconstriction. They then exited the vehicle and were retested immediately after exposure and 2 and 4 h after exposure. Ten of the 24 subjects demonstrated clinically significant bronchoconstrictive episodes, three of which required medical intervention. These three events were quickly reversed by β-agonist therapy. When eight of the responding subjects were reexposed at later dates to the same supplemental inflatable restraints emissions while wearing a high-efficiency particulate absolute respirator, which prevented inhalation of the particles but allowed passage of the gases, the pulmonary response was essentially eliminated. We conclude that the aerosols generated by deployment of automotive driver-passenger airbag systems can induce significant asthmatic reactions in some individuals.

Automotive airbags, also known as supplemental inflatable restraints (SIR), are designed to act in concert with safety belts by absorbing energy and reducing injurious loads on automobile occupants during moderate to severe frontal collisions. One analysis suggests a reduction in traffic fatalities by 8.2% if all automobiles had airbags used in conjunction with a 54% lap-shoulder belt use rate (1). Injuries from airbag deployment have been reported, such as thermal burns, abrasions, and chemical keratitis from airbag discharge of alkaline dusts, and heart trauma associated with the blunt impact to the chest (2, 3). These resultant complications have been argued as a justifiable trade-off for potential reductions in serious injuries or fatalities (4). The airbag will soon become standard equipment for both driver and passenger on most cars sold in the United States. The current technology involves the pyrotechnic oxidation of sodium azide by various oxidizing agents to produce mostly nitrogen gas which inflates the bag. The major by-product of this reaction is a metallic sodium aerosol, which quickly reacts with water vapor and carbon dioxide to produce sodium hydroxide, which in turn quickly converts to sodium carbonate (5). The aerosol also contains by-products of chemicals added to the sodium azide to initiate and control its oxidation. Along with gases generated in this process, the aerosol vents into the passenger compartment during the deflation of the airbag. It is estimated that the frequency with which an asthmatic could be trapped in a car for 20 min or more after airbag deployment with the windows closed, before exiting the vehicle, will likely exceed 100 cases/million cars/yr (6). The purpose of this study was to determine whether inhalation of the effluents from a deployed airbag system could precipitate an asthmatic attack in this population.

Previous work in this laboratory indicated that this would not likely be a problem (7). In that study, asthmatic subjects inhaled the aerosol captured and resuspended from a driver-side only airbag module at concentrations as high as 166 mg/m³ for 20 min, without production of any clinically significant changes in ventilatory function. However, there were certain aspects of that study which suggested the results may not be representative of the actual exposure environment for a real-world driver-passenger airbag deployment. The particulate concentrations inhaled by the asthmatic subjects ranged from 88 to 166 mg/m³ and were substantially below the levels subsequently found with a driver-passenger airbag system (200 to 300 mg/m³). Secondly, the chemical technology for passenger-side airbag modules (which must give off gases to inflate an airbag approximately three times the size of the driver-side bag, but in the same amount of time) has been modified from that of driver-side modules and may produce different chemicals after deployment. Thirdly, in the previously published study the aerosols were captured and held in a mixing chamber which allowed the aerosol to age for as much as an hour, possibly resulting in the loss of some volatile components from the particles before inhalation. Lastly, the subjects were not in an

(*Received in original form* [redacted] *1993 and in revised form* [redacted] *1994*)
Correspondence and requests for reprints should be addressed to [redacted]
[redacted] Vol 150. pp 408–414, 1994

automobile during and after airbag deployment, and therefore additional emotional and stress factors, suggested to exacerbate responses in some asthmatics (8), were absent. For these reasons, the current study was undertaken in which the pulmonary responses of volunteer asthmatic subjects seated in the rear seat of an automobile were evaluated during and after the deployment of a driver-passenger airbag system.

METHODS

The protocol employed was approved by the [redacted] and the [redacted]. Written informed consent was obtained from all participants.

Subjects

Twenty-four volunteers (21 male, three female) were recruited through advertisements in local newspapers. All subjects were between the ages of 18 and 45 yr, and met our criteria for asthma, which included (1) a previous diagnosis of asthma by a physician; (2) a history of reversible chest tightness, shortness of breath, and wheezing; and (3) a provocative concentration resulting in a 100% increase over baseline specific airway resistance (PC_{100}sRaw) for methacholine ≤ 1.5 mg/ml. All subjects' asthma had to be stable enough that they could withhold inhalation therapy for 12 h and oral medications for 24 h before airbag exposure. This was done in order to provide a worst case scenario and to eliminate the potentially confounding influence that the various drug regimens might have on the asthmatic response. In addition, all female subjects provided urine samples within 72 h previous to each airbag exposure, in order to test for the possibility of pregnancy. A positive result would have eliminated the subject from the study.

Methacholine Challenge

Baseline specific airway resistance (sRaw) was measured in each subject. While seated, as the subject inhaled from functional residual capacity (FRC) to total lung capacity (TLC), a 1-s burst of saline aerosol from a nebulizer (no. 626; DeVilbiss, Somerset, PA) pressurized at 20 psi was administered. After five breaths of the saline, sRaw was measured again. Next, methacholine chloride in saline was administered in 5 breaths at 0.064 mg/ml and then in subsequent doubling concentrations with sRaw measured between each increasing concentration. Concentrations of methacholine were doubled until the sRaw had increased at least 100% over baseline value or until a 2 mg/ml concentration was reached. The PC_{100} was calculated by interpolation of the log-transformed methacholine concentrations.

Airbag Exposure

Subjects were seated in the back seat of a full size four-door sedan. Back seat occupancy was chosen because preliminary measurements (not presented) showed that the gas and aerosol exposure for people sitting in the back or front was quite similar, and it avoided the physical interaction of the subject with the forcefully inflating airbag. Ear plugs and ear muffs were worn for hearing protection. A Plexiglas face shield was also worn as a precaution against the unlikely possibility of flying debris. The driver-passenger airbag system was deployed, and the subject immediately removed the face shield and hearing protection. The subject remained in the vehicle, with windows closed and no ventilation, for 20 min, or until signs and symptoms consistent with bronchospasm (e.g., chest tightness, wheezing, dyspnea, tachypnea, tachycardia) occurred. During this time, the subject was visually observed by a physician, and constant communication was maintained through an intercom. Heart rate and electrocardiogram were continuously monitored (Model 7000-D ECG Nonfade Monitorscope; [redacted]). Respiratory rate and pattern were visually monitored.

Eight of the 10 subjects who had significant clinical responses to the airbag effluents were asked to return for a second test in which they were exposed to the gases but not the aerosols from the airbags. These subjects were tested no sooner than 2 wk after the previous exposure. For this second protocol, subjects sat in the vehicle with airbag deployment as before but wore a high-efficiency particulate absolute (HEPA) filtered respirator that essentially removes all particles while allowing the gases to flow through (9). The first two subjects wore passive filtering respirators with which they had to inhale against a slightly negative pressure (Model 7800 Easi-Air Full Face Air Purifying Respirator; 3M Corp., St. Paul, MN). All others used a battery-powered air purifying respirator that continually pumped passenger compartment air through the filters to the face at 140 L/min so that no excess effort was required on the part of the subjects during inhalation (Model W3200; [redacted]).

Symptoms Evaluation

Subjects filled out a symptoms questionnaire before entering the vehicle, at 2, 4, 8, 12, and 19 min after the airbag deployment, and immediately after the postexposure pulmonary function tests. Numbers from zero to 5 were circled by the subject according to his evaluation of each symptom: 0 = none, 1 = just perceptible, 2 = distinctly perceptible, 3 = nuisance, 4 = offensive, 5 = unbearable. The symptoms cited in the questionnaire are listed in Table 1.

Pulmonary Function Testing

Pulmonary function tests consisted of sRaw and FRC measurement by plethysmography and forced expiratory flow–volume curves. These tests were performed before airbag exposure, immediately after exiting the car, and 2 and 4 h after airbag exposure. All tests were administered by the same individual (KBG) using computer-based instrumentation with heated pneumotachographs for flow and volume measurements (Systems 1070 and 1085; [redacted]). All testing adhered to the American Thoracic Society guidelines and recommendations (10). Predicted spirometric values were based on the work of Crapo and coworkers (11).

Exposure Characterization

Aerosol concentrations were determined gravimetrically by drawing sequential filter samples from a central location inside the vehicle at the rate of 4 L/min through 47-mm filters [redacted] during the 20-min exposure. The size distribution of the aerosols was determined with an eight-stage multi-orifice uniform deposit impactor (MOUDI) with particle cut sizes of 10, 5, 2.5, 1.03, 0.3, 0.1, 0.072, and 0.058 mm (12). Preweighed 47-mm polyvinyl chloride (PVC) membrane filters were used as impaction substrates and the backup filter. The data were processed using an algorithm developed by Knutson (13).

In addition, carbon dioxide (CO_2) and carbon monoxide (CO) concentrations in the passenger compartment were continually measured. Because some of the pyrolytic products produced by the airbag deployment

TABLE 1

SYMPTOM SCORES OF NONRESPONDER SUBJECTS EXPOSED TO AIRBAG EFFLUENT (n = 14)*

Symptom	Preexposure Mean	Mean of Highest Score Reported by Each Subject
Itching or burning of the eyes	0.00 (0)	0.86 (0.23)
Itching or burning of the nose	0.07 (0.07)	2.1 (0.43)
Dryness of mouth or throat	0.29 (0.13)	1.6 (0.29)
Burning of throat	0.00 (0)	2.4 (0.37)
Production of tears	0.00 (0)	0.71 (0.22)
Urge to cough	0.43 (0.17)	3.1 (0.34)
Shortness of breath	0.29 (0.13)	1.7 (0.37)
Chest tightness	0.36 (0.13)	1.3 (0.29)
Chest burning or discomfort	0.07 (0.07)	1.7 (0.35)
Difficulty taking a deep breath	0.14 (0.10)	2.4 (0.40)
Runny nose	0.07 (0.07)	1.4 (0.42)
Nausea	0.00 (0)	0.07 (0.07)
Headache	0.07 (0.07)	0.43 (0.23)
Dizziness	0.00 (0)	0.50 (0.17)
General discomfort	0.00 (0)	1.36 (0.36)

* Symptom scores: 0 = none, 1 = just perceptible, 2 = distinctly perceptible, 3 = nuisance, 4 = offensive, 5 = unbearable. Values in parentheses are standard error of the mean.

TABLE 2

CHARACTERISTICS OF SUBJECTS

Subject No.	Sex	Age (yr)	Ht (cm)	Wt (kg)	FVC (% pred)	FEV (% pred)	Baseline sRaw (cm H_2O/L/s)(L)	PC_{100} sRaw (mg/ml)	Known Allergies	Medications
Responders										
1	M	31	175	66.7	103	106	6.15	1.21	Mold, dust mite	Corticosteroid inhaler, prn
6	M	20	178	74.4	99	99	6.18	0.11	Pollen, dust, molds	β-agonist inhaler, prn
7	M	24	178	68.9	94	74	16.83	0.66	Dust mite, weeds, animals	Theophylline; β-agonist inhaler, prn; corticosteroid inhaler, prn
10	M	31	180	99.8	109	106	4.61	< 0.064	Animals, dust mite, pollen, grass	Theophylline; β-agonist inhaler, prn
11	M	35	178	81.7	66	49	16.50	0.074	Dust, animal dander, nuts	Theophylline; β-agonist inhaler, tid
12	M	42	168	72.6	53	59	13.97	0.16	Dust, grass	Theophylline; β-agonist inhaler, qid; corticosteroid inhaler, tid
13	M	39	185	158.8	68	60	9.07	0.53	Iodine	Theophylline; β-agonist inhaler, qid; ipratropium inhaler, tid
17	M	23	178	69.0	100	77	19.94	0.52	Animals, pollen, ragweed	Theophylline; β-agonist inhaler, prn; ipratropium inhaler, bid; corticosteroid inhaler, bid
18	M	21	175	95.3	115	105	7.11	0.14	Mites, dogs, cats, corn	Oral β-agonists; β-agonist inhaler, prn; corticosteroid inhaler
21	F	32	168	122.5	72	62	11.48	0.15	Molds, fish, nuts, pollen	Theophylline; β-agonist inhaler, prn; oral β-agonist
Nonresponders										
2	M	26	191	79.4	111	88	10.03	1.17	None	β-agonist inhaler, prn
3	M	18	170	63.5	88	57	11.61	0.75	None	None
4	M	24	185	97.5	110	99	8.01	0.71	Grass, animals, dust	β-agonist inhaler, prn
5	M	37	163	77.1	95	78	7.15	0.83	Mold, dust	None
8	M	23	173	72.6	95	87	12.60	0.07	Trees, grass, molds, animals	β-agonist inhaler, prn
9	M	30	173	72.6	110	72	14.43	0.10	Dust mite, some trees	Theophylline; corticosteroid inhaler; β-agonist inhaler, prn; β-agonist tablets, prn;
14	M	27	170	63.5	110	93	9.35	0.086	None known	β-agonist inhaler, prn
15	M	33	193	115.7	106	106	4.31	0.52	None	None
16	M	38	180	87.1	112	98	8.02	< 0.064	Dust, feathers, hay fever	Theophylline; β-agonist inhaler, prn
19	M	21	170	62.1	82	74	9.14	1.04	Pollen, grasses, dogs, cats, eggs, milk, corn oil, soybean oil	β-agonist inhaler, prn
20	M	24	168	72.6	105	99	9.43	1.13	Cats, birds, dust, straw	β-agonist inhaler, prn
22	M	28	178	97.5	89	76	18.57	0.74	Dust	β-agonist inhaler, prn; Cromolyn inhaler
23	F	26	165	47.6	107	110	7.41	1.33	Dust, pollen, animals	None
24	F	20	160	55.8	108	110	6.96	1.30	Cats, dogs, pollen grass	β-agonist inhaler, prn

Definition of abbreviations: sRaw = specific airway resistance; PC_{100} sRaw = provocative concentration resulting in a 100% increase over baseline sRaw; prn = as the occasion arises; tid = three times daily; qid = four times daily; bid = twice a day.

were found to interfere with the CO sensor during the second half of the exposure, the CO concentrations are reported as the mean for the first 10 min only. CO_2 was monitored with a portable analyzer (Model 3252; Gastech, Inc., Newark, CA) calibrated at 2,000 ppm. The CO was monitored with a portable monitor (Ecolyzer Model 411; National Drager, Inc., Pittsburgh, PA) calibrated at 46 ppm.

Statistical Evaluation

Data statistically evaluated were first submitted to the Shapiro-Wilk statistic for normality (14). The test could not reject the hypothesis that the data were normally distributed and accordingly were evaluated as such. Differences were evaluated using the one-tailed Student's *t* test (15). P values of 0.05 or less were accepted as indicating statistical significance. Data are reported as means ± standard error of the mean (SEM).

RESULTS

Subject Characteristics

Characteristics of the subject population are presented in Table 2. None of the subjects had a history of regular smoking except for Subject 7 who had a 14 pack-year history of cigarette use but quit 7 yr prior to this study. Only one subject (Subject 6) had been hospitalized for his asthma in the 12 mo prior to this study.

Exposure Conditions

The average particulate concentration for the 20-min exposure for all 24 subjects was 221 ± 8.2 (SEM) mg/m³, with a range of 175 to 306 mg/m³. The average particulate concentration for the

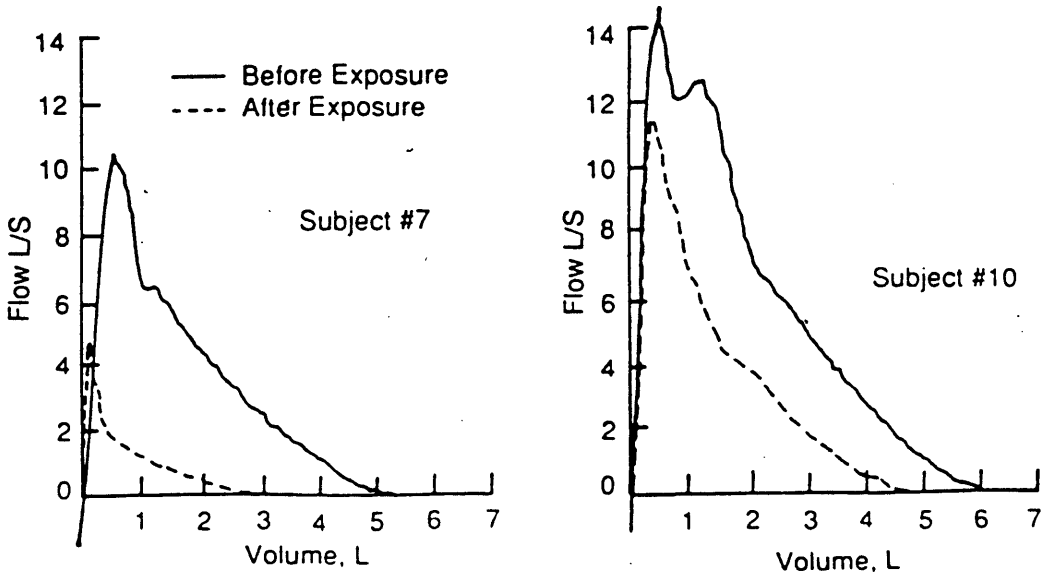


Figure 3. Flow–volume curves for two of the subjects (7 and 10) who showed clinically significant responses to the inhalation of the airbag effluent.

apy, and generally felt an alleviation of symptoms within 15 min after exiting the car.

In all cases where medical intervention was necessary, pharmacologic therapy consisted of treatment with metaproterenol sulfate (0.6%, 2.5 ml), administered by updraft nebulizer. In each instance, most of the symptoms resolved promptly. In general, clinical signs of the bronchospasm induced by the airbags in the responder population included signs of wheezing, tachypnea, tachycardia, and nasal flaring.

The results of filtering particles out while allowing the responders (eight of the 10) to inhale the airbag effluent gases are also shown in Figure 2A and B. With the HEPA filter masks worn during exposure, sRaw and FEV_1 immediately after exposure increased by only 14 and 3%, respectively, compared with a 237% increase and 30% decrease when exposures were performed without filtering out the SIR aerosols. The greatest response in a HEPA-filtered exposure was for Subject 11, whose sRaw went from a baseline of 10.4 to a postexposure level of 19.1, an 84% increase. This is still dramatically less than his non-HEPA-filtered response in which his sRaw went from 24.8 to 61.0 cm H_2O/L/s·L, a 146% increase, and required urgent bronchodilator treatment.

Figure 4 displays the FVC, FEV_1, and FEV_1/FVC data obtained during subject characterization as a percentage of predicted for responders and nonresponders. The means for each group are displayed by a horizontal bar. The predicted FVC significantly lower for the responders.

Symptoms Reporting

Table 1 shows the highest symptom reporting during the airbag exposures for the 14 nonresponders. The highest symptom scores reported during the exposure were related to the urge to cough, difficulty in taking a deep breath, and itching or burning of the throat and nose. These symptoms were likely related to the very large amounts of particulate being inhaled, and apparently not related to acute bronchospasm, since airway constriction was not apparent in these nonresponders.

Four of the symptoms that might be expected to be indicative of an asthmatic attack are reported in Figure 5 as means of the nonresponders (n = 14) and responders with (n = 8) and without (n = 10) use of the HEPA filter respirators. The responders show a distinct increase in these four symptoms in comparison with the nonresponders. Use of the HEPA filter respirators essentially eliminated symptomatic response by the responders.

DISCUSSION

Ten of 24 asthmatic subjects who were exposed to the aerosols and gases in the passenger compartment resulting from the deployment of a driver-passenger airbag system had clinically significant bronchospasm. Four of these responses required terminating the exposure before the intended 20 min had been reached. Urgent bronchodilator therapy with only β-agonist inhalation rapidly improved the acute symptomatology without recurrence.

HEPA filter masks effectively diminished the bronchospastic provocation in prior responders. These masks were employed to remove the effect of the aerosols although the subjects were still exposed to the gases. Subjects reported that use of the masks eliminated the development of chest tightness, burning or discomfort, and difficulty in taking a deep breath, but eye and upper airway irritation were still noticed. This suggests that the substances responsible for the induced bronchospasm appear to lie in the particulate, although the SIR gases are not totally innocuous.

Some asthmatics are known to have an emotional component to their asthma. We do not believe the acute bronchospastic episodes observed in these tests were initiated by stress or emotional factors for several reasons. Subject 7 who was tested on two different occasions with the same airbag system had qualitatively similar responses, even though he was familiar with the testing protocol the second time and therefore might have been expected to be calmer. Conversely, one could argue that once a responder had a significant reaction to the airbag exposure protocol, he would emotionally react on subsequent exposures because he knew what happened previously. However, several of the responders had additional tests of an identical protocol performed at later dates (not reported) in which they were exposed to airbag systems that used various prototype technologies that are not currently used in production. The noise and violence of the deployments were nominally the same as the previous exposures. The particulate levels

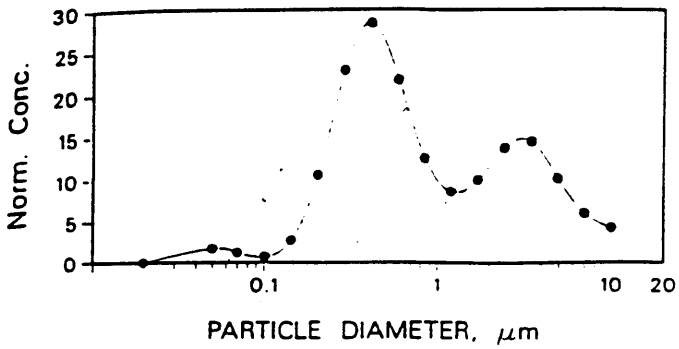


Figure 1. Size distribution of the aerosols from a driver-passenger SIR system as sampled in the passenger compartment. The normalized concentration is particulate mass expressed as a function of the aerodynamic median diameter determined by a micro-orifice uniform deposit impactor (MOUDI).

10 responding subjects was 225 ± 11.29 mg/m³, with a range of 178 to 297 mg/m³. The particulate concentration in the passenger compartment was not constant over the exposure period. Concentrations tended to be highest immediately after airbag deployment and decreased through the exposure period as some of the aerosol settled or deposited on surfaces. The particle size was bimodally distributed with nodes at 0.5 and 3.5 mm (Figure 1).

Pulmonary Function

Fourteen of the 24 subjects tested showed little discernible or clinically important response to the 20-min experimental exposure. The forced expiratory volume in one second (FEV_1) and sRaw for these subjects are graphically presented in Figures 2A and B. Immediately after airbag exposure these subjects averaged a 6% increase in sRaw and a 3% decrease in FEV_1. One subject's FEV_1 improved 11.5% after the airbag exposure compared with his morning baseline and at the 2-h postexposure time point it increased to 17% above baseline. This subject suffered from nocturnal asthma, with a typical pattern of greatest airway constriction in the morning hours and subsequent steady improvement as the day progressed. The subject arrived in the morning feeling tight and showing bronchoconstriction by the pulmonary function testing. As the day progressed the effects of the nocturnal episode wore off in spite of the airbag exposure. The greatest sRaw increase in the nonresponders occurred in Subject 24 who had a 44% increase after exposure, and her FEV_1 decreased 9%. Clinical symptoms did not exceed "distinctly perceptible" for this subject, and no medication was administered.

Subjects were classified as having had a significant clinical response to the airbag exposure if they met both of the following two criteria: (*1*) when compared with their preexposure baseline data, the airbag exposure resulted in either a 50% or greater increase in sRaw, or a 15% or greater decline in FEV_1, and (*2*) subjects experienced symptoms consistent with previous episodes of bronchospasm. Ten of the 24 subjects met these criteria. Their pulmonary function data are shown in Figures 2A and B. Immediately after airbag exposure, the responders' sRaw increased an average of 202%, and their FEV_1 decreased by 24%. Two of the subjects' reactions (Subjects 11 and 21) were so severe that medical judgment required them to exit the vehicle and terminate the exposure before the full 20 min of exposure had occurred. One of these subjects (Subject 21) exited the vehicle after approximately 7 min but was able to perform the full plethysmographic and spirometric testing (sRaw↑156%, FEV_1↓ 28%). No medication was given,

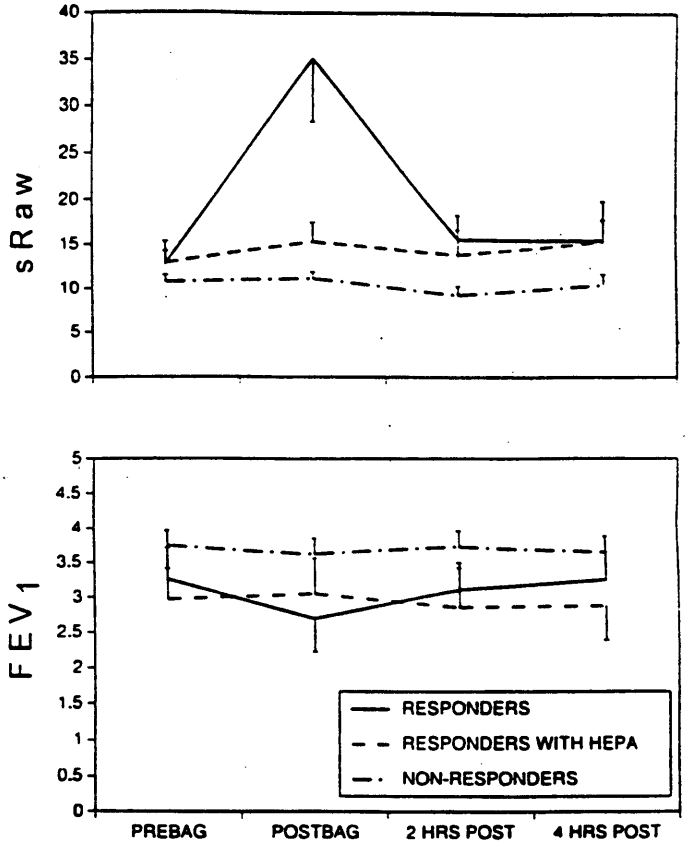


Figure 2. Effect of the inhalation of airbag effluents on (*A*) sRaw, and (*B*) FEV_1 in 14 nonresponding asthmatics, 10 responding asthmatics, and eight of the 10 responding asthmatics wearing HEPA filter masks. Data are presented with SEM.

and symptoms started to alleviate spontaneously approximately 10 min after termination of the exposure. The other subject (Subject 11) exited the vehicle after 10.5 min of exposure and performed the plethysmographic tests for resistance measurement (sRaw↑ 146%), but was so distressed at this point that he had to be medically treated without performing the spirometry. This subject's spirometry is therefore not reported in the data at the "postbag" time-point or the two succeeding test time points. Subject 7 went through the entire exposure but his reaction was so severe that therapy was given immediately without postexposure testing. This subject came back several months later for another testing. This time he again went through the entire 20-min exposure, but was able to perform the pulmonary function testing without bronchodilator therapy. It is this second test that is reported in the data (sRaw↑633%, FEV_1↓63%). A fourth subject (Subject 10) went through the entire 20-min exposure and had a significant reaction (sRaw↑335%). Although he did not immediately require medication, his condition continued to deteriorate, and by 2.5 h after termination of the exposure he required therapy. His data are not reported at the 4 h postbag time point. The pre- and postexposure flow volume loops of two subjects who responded to the airbag effluents are shown in Figure 3 as visual examples of the induced changes in ventilatory function.

Subject 21 exited the vehicle after 7 min of exposure because of the significant clinical signs and symptoms of bronchospasm she exhibited. This subject and the other three responders, who remained in the vehicle for the full 20 min, did not require ther-

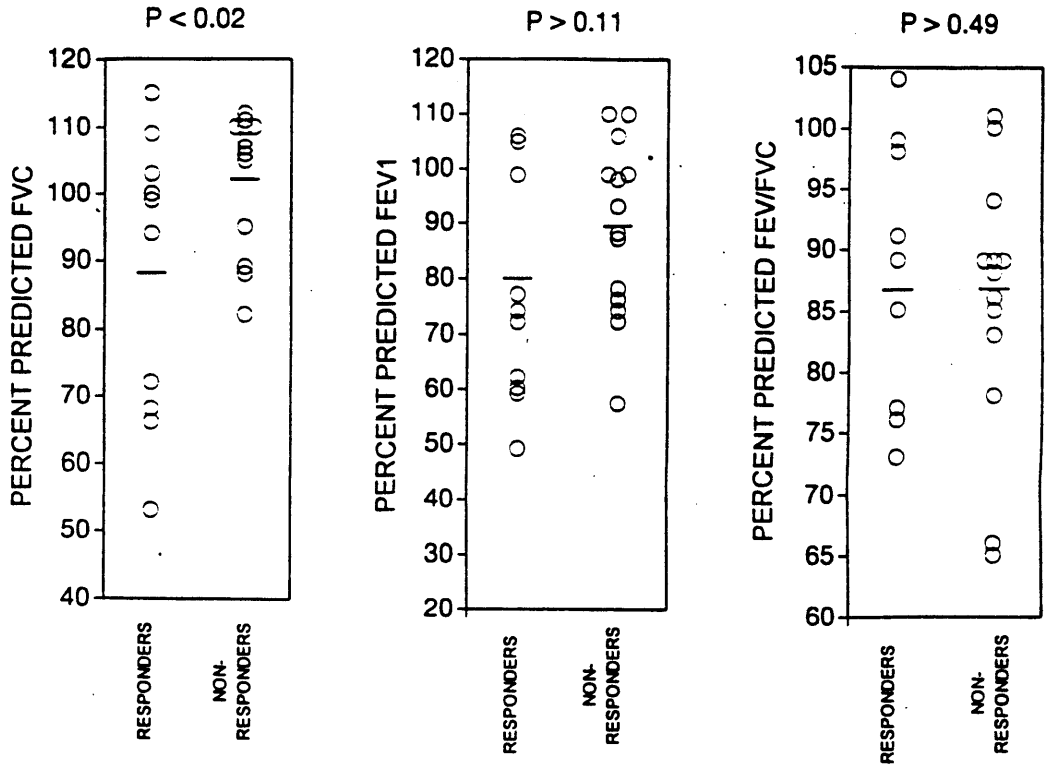


Figure 4. Percentage of predicted values for FVC, FEV_1, and FEV_1/FVC ratio in responders and nonresponders to the airbag effluents. Data were obtained during the subject characterization phase of the study. P values were obtained by Student's *t* test.

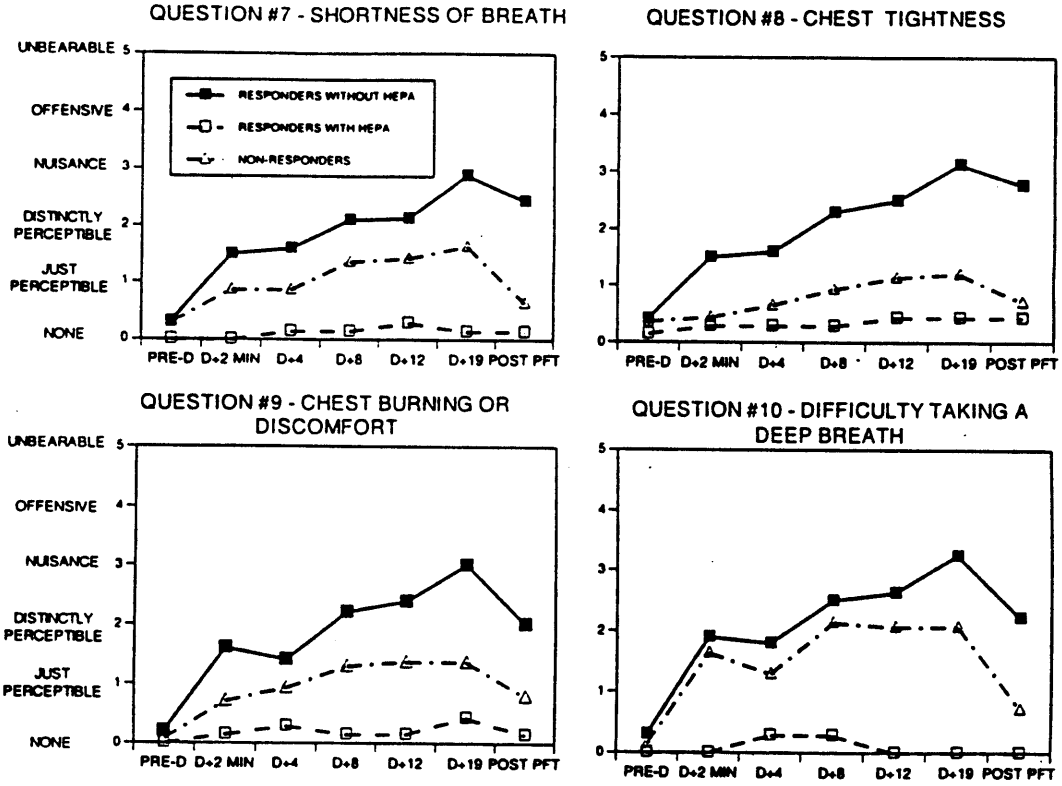


Figure 5. Scores for four of the symptoms scored during airbag effluent inhalation. The averages of the 14 non-responders, 10 responders, and eight responders wearing HEPA-filtered masks are given. For the responders, because the exposure was terminated early for two of the subjects, the last several scores consist of an n less than 10.

were generally lower, though the difference was not visually discernible. Yet, the responses in these cases were generally less or absent when compared with the production airbag systems. For example, Subject 21 had a 156% increase in sRaw in response to the production airbag system, and a 3% increase with one of the prototype systems. Subject 17, who had a 160% increase in sRaw with the production system, responded to a prototype system with a 2% decrease in sRaw. In addition, several of the responders reported that they did not start to feel their symptoms until 8 or 10 min after airbag deployment. If their pulmonary reaction was purely an emotional response to the "stress" of the airbag deployment, we would not have expected to see this delay in onset of symptoms. Lastly, if the responses were emotional, we might have expected at least one of the subjects to become nervous about wearing the rather cumbersome and awkward HEPA filter masks, and subsequently have a pulmonary response. This did not occur.

Although the percentage predicted FVC is significantly lower in the responder group (Figure 4), there is still much overlap in the data between the two groups. This suggests that it would be difficult to attempt to predict who might respond to the airbag effluents. Similarly, the PC_{100} data and known allergies information (Table 2) do not appear to offer predictive information.

This study was not designed to identify the chemical or chemicals responsible for the bronchoconstriction. There are a number of different vendors supplying the auto industry with airbags. All currently use the oxidation of sodium azide as the primary gas generant, which results in the formation of alkaline carbonates. However, there are numerous other chemicals added by each manufacturer, such as metal oxides, chlorates, nitrates, or sulfides which serve as oxidizing agents. The airbag systems used in this study employed sulfide and iron based oxidants for the airbag inflation systems. These were chosen because they are both systems with widespread current and projected future use in the U.S. market. Thus, in addition to the alkaline carbonate salts that make up the bulk of the aerosol produced by mass (4), lesser quantities of other chemicals, such as sulfurous and iron compounds must also be considered suspect as possible initiators of the observed bronchoconstriction. It is also conceivable that the pulmonary reaction is in response to significant irritation caused by an overwhelming deposition of particles in the airways, rather than to some specific chemical property possessed by them.

Responders to the airbag effluent were not more likely, as a group, to have more significant obstruction, as indicated by their lower FEV_1 and FEV_1/FVC (Figure 4). Airway hyperreactivity, as reflected by PC_{100}, and known allergy information did not segregate responders. Usual asthma medications were withheld in order to eliminate the confounding effect that medications would have on the interpretation of data and to create a worst case scenario, in the belief that if a response was not seen while withholding medication, other variations of the protocol would not be necessary. It is possible that asthmatics taking their normal medications would not respond to the degree these 10 subjects did, especially since prompt symptomatic response to bronchodilator therapy was noted in the severe responders. On the other hand, it is generally held that a significant proportion of the asthmatic population does not comply with their prescribed medication regimen, and the subjects in this study had stable asthma, mild enough that medication could be withheld. A person with moderate to severe asthma could conceivably experience a more dramatic deterioration that may not respond well to bronchodilators.

The epidemiologic implications of this study are necessarily limited by the small number of subjects. The 95% confidence interval for a binomial distribution with an event occurring 10 of 24 times (42%) is 26 to 63%, and it is likely that the true percentage of responders lies in this range. Even if the true number of responders in the asthmatic population approaches the lower limit of 26%, the acute pulmonary responses that we observed in asthmatics will likely occur regularly since approximately 4% of the population is asthmatic (16), and millions of airbag systems will be in use in the coming years.

In summary, the effluents discharged into an automobile passenger compartment after deployment of the driver-passenger airbag system, albeit a worst-case scenario, are capable of inducing clinically significant asthmatic attacks in some individuals. The aerosols generated are likely responsible for this response. The acute reaction appears to be readily treatable with standard bronchodilator therapy. The possibility of bronchospasm precipitated by airbag effluents should be considered in the differential diagnosis of acute respiratory symptomatology in victims of automobile accidents where such devices have been deployed.

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