



STATE OF IOWA

ALCOHOL RELATED FATAL TRAFFIC ACCIDENTS

IOWA, 1976

MOTOR VEHICLE DIVISION

IOWA DEPARTMENT OF TRANSPORTATION

DES MOINES, IOWA

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SUMMARY

1. There were 242 alcohol related fatal traffic accidents out of 663, or 36.5% in 1976. These claimed 293 lives, or 37.3% of the total traffic fatalities,
2. In 1976, 18 pedestrians were killed as a result of alcohol involvement. Eleven fatal accidents involved 11 drinking pedestrians killed and six fatal accidents involved drinking drivers, killing 7 pedestrians.
3. Of the 11 drinking pedestrians killed, 8 were at least 25 years old and average BAC was 0.248.
4. In 1976, 69% of alcohol related fatal accidents were single motor vehicle accidents. Mean BAC of drivers involved in single motor vehicle crashes was slightly higher than the mean BAC of drivers involved in multiple motor vehicle fatal crashes.
5. Of the 256 drinking drivers/pedestrians, 169 or 66% had blood tests. Mean or average BAC of drivers tested was .176 and 84% had a BAC of .100 percent or more. Data also showed 64.5% had a BAC of .150 or more, which shows they were probably problem drivers.
6. Approximately 51.2% of drinking drivers in fatal traffic accidents were young drivers, 24 years or younger, which exceeds the proportion of drivers already over-represented in fatal accidents.
7. Analysis of drinking drivers involved in fatal crashes showed that early morning hours had more accidents (12:00-2:59 A.M.) for both younger and older drivers.
8. Results showed that both the younger and older groups of drinking drivers had more of their accidents during the weekends.

9. Study also showed younger drivers had lower levels of alcohol in their blood but higher involvement in fatal accidents. This strongly suggests that younger drivers increase vulnerability to traffic accidents when they drink.
10. The months of January, February, March, April, September and October chalked up the highest proportion of alcohol related fatal accidents in 1976.
11. Drove left of center and speeding accounted for about 60% of the violations in multi-vehicle fatal crashes.
12. Approximately 9 out of 10 single vehicle crashes were caused by drinking drivers who were speeding and where vehicles were out of control.
13. In 1976, 46 counties were above the state average of 36.5% of alcohol related fatal accidents. Those counties accounted for 70.7% of the total number of alcohol related fatal accidents during the review year.
14. Seventeen counties had no alcohol related fatal accidents in 1976.
15. A study of the trend of alcohol related fatal accidents using 1970 through 1976 data showed an increasing trend.
16. Drinking drivers records analysis showed that 44.4% had at least 1 accident during the the 3 years prior to the fatal accident.
17. Similary, 71.7% of drinking drivers had at least 1 conviction during the 3 years prior to the fatal accident.
18. Of the 198 drivers records that were looked at, 12 were driving with invalid licenses, or 6.1%.
19. Data showed that 60% of drivers involved in alcohol related fatal accidents and drive a 1968 or older car were younger drivers.

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Statistical Tables

Page Number

Table 1.	Number and Percentage Distribution of Alcohol Related Fatal Accidents By Degree of Drinking: Iowa, 1976	2
Table 2.	Alcohol Related Pedestrian Fatalities: Iowa, 1976	2
Table 3.	Alcohol Related Fatal Accidents By Number of Vehicles Involved: Iowa, 1976	3
Table 4.	Number and Percent Distribution of Drinking Drivers/ Pedestrians Tested For Blood Alcohol Content: Iowa, 1976	4
Table 5.	Frequency of Drinking Drivers By Blood Alcohol Content: Iowa, 1976	5
Table 6.	Drinking Drivers and All Drivers Involved in Fatal Motor Vehicle Accidents By Age Group: Iowa, 1976	6
Table 7.	Drinking Drivers By Age and By Time of Day: Iowa, 1976	7
Table 8.	Mean BAC of Drinking Drivers Involved in Fatal Accidents By Age Group: Iowa, 1976	8
Table 9.	Number and Percent Alcohol Related Fatal Accidents and Fatalities, Drinking Drivers, By Month:	9
Table 10.	Violations committed By Drinking Drivers Involved in Fatal Accidents: Iowa, 1976	10
Table 11.	Alcohol Related Fatal Accidents and Fatalities By County and By Percent: Iowa, 1976	11
Table 12.	Counties with Alcohol Related Fatal Accidents Above the State Average of 38.2% Alcohol Related Fatal Accidents: Iowa, 1976	15
Table 13.	Alcohol Related Fatal Traffic Accidents and Fatalities: Iowa 1970-1976	17
Table 14.	Drivers Records of Drinking Drivers in Fatal Accidents: Iowa, 1976	19
Table 15.	Convictions of Drinking Drivers in Fatal Accidents: Iowa, 1976	19
Table 16.	Alcohol Related Fatal Accidents by Driver Age and Model Year of Vehicle: Iowa, 1976	21

<u>Figures</u>	<u>Page Number</u>
Figure A. Relative Frequency of Alcohol Related Fatal Accidents and Trend: Iowa 1970-1979	22
Figure 1. Percent Distribution of Alcohol Related Fatal Accidents By Number of Vehicles Involved (Single or Multiple) and By Time Period: Iowa, 1976	23
Figure 2. Percent Distribution of Drinking Drivers involved in Fatal Accidents By BAC: Iowa, 1976	24
Figure 3. Mean BAC Level of Drinking Drivers By Age Group: Iowa, 1976	25
Figure 4. Percent Distribution of Alcohol Related Fatal Accidents By Day of Week: Iowa, 1976	26
Figure 5. Distribution of Drinking Drivers By Age and By Time: Iowa, 1976	27
Figure 6. Average BAC of Drinking Drivers Involved in Fatal Traffic Accidents By Month: Iowa, 1976	28
Figure 7. Violations Committed By Drinking Drivers By Type of Accident: Iowa, 1976	29
Figure 8.	30

ALCOHOL RELATED FATAL MOTOR VEHICLE ACCIDENT STUDY: IOWA, 1976

1.0 Objectives:

This report is a continuing study of alcohol related fatal traffic accidents in the State of Iowa from year to year.

The primary objective is to ascertain and evaluate the proportion of alcohol related fatal accidents. The secondary objective is to present information on the characteristics of alcohol related fatal traffic accidents and to examine the extent of drinking pedestrian involvement.

In this study, another factor was investigated, the relationship between age of car and age of driver involved. This information and many others are necessary in planning effective countermeasure programs.

2.0 Sources of Data:

Data were collected from investigated fatal traffic accident reports. A fatal accident is alcohol related if the investigating officer reports that the driver or pedestrian had been drinking and if the degree of drinking was classified under the following $\frac{1}{2}$ categories and possibly verified by a blood test.

(1) Ability impaired

(2) Ability not impaired

3.0 Number of Alcohol Related Fatal Accidents and Fatalities: Iowa 1976:

In 1976, 242 or 36.5% of the 663 fatal traffic accidents in the state were alcohol related. These claimed 293 fatalities or 37.3%. Table 1 shows that 81.0% involved drivers whose ability was impaired, and 14.9% involved drivers whose ability was not impaired.

TABLE 1. NUMBER AND PERCENTAGE DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS BY DEGREE OF DRINKING: IOWA 1976

Degree of Drinking	Fatal Accidents			Fatalities		
	Number	% of Sub-Group	% of Total	Number	% of Sub-Group	% of Total
Driver ability Impaired	196	81.0	29.6	241	82.3	30.7
Driver ability Not Impaired	36	14.9	5.4	42	14.3	5.4
Pedestrian Drinking	10	4.1	1.5	10	3.4	1.3
Sub-Total	242	100.0	36.5	293	100.0	37.3
Total Not Drinking or Unknown	421	-	63.5	492	-	62.7
Grand Total	663	-	100.0	785	-	100.0

4.0 Drinking Pedestrians:

In 1976, 18 pedestrians were killed as a result of alcohol involvement. Eleven of these fatalities were intoxicated pedestrians and the other 7 pedestrians were killed due to drinking drivers. Table 2 shows pedestrian fatalities attributable to alcohol consumption. Average BAC of pedestrians killed with blood tests tests was 0.248 ranging from 0.129 to 0.472 and 72% were at least 25 years of age.

TABLE 2: ALCOHOL RELATED PEDESTRIAN FATALITIES: IOWA 1976

Fatality Group	Category	Number	Percent
Pedestrian Fatalities	Related to Drinking Pedestrians	11	3.8
	Related to Non-Drinking Pedestrians	7	2.4
Driver & Passenger Fatalities	Related to Drinking Drivers	275	93.9
Total		293	100.0

5.0 Fatal crashes involving Drinking Drivers by type of crash: Iowa, 1976

The number of alcohol related fatal accidents by type of crash or number of vehicles involved is shown in Table 3. Table 3 shows that 69.0% of alcohol related fatal crashes involved single crashes. The table also shows an average BAC of drivers involved in fatal traffic accidents. Results showed an average BAC of 0.176 for drivers whose BAC tests were positive. As shown in Table 3, BAC's of drivers involved in single accidents were slightly higher than BAC's of drivers in multiple accidents. Figure 1 shows the distribution of alcohol related fatal accidents by number of vehicles involved (single or multiple vehicles) and by time of day. Peak time for both single vehicle and multiple vehicle crashes was from midnight to early morning hours.

TABLE 3: ALCOHOL RELATED FATAL ACCIDENTS BY NUMBER OF VEHICLES INVOLVED
IOWA, 1976

Type of Crash	Number	Fatal Crashes			Fatalities		
		% of Total	% of Sub-Group	Mean BAC	Number	% of Total	% of Sub-Group
Single Motor Veh.	167	69.0	100.0	0.178	180	61.4	100.0
Ran off Road	123	50.8	73.7	0.179	131	44.7	72.8
Coll. with Fixed Object	20	8.3	12.0	0.152	24	8.2	13.3
Coll. with Drinking Ped.	11	4.5	6.6	0.229*	11	3.8	6.1
Coll. with Non-Drinking Ped.	6	2.5	3.6	0.210	7	2.4	3.9
Coll. with Bicyclist	1	0.4	0.6	0.141	1	0.3	0.6
Others	6	2.5	3.6	0.095	6	2.0	3.3
Multiple Motor Veh.	75	31.0	100.0	0.170	113	38.6	100.0
Coll. with M.V. in Traffic	71	29.3	94.7	0.168	109	37.2	96.5
Train	4	1.7	5.3	0.240	4	1.4	3.5
Total	242	100.0	-	0.176	293	100.0	-

* Includes BAC of Drinking Drivers and Drinking Pedestrians involved

6.0 Number of Drinking Drivers Tested by Degree of Drinking: Iowa 1976

In 1976, there were 258 drinking drivers/pedestrians involved in fatal crashes and of these, 169 or 65.5% had blood alcohol tests. Of the "ability impaired" category, 144 or 85.2% were tested for blood alcohol content. Table 4 shows the distribution of drinking drivers tested and not tested.

TABLE 4: NUMBER AND PERCENT DISTRIBUTION OF DRINKING DRIVERS/PEDESTRIANS TESTED FOR BAC: IOWA 1976

Drinking Drivers	Total		Ability Impaired		Ability Not Impaired	
	No.	%	No.	%	No.	%
Tested *	169	66.0	144	85.2	25	14.8
Not Tested	87	34.0	67	77.0	20	23.0
Total	256	100.0	211	82.4	45	17.6

* Include Drinking Pedestrians

7.0 Number of Drinking Drivers tested by Blood Alcohol Content: Iowa 1976

The average blood alcohol content of those drivers tested was 0.176 (176 mg. per 100 ml. or 0.176 percent by weight).

Table 5 and Figure 2 shows the frequency of drinking drivers/pedestrians by BAC level. Out of 169 persons tested, 142 or 84.0% had blood alcohol content of 0.100 percent or more. Blood concentration of 0.100 or more is prima facie evidence of operating a motor vehicle under the influence (OMVUI) in the State of Iowa. Data also shows that 64.5% had a BAC of 0.150 or more which might be symptomatic of the problem drivers.

TABLE 5. FREQUENCY OF DRINKING DRIVERS/PEDESTRIANS BY BLOOD ALCOHOL CONTENT: IOWA, 1976

BAC Level	Number of Drinking Drivers	Relative Frequency
Below 0.050	12	7.1
.050 - 0.099	15	8.9
.100 - .149	33	19.5
.150 - .199	48	28.4
.200 - .249	32	18.9
.250 - .299	16	9.5
.300 - .349	8	4.7
.350 - .399	4	2.4
.400 +	1	0.6
Total	169	100.0

8.0 Drinking Drivers in Fatal Accidents by Age: Iowa, 1976

Age distribution of drinking drivers involved in fatal accidents in 1976 was studied to find out the role of age in alcohol related fatal traffic accidents, as shown in Table 6. Of total number of fatal traffic accidents, 51.2% were 24 years or younger. This proportion is greater than the already large proportion of young drivers in fatal accidents which is 41.7%. When compared with the proportion of young drivers with drivers license, the proportion is even more over-represented.

Figure 3 shows mean BAC level of drinking drivers by age in relation to the state average of 0.176. The age group 25 - 54 had BAC's above the state average.

TABLE: 6 DRINKING DRIVERS AND ALL DRIVERS INVOLVED IN FATAL MOTOR VEHICLE ACCIDENTS BY AGE GROUP: IOWA, 1976

Age	Drinking Drivers		All Drivers		No Alcohol		Number of licensed Drivers	
	No.	%	No.	%	No.	%	No.	%
16 & below	7	2.7	63	6.5	56	7.9	34,472	1.8
17	7	2.7	45	4.6	38	5.3	48,151	2.6
18	21	8.2	47	4.9	26	3.6	51,284	2.7
19	22	8.6	49	5.1	27	3.8	50,684	2.7
20	20	7.8	49	5.1	29	4.1	50,372	2.7
21-24	54	21.1	150	15.5	96	13.5	197,901	10.6
25-34	52	20.3	195	20.1	143	20.1	397,540	21.3
35-44	33	12.9	111	11.5	78	11.0	277,293	14.9
45-54	25	9.8	84	8.7	59	8.3	280,013	15.0
55-64	10	3.9	80	8.3	70	9.8	243,507	13.1
65 & up	3	1.2	76	7.8	73	10.2	234,537	12.6
Driver Unknown	2	0.8	19	2.0	17	2.4	-	-
Total	256	100.0	968	100.0 ^{1/}	712	100.0	1,865,754	100.0

9.0 Drinking Drivers by Age and by Day of Week: Iowa, 1976

Figure 4 compares the days of the week drinking drivers are involved in fatal accidents. Evidently both the younger and older drinking drivers are involved considerably more during the weekends. However, the group 24 years or younger is slightly over-represented by 9.9%.

1.0 Drinking Drivers by Age and by Time of Day: Iowa, 1976

Table 7 and Figure 5 shows the recent distribution of drinking drivers by time of day in two groups--16-24 years old and 25 years or older.

Figure 5 shows that both young and older drinking drivers were involved in more fatal accidents during the early morning hours (12:00 A.M.-2:59 A.M.).

However, the involvement of younger drivers during the time period is statistically significant than their older counterparts. (2)

TABLE 7. DRINKING DRIVERS BY AGE AND BY TIME: IOWA, 1976

Time	24 & under		25 & Older		Driver Unknown	
	No.	%	No.	%	No.	%
6:00-8:59 P.M.	18	13.7	25	20.3	1	50.0
9:00-11:59 P.M.	29	22.1	33	26.8	-	-
12:00-2:59 A.M.	60	45.8	38	30.9	-	-
3:00-5:59 A.M.	18	13.7	7	5.7	-	-
6:00-8:59 A.M.	1	0.8	-	-	-	-
9:00-11:59 A.M.	-	-	3	2.4	1	50.0
12:00-2:59 P.M.	-	-	4	3.3	-	-
3:00-5:59 P.M.	5	3.8	12	9.8	-	-
Unknown	-	-	1	0.8	-	-
Total	131	100.0	123	100.0	2	100.0

11.0 Relationship Between Age of Drinking Drivers and Mean Blood Alcohol Content in Fatal Accidents: Iowa, 1976

One interesting question was whether age and blood alcohol content follows a distinct pattern. Number of drivers and mean blood alcohol content are tabulated with age groups in Table 8.

It is interesting to note that drinking drivers who are 19 years old and younger have lower BAC's than their older counterparts. Young drivers are, and therefore increased their risk of having an accident.

$$(2) \quad t = \frac{60 - 38}{\sqrt{\frac{60 + 38}{98}}} = \frac{22}{9.9} = 2.2 \quad *Significant$$

TABLE 8: MEAN BAC OF DRINKING DRIVERS INVOLVED IN FATAL ACCIDENTS
BY AGE GROUP: IOWA, 1976

Age	No.	Mean	Standard Deviation
19 & under	38	.137	0.0693
20-24	52	.160	0.0708
25-34	33	.195	0.0509
35-44	19	.226	0.1253
45-54	19	.235	0.0795
55-64	6	.157	0.0566
65 & up	2	.062	0.0065
All Ages	169	.176	0.0847

12.0 Alcohol Related Fatal Accidents and Fatalities by Month: Iowa, 1976

Variation by month of the year in 1976 is shown in Table 9. The months of January, February, March, April, September and October chalked up the highest proportion of alcohol related fatal accidents in 1976.

Figure 6 shows the average BAC by month in relation to average BAC (statewide) in 1976.

13.0 Ranked Violations Committed by Drinking Drivers Involved in Fatal Accidents: Iowa, 1976

Violations frequently committed by drinking drivers were investigated and ranked by type of accident (multiple vehicle fatal accidents or single fatal accidents). This is reflected in Table 10 and Figure 7.

Drove left of center and speeding accounted for 60% of the violations in multi-vehicle fatal crashes.

Approximately 9 out of 10 single vehicle crashes were caused by drinking drivers who were speeding and whose vehicles were out of control.

TABLE: 9. NUMBER AND PERCENT ALCOHOL RELATED FATAL ACCIDENTS AND FATALITIES , DRINKING DRIVERS, BY MONTH: IOWA 1976

Month	Drinking Drivers	Fatal Accidents				Fatalities		
		Alcohol No.	Related %	All Fatal Traffic	% Alcohol Related	Alcohol Related	All Fatalities	%Alcohol Related
January	19	19	7.9	45	42.2	19	49	38.8
February	24	22	9.1	43	51.2	23	50	46.0
March	14	14	5.8	35	40.0	21	46	45.7
April	17	16	6.6	39	41.0	20	45	44.4
May	25	20	8.3	62	32.3	24	75	32.0
June	26	23	9.5	70	32.9	32	88	36.4
July	23	23	9.5	74	31.1	29	93	31.2
August	19	18	7.4	72	25.0	26	91	28.6
September	30	26	10.7	64	40.6	31	72	43.1
October	26	28	11.6	64	43.8	30	71	42.3
November	15	15	6.2	47	31.9	16	50	32.0
December	18	18	7.4	46	39.1	22	55	40.0
Total	256 *	242	100.0	661	36.6	293	785	37.3

* Total Includes 10 Drinking Pedestrians

TABLE: 10. VIOLATIONS COMMITTED BY DRINKING DRIVERS INVOLVED IN FATAL ACCIDENTS: IOWA, 1976

Violations	Multiple Vehicle		Single Vehicle	
	Number	%	Number	%
Drove Left of Center	33	39.8	4	2.3
Speeding	14	16.9	64	36.4
Ran Traffic Signal	10	12.0	7	4.0
Not Under Control	5	6.0	95	54.0
Fail to Yield	8	9.6	1	0.6
Improper Passing	1	1.2	-	-
Reckless Driving	4	4.8	1	0.6
Improper Lane Change	3	3.6	-	-
Wrong Way on One Way St.	1	1.2	-	-
Drag Racing	1	1.2	-	-
Improper Turn	3	3.6	-	-
Unknown	-	-	1	0.6
Other	-	-	3	1.7
Total	83	100.0	176	100.0 ^{1/}

^{1/} Details do not add up to 100% because of rounding.

14.0 Alcohol Related Fatal Accidents by County: Iowa 1975

Counties with their corresponding number and percentage of alcohol related fatal accidents are shown in tables 11 and 12.

The following 17 counties had no alcohol related fatal accidents in 1976:

Adams	Davis	Poweshiek	Wapello
Bremer	Ida	Ringgold	Washington
Butler	Iowa	Shelby	
Cherokee	Lyon	Tama	
Clarke	Mills	Taylor	

TABLE 11: ALCOHOL RELATED FATAL ACCIDENTS AND FATALITIES
BY COUNTY AND BY PERCENT: IOWA, 1976

County	Total	Fatal Accidents		Total	Fatalities	
		Alcohol Related	Percent Alcohol Related		Alcohol Related	Percent Alcohol Related
Adair	4	1	25.0	4	1	25.0
Adams	4	-	-	5	-	-
Allamakee	3	1	33.3	8	5	62.5
Appanoose	3	1	33.3	3	1	33.3
Audubon	2	1	50.0	3	1	33.3
Benton	14	3	21.4	16	4	25.0
Black Hawk	18	11	61.1	20	13	65.0
Boone	7	4	57.1	7	4	57.1
Bremer	4	-	-	4	-	-
Buchanan	6	3	50.0	7	3	42.9
Buena Vista	5	1	20.0	6	2	33.3
Butler	3	-	-	3	-	-
Calhoun	9	1	11.1	12	1	8.3
Carroll	7	3	42.9	8	4	50.0
Cass	6	3	50.0	6	3	50.0
Cedar	7	5	71.4	9	7	77.8
Cerro Gordo	12	5	41.7	12	5	41.7
Cherokee	2	-	-	3	-	-
Chickasaw	6	4	66.7	6	4	66.7
Clarke	5	-	-	7	-	-
Clay	6	1	16.7	6	1	16.7
Clayton	2	2	100.0	2	2	100.0
Clinton	13	4	30.8	27	16	59.3

County	Total	Fatal Accidents		Total	Fatalities	
		Alcohol Related	Percent Alcohol Related		Alcohol Related	Percent Alcohol Related
Crawford	8	4	50.0	9	5	55.6
Dallas	6	1	16.7	7	2	28.6
Davis	5	-	-	5	-	-
Decatur	3	1	33.3	7	1	14.3
Delaware	6	1	16.7	7	1	14.3
Des Moines	8	2	25.0	8	2	25.0
Dickinson	4	3	75.0	4	3	75.0
Dubuque	16	10	62.5	18	12	66.7
Emmet	4	3	75.0	4	3	75.0
Fayette	10	6	60.0	10	6	60.0
Floyd	8	4	50.0	8	4	50.0
Franklin	3	2	66.7	5	2	40.0
Fremont	5	1	20.0	5	1	20.0
Greene	6	3	50.0	6	3	50.0
Grundy	5	3	60.0	10	5	50.0
Guthrie	3	1	33.3	3	1	33.3
Hamilton	6	1	16.7	7	1	14.3
Hancock	5	1	20.0	5	1	20.0
Hardin	1	1	100.0	1	1	100.0
Harrison	2	1	50.0	3	2	66.7
Henry	6	3	50.0	6	3	50.0
Howard	4	1	25.0	4	1	25.0
Humboldt	3	1	33.3	3	1	33.3
Ida	2	-	-	3	-	-
Iowa	7	-	-	8	-	-
Jackson	5	2	40.0	5	2	40.0
Jasper	8	2	25.0	10	3	30.0

County	Fatal Accidents			Fatalities		
	Total	Alcohol Related	Percent Alcohol Related	Total	Alcohol Related	Percent Alcohol Related
Jefferson	3	1	33.3	3	1	33.3
Johnson	12	4	33.3	12	4	33.3
Jones	5	3	60.0	6	4	66.7
Keokuk	1	1	100.0	1	1	100.0
Kossuth	4	1	25.0	5	2	40.0
Lee	20	6	30.0	23	6	26.1
Linn	19	4	21.1	21	5	23.8
Louisa	4	1	25.0	7	1	14.3
Lucas	5	1	20.0	7	1	14.3
Lyon	3	-	-	3	-	-
Madison	2	1	50.0	2	1	50.0
Mahaska	5	2	40.0	8	2	25.0
Marion	6	3	50.0	7	4	57.1
Marshall	7	2	28.6	8	2	25.0
Mills	3	-	-	3	-	-
Mitchell	8	1	12.5	8	1	12.5
Monona	3	1	33.3	5	3	60.0
Monroe	2	2	100.0	2	2	100.0
Montgomery	2	1	50.0	2	1	50.0
Muscatine	12	3	25.0	17	4	23.5
O'Brien	4	2	50.0	4	2	50.0
Osceola	4	1	25.0	5	2	40.0
Page	2	1	50.0	2	1	50.0
Palo Alto	2	1	50.0	2	1	50.0
Plymouth	11	3	27.3	12	3	25.0
Pocahontas	3	3	100.0	3	3	100.0
Polk	39	9	23.1	49	11	22.4

County	Total	Fatal Accidents		Total	Fatalities	
		Alcohol Related	Percent Alcohol Related		Alcohol Related	Percent Alcohol Related
Pottawattamie	26	10	38.5	30	10	33.3
Poweshiek	6	-	-	6	-	-
Ringgold	-	-	-	-	-	-
Sac	8	4	50.0	10	5	50.0
Scott	30	22	73.3	37	28	75.7
Shelby	3	-	-	3	-	-
Sioux	8	3	37.5	8	3	37.5
Story	10	3	30.0	10	3	30.0
Tama	4	-	-	4	-	-
Taylor	2	-	-	2	-	-
Union	2	2	100.0	2	2	100.0
Van Buren	3	2	66.7	3	2	66.7
Wapello	4	-	-	9	-	-
Warren	7	2	28.6	8	3	37.5
Washington	4	-	-	5	-	-
Wayne	6	3	50.0	7	4	57.2
Webster	9	2	22.2	11	2	18.2
Winnebago	2	1	50.0	3	1	33.3
Winneshiek	6	4	66.7	7	4	57.1
Woodbury	26	10	38.5	29	11	37.9
Worth	4	2	50.0	4	2	50.0
Wright	5	2	40.0	5	2	40.0
Total	663	242	36.5	785	293	37.3

TABLE 12:

COUNTIES WITH ALCOHOL RELATED FATAL ACCIDENTS
 ABOVE THE STATE AVERAGE OF 36.5% ALCOHOL
 RELATED FATAL ACCIDENTS: IOWA, 1976

<u>Counties</u>	<u>Total Accidents</u>	<u>A. R. Accidents</u>	<u>%</u>
Audubon	2	1	50.0
Black Hawk	18	11	61.1
Boone	7	4	57.1
Buchanan	6	3	50.0
Carroll	7	3	42.9
Cass	6	3	50.0
Cedar	7	5	71.4
Cerro Gordo	12	5	41.7
Chickasaw	6	4	66.7
Clayton	2	2	100.0
Crawford	8	4	50.0
Dickinson	4	3	75.0
Dubuque	16	10	62.5
Emmet	4	3	75.0
Fayette	10	6	60.0
Floyd	8	4	50.0
Franklin	3	2	66.7
Greene	6	3	50.0
Grundy	5	3	60.0
Hardin	1	1	100.0
Harrison	2	1	50.0
Henry	6	3	50.0
Jackson	5	2	40.0

<u>Counties</u>	<u>Total Accidents</u>	<u>A. R. Accidents</u>	<u>%</u>
Jones	5	3	60.0
Keokuk	1	1	100.0
Madison	2	1	50.0
Mahaska	5	2	40.0
Marion	6	3	50.0
Monroe	2	2	100.0
Montgomery	2	1	50.0
O'Brien	4	2	50.0
Page	2	1	50.0
Palo Alto	2	1	50.0
Pocahontas	3	3	100.0
Pottawattamie	26	10	38.5
Sac	8	4	50.0
Scott	30	22	73.3
Sioux	8	3	37.5
Union	2	2	100.0
Van Buren	3	2	66.7
Wayne	6	3	50.0
Winnebago	2	1	50.0
Winneshiek	6	4	66.7
Woodbury	26	10	38.5
Worth	4	2	50.0
Wright	5	2	40.0
Total	311	171	55.0

In 1976, 46 counties exceeded the state average of 36.5% alcohol related fatal accidents. These counties accounted for 70.7% of the total number of alcohol related fatal accidents in the state.

15.0 Comparison of 1976 Alcohol Related Fatal Accidents and Past Years:
Iowa

A comparison of 1976 alcohol related fatal accidents and past years (1970-1975) is shown in Table 13. Table 13 shows the different proportions of alcohol related fatal accidents in 1970 through 1976. The average proportion in 1970 - 1976 was 32.9%.

TABLE 13: ALCOHOL RELATED FATAL TRAFFIC ACCIDENTS AND FATALITIES:
IOWA, 1970 - 1976

Year	Fatal Accidents			Fatalities		
	Alcohol Related	Total	% Alcohol Related	Alcohol Related	Total	% Alcohol Related
1970	222	751	29.6	270	912	29.6
1971	233	680	34.3	293	828	35.4
1972	210	721	29.1	252	874	28.8
1973	217	682	31.8	263	813	32.3
1974	187	583	32.0	227	685	33.1
1975	221	578	38.2	256	674	38.0
1976	242	663	36.5	293	785	37.3
1970-1976	1532	4658	32.9	1854	5,571	33.3

Figure A shows the proportion of alcohol related fatal accidents and trend for the years 1970 through 1977. It is apparent from the chart that the trend is going up. This strongly indicates that if this trend continues, the proportion of alcohol related fatal accidents might increase to 45% in 1979.

16.0 Alcohol Related Fatal Accidents by Driver Age and Model Year of Vehicle:
Iowa, 1976

One factor which was investigated was the model year of vehicle in relation to the drivers age. In this study we defined an older vehicle as being a 1968* model or older vehicle. Table 16 and Fig. 8 show the distribution. It could be seen from the chart that the 24 years old and younger drivers are significantly over-represented in older vehicles being involved in accidents. The data shows that 60% of drivers involved in alcohol related fatal accidents and drove a 1968 or older vehicle were younger drivers (24 years & younger).

17.0 Drinking Drivers History Records: Iowa, 1976

Driver's records of drinking drivers involved in fatal accidents in 1976 were searched for convictions and accidents 3 years prior to the fatal accident.

A total of 198 drivers had records available and from these, Table 14 was prepared to show the number of drinking drivers with 0, 1, 2, 3, 4 or more accidents during the three years prior to the fatal accident. Data shows 41.4% had at least one accident.

Similar, Table 15 shows the number of drinking drivers being studied with 0, 1, 2, 3, 4, 5 or more convictions during the three years prior to the fatal accident. The data shows that 71.7% had at least one conviction during the three years prior to the fatal accident.

Of the 198 driver records that were looked at, 12 were driving with invalid licenses, or 6.1%.

* 8 years old and older

TABLE 14 DRIVERS RECORDS OF DRINKING DRIVERS IN FATAL ACCIDENTS: IOWA, 1976

Number of Accidents 3 Years Prior	Number of Drinking Drivers	% Distribution
0	110	55.6
1	53	26.8
2	18	9.1
3	10	5.1
4 or more	7	3.5
Total	198	100.0

TABLE 15 CONVICTIONS OF DRINKING DRIVERS IN FATAL ACCIDENTS: IOWA, 1976

Convictions	Number of Drinking Drivers	% Distribution
0	56	28.3
1	49	24.7
2	33	16.7
3	19	9.6
4	16	8.1
5 or more	25	12.6
Total	198	100.0

18.0 Discussion:

The study shows that in 1976, 242 out of 663 fatal accidents, or 36.5% were alcohol related and claimed 293 lives. Data from 1970 through 1976 showed that the proportion of alcohol related fatal accident trend was increasing. The average proportion in 1970 through 1976 was 32.9%.

Blood alcohol tests were conducted on 169 drinking drivers, or 66.0% of the total number of drinking drivers tested.

This is about **the same** percentage of drinking drivers tested in 1975. Approximately 51.2% of the drinking drivers in fatal accidents were young (24 years and under) which is slightly lower than 58% in 1975. The proportion is higher than that of all young drivers involved in fatal accidents, which is 41.7%. Hence, inexperienced drivers are significant in alcohol related fatal crashes. The data indicated that younger drivers (19 years or under) had BAC's lower than their older counterparts, but they are much more likely to be involved in crashes when they drink.

Younger drivers (24 years or younger) are most involved in fatal accidents during the early morning hours (midnight through 2:59 A.M.).

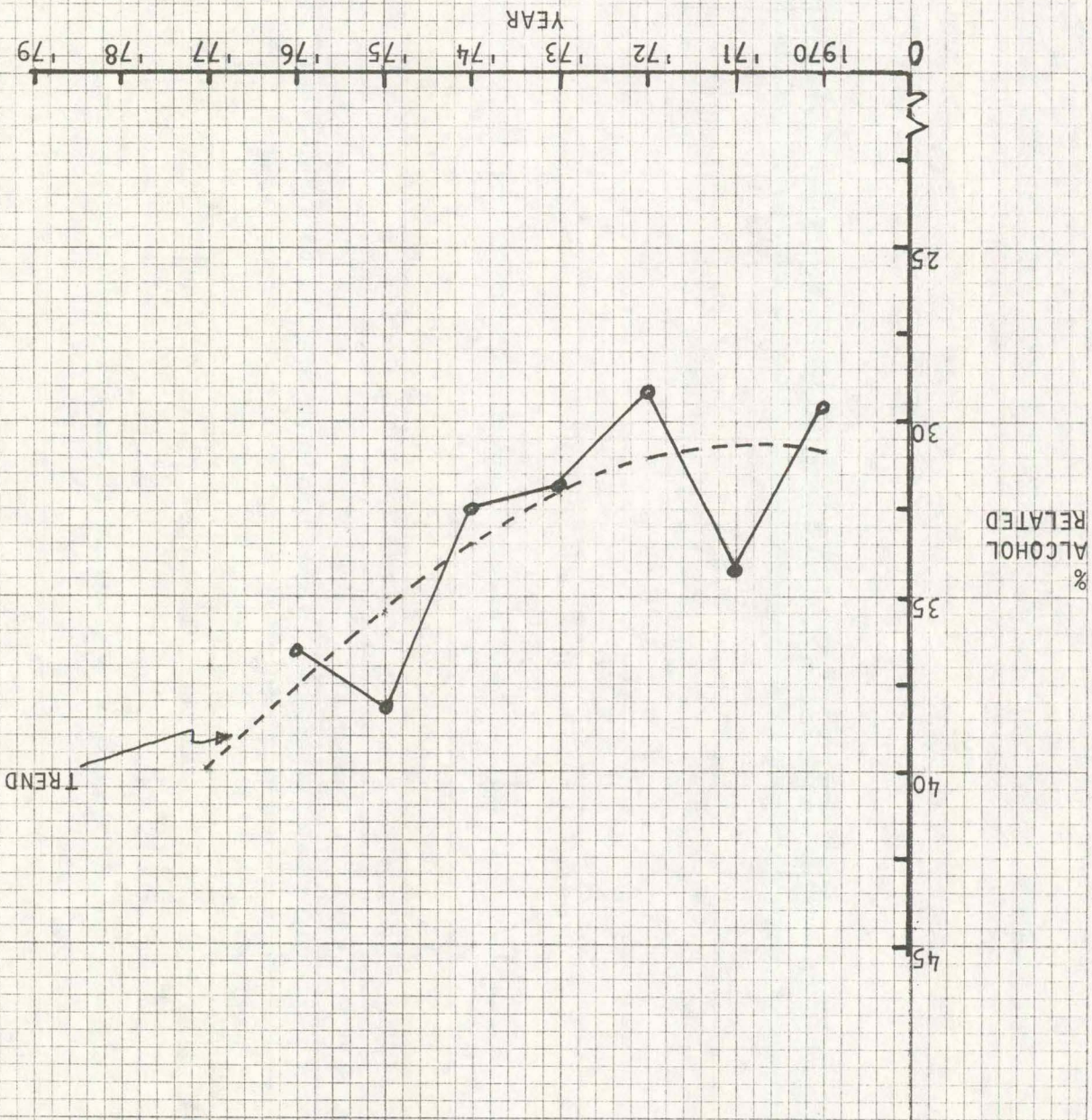
Analysis of data on model year of car and drivers age showed that teenage drivers are slightly over-represented in older cars. Data showed that 60% of drivers involved in alcohol related fatal accidents and driving a 1968 or older car are younger drivers.

Analysis of alcohol related accidents by number of vehicles involved showed BAC's of persons involved in single and multiple crashes. The data in 1976 showed that both groups are not significantly different from each other. In 1974 and 1975, BAC's of single vehicle accidents was significantly higher than that of multiple vehicle accidents.

TABLE 16: ALCOHOL RELATED FATAL ACCIDENTS BY DRIVER AGE AND YEAR OF VEHICLE: IOWA, 1976

Model Age	before	'63	'64	'65	'66	'67	'68	'69	'70	'71	'72	'73	'74	'75	'76	'77	Total	
	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %	No. %
16 & below	1 16.7	- -	- -	- -	- -	1 16.7	- -	1 -	1 16.7	2 33.3	- -	- -	- -	- -	- -	- -	- -	6 100.0
17	- -	- -	- -	- -	- -	1 14.3	1 14.3	- -	- -	1 14.3	- -	2 28.6	- -	- -	2 28.6	- -	- -	7 100.0
18	- -	- -	1 4.8	- -	1 4.8	2 9.5	2 9.5	4 19.0	1 4.8	1 4.8	1 4.8	3 14.3	3 14.8	1 4.8	- -	1 4.8	21 100.0	
19	- -	- -	- -	- -	4 18.2	3 13.6	2 9.1	1 4.5	- -	- -	3 13.6	2 9.1	1 4.5	3 13.6	3 13.6	- -	- -	22 100.0
20	- -	- -	- -	- -	1 5.3	- -	2 10.5	1 5.3	2 10.5	1 5.3	3 15.8	1 5.3	2 10.5	3 15.8	3 15.8	- -	- -	19 100.0
21-24	2 3.8	1 1.9	- -	1 1.9	3 5.7	5 9.4	5 9.4	4 7.5	4 7.5	5 9.4	3 5.7	4 7.5	5 9.4	9 17.0	2 3.8	- -	- -	53 100.0
25-34	- -	- -	1 2.0	2 4.0	3 6.0	- -	3 6.0	6 12.0	2 4.0	6 12.0	3 6.0	5 10.0	6 12.0	10 20.0	3 6.0	- -	- -	50 100.0
35-44	1 3.2	- -	- -	1 3.2	1 3.2	2 6.5	2 6.5	3 9.7	5 16.1	- -	3 9.7	4 12.9	3 9.7	3 9.7	2 6.5	1 3.2	- -	31 100.0
45-54	- -	- -	- -	2 8.7	2 8.7	1 4.3	1 4.3	2 8.7	2 8.7	4 17.4	- -	1 4.3	1 4.3	4 17.4	3 13.0	- -	- -	23 100.0
55-64	- -	1 11.1	- -	- -	- -	- -	- -	2 22.2	- -	2 22.2	- -	1 11.1	1 11.1	1 11.1	1 11.1	- -	- -	9 100.0
65 & up	- -	- -	- -	- -	- -	- -	1 33.3	- -	- -	- -	- -	- -	1 33.3	- -	1 33.3	- -	- -	3 100.0
Driver Unknown	- -	- -	- -	1 50.0	- -	- -	- -	- -	- -	- -	- -	- -	1 50.0	- -	- -	- -	- -	2 100.0
Total	4	2	2	7	15	15	19	24	17	22	16	24	23	34	20	2	246	

FIG: A RELATIVE FREQUENCY OF ALCOHOL RELATED
FATAL ACCIDENTS AND TREND
IOWA, 1970-1979



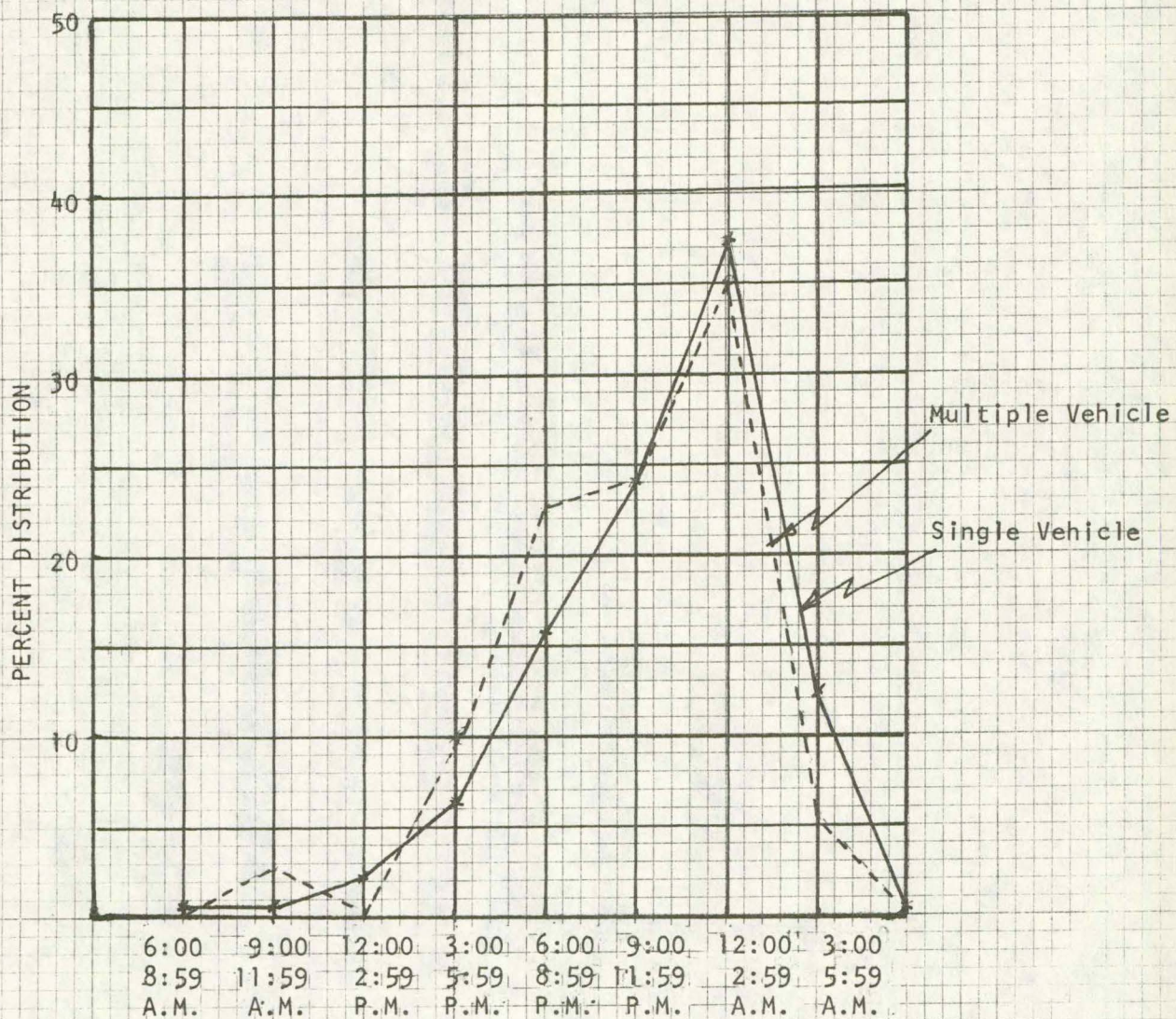


FIG 1: PERCENT DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS BY NUMBER OF VEHICLES INVOLVED (SINGLE OR MULTIPLE) AND BY TIME PERIOD: IOWA, 1976

46 0703

10 X 10 TO THE INCH • 7 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

46 0703

10 X 10 TO THE INCH • T X 10 INCHES
KEMFEL & REISS CO. MADE IN U.S.A.

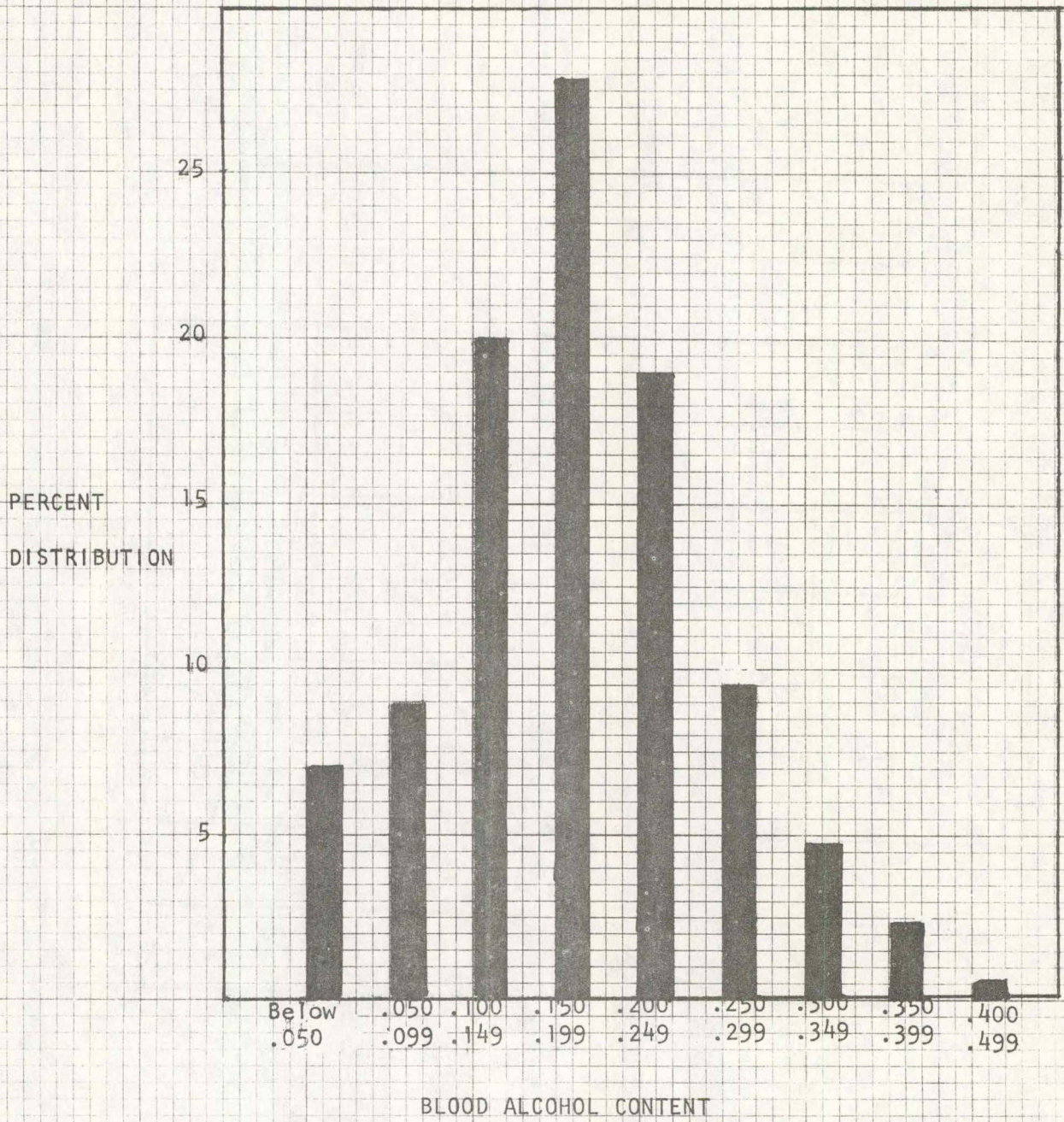
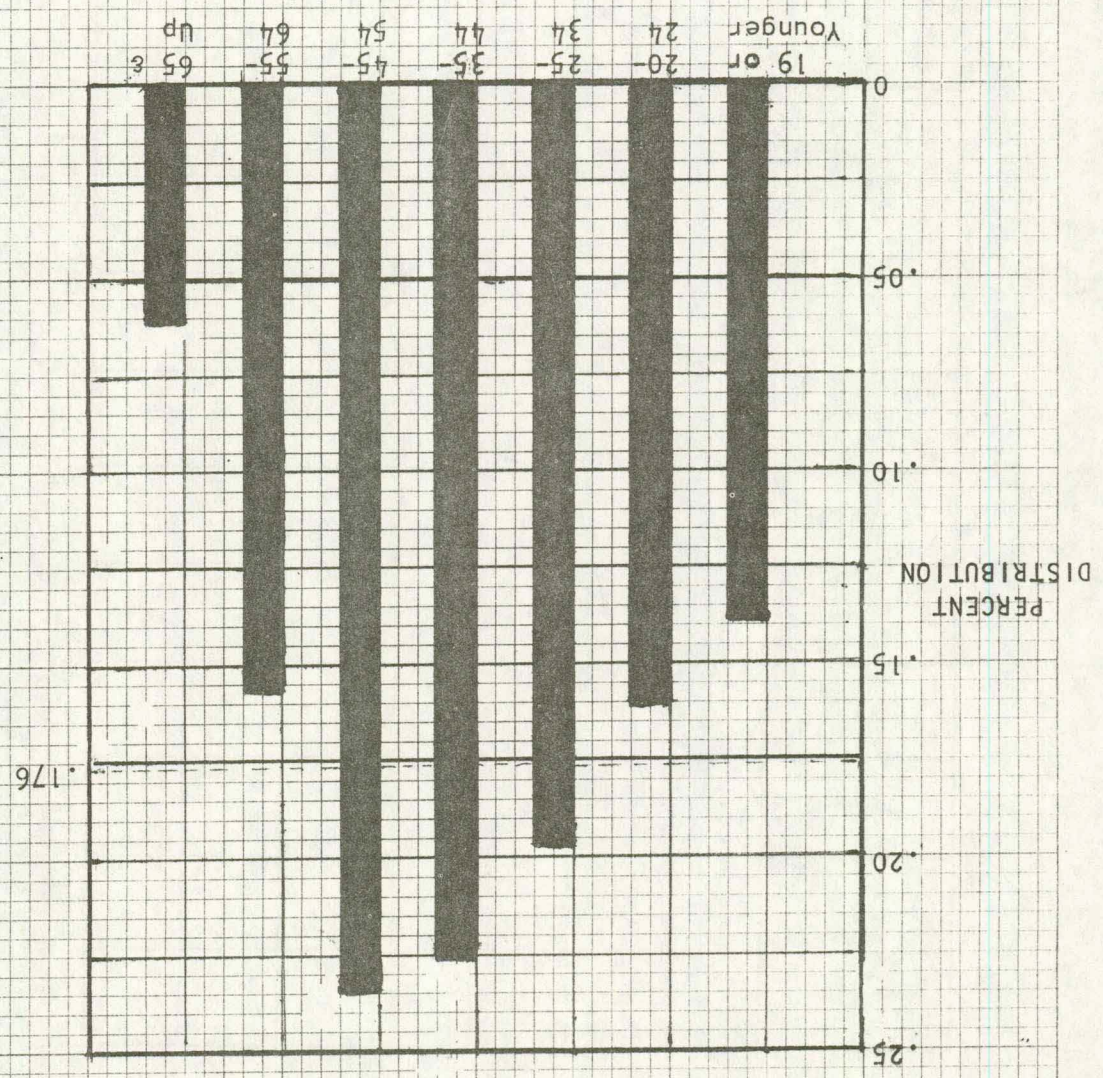


FIG. 2: PERCENT DISTRIBUTION OF DRINKING DRIVERS INVOLVED IN FATAL ACCIDENTS BY BAC: IOWA 1976

FIGURE 3: MEAN BAC LEVEL OF DRINKING DRIVERS BY AGE GROUP: IOWA, 1976



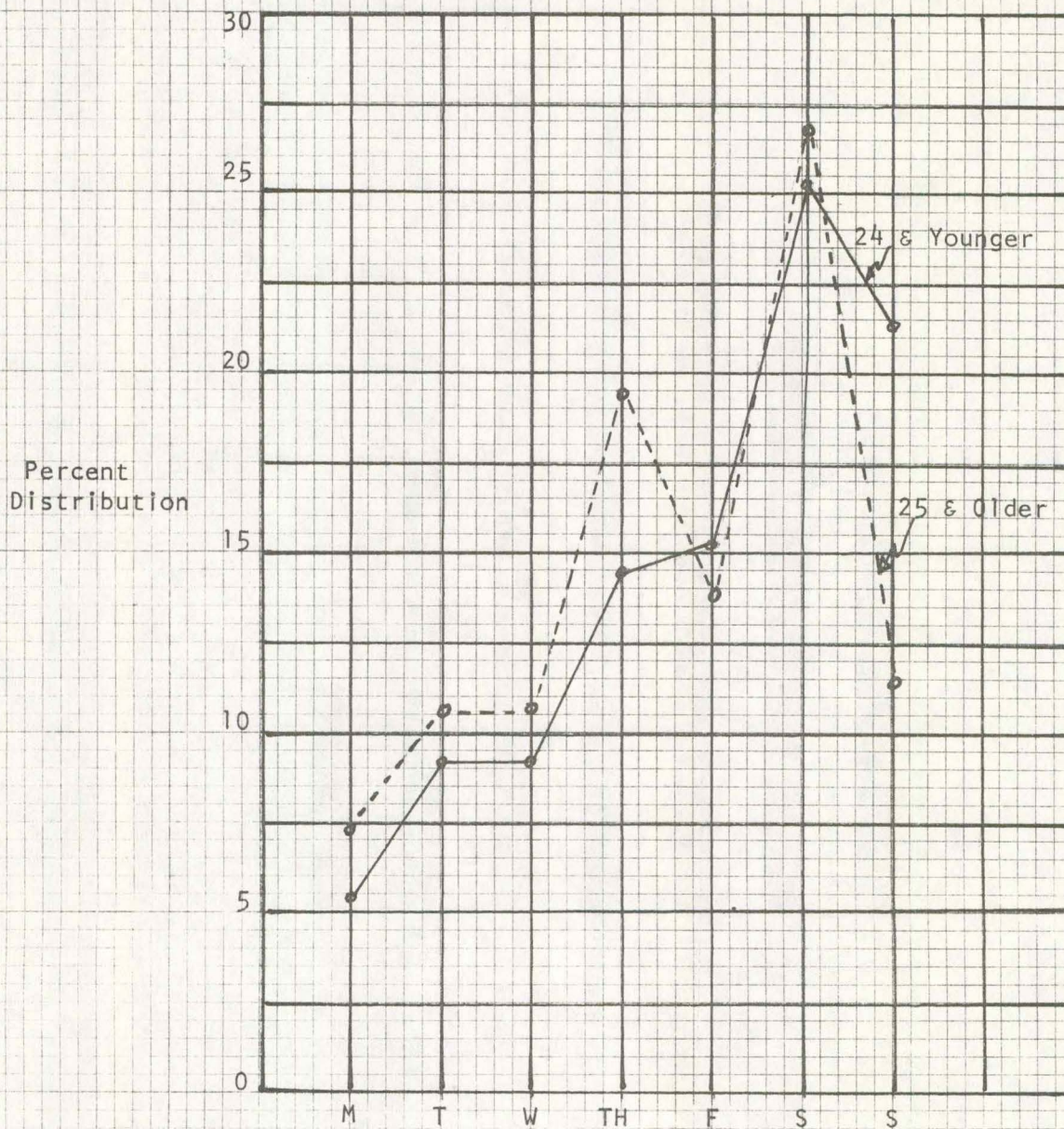


FIGURE 4: PERCENT DISTRIBUTION OF ALCOHOL RELATED FATAL ACCIDENTS BY DAY OF WEEK: IOWA, 1976

46 0703

10 X 10 TO THE INCH • 1/8" INCHES
 REIPPELL & ESSER CO. MADE IN U.S.A.

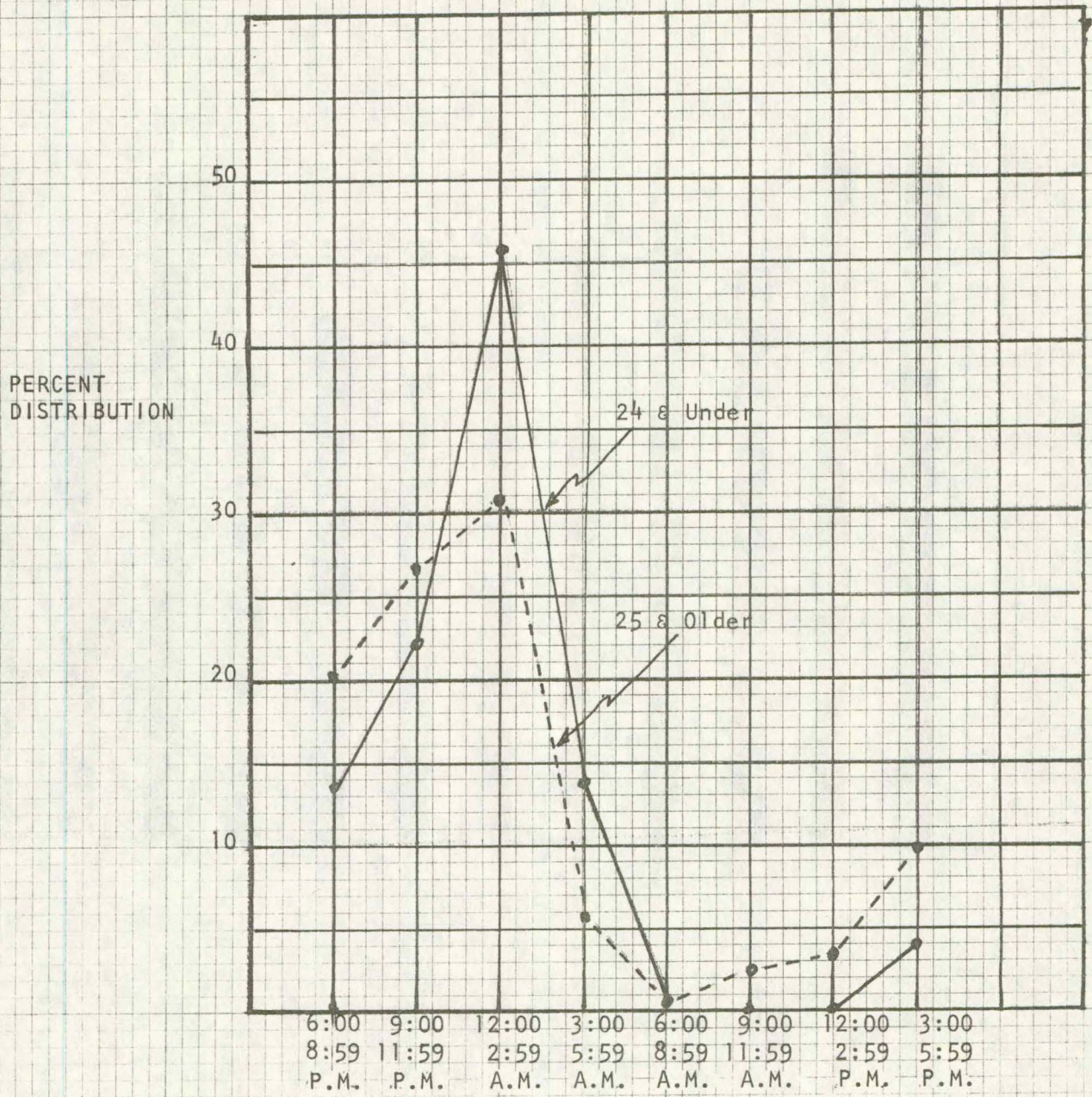


FIGURE 5: DISTRIBUTION OF DRINKING DRIVERS BY AGE AND BY TIME:

IOWA, 1976

46 0703

10 X 10 TO THE INCH • 1 X 10 INCHES
KEUFFEL & ESSER CO. MADE IN U.S.A.

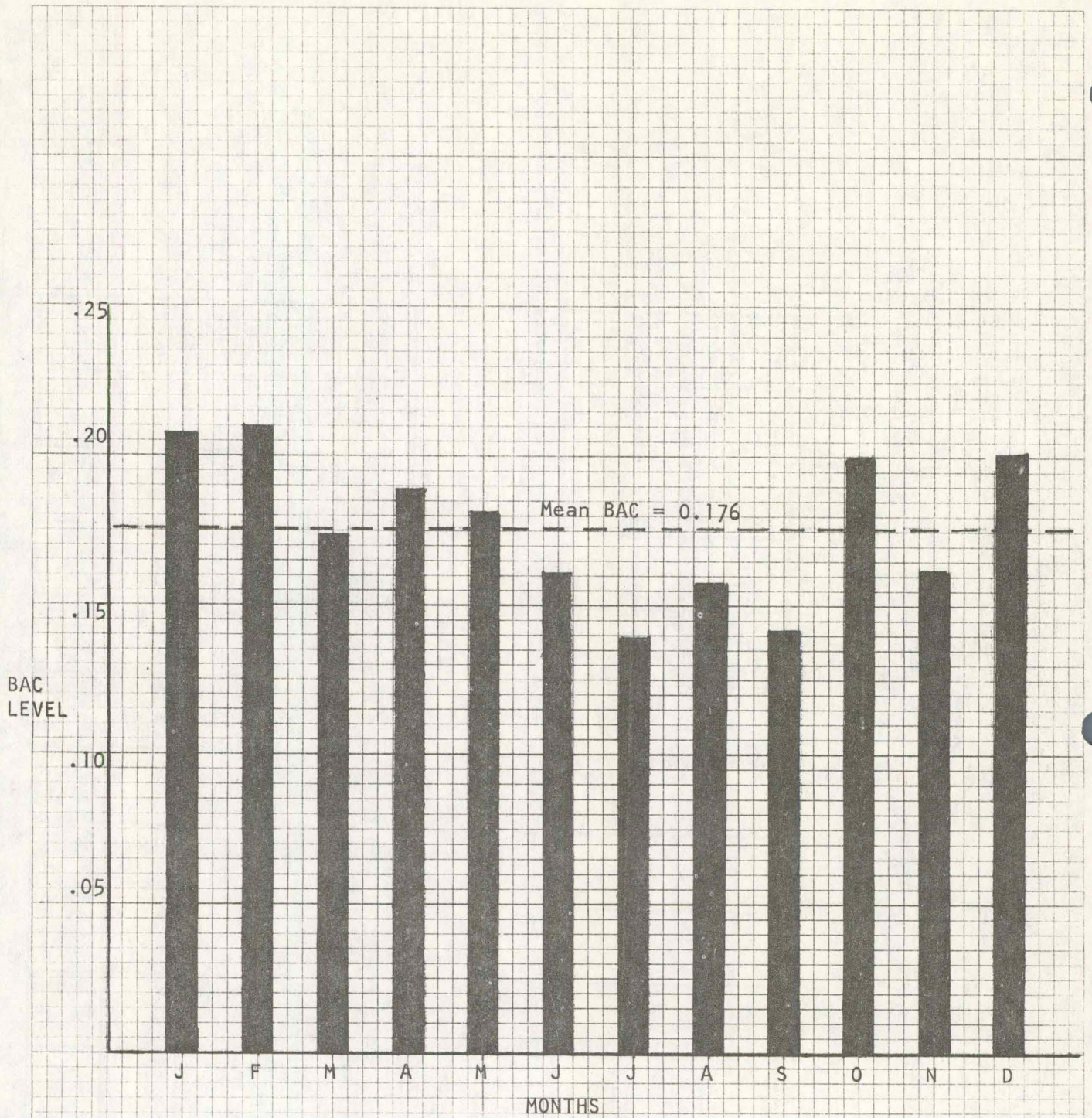
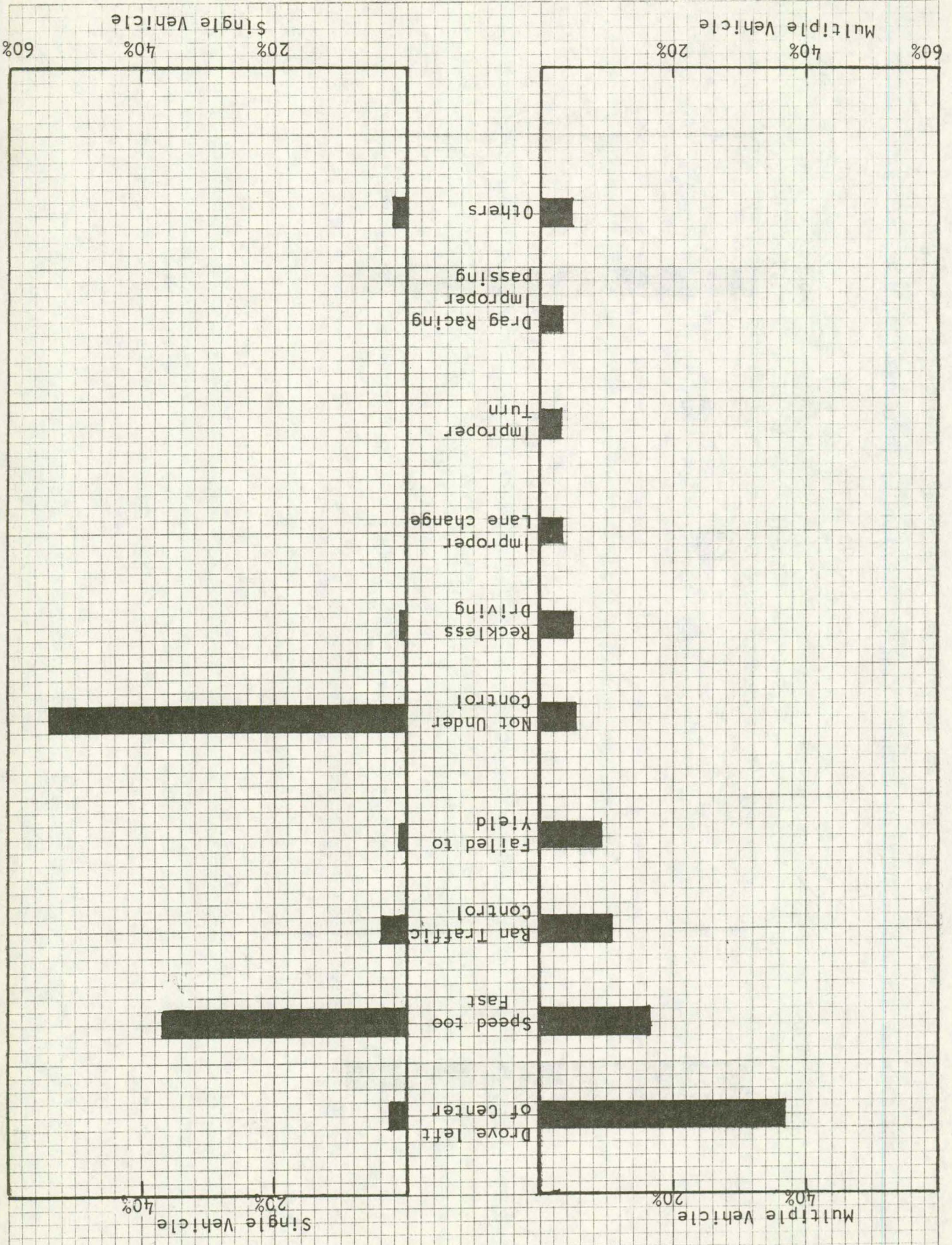


FIGURE 6: AVERAGE BAC OF DRINKING DRIVERS INVOLVED IN FATAL TRAFFIC ACCIDENTS BY MONTH: STATE OF IOWA, 1976

FIGURE 7: VIOLATIONS COMMITTED BY DRINKING DRIVERS, BY TYPE OF ACCIDENT
IOWA, 1976



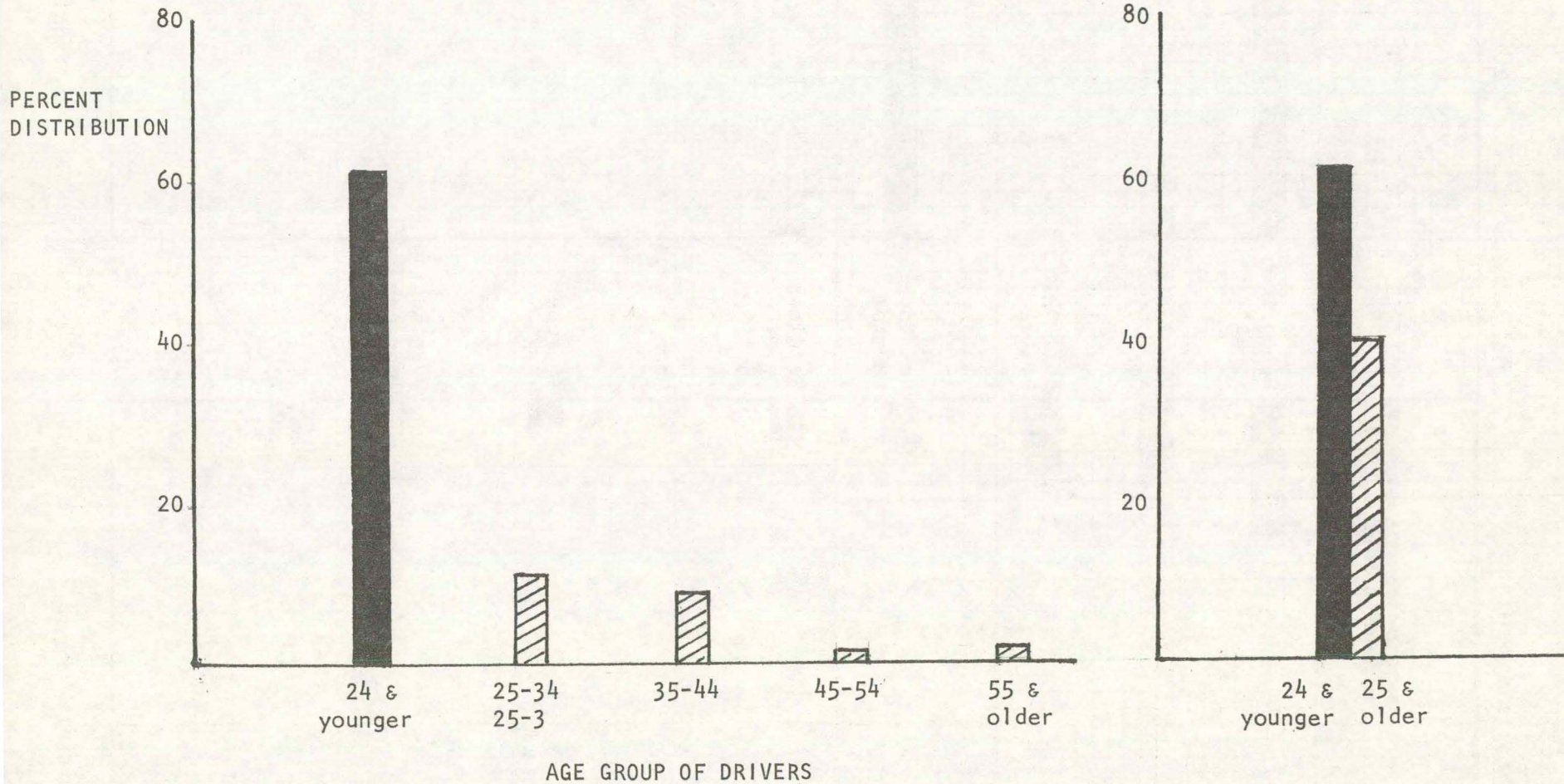


FIG. 8: PERCENT DISTRIBUTION OF DRIVERS INVOLVED IN FATAL ALCOHOL RELATED ACCIDENTS AND USING 1968 OR OLDER VEHICLES BY AGE GROUP: IOWA, 1976