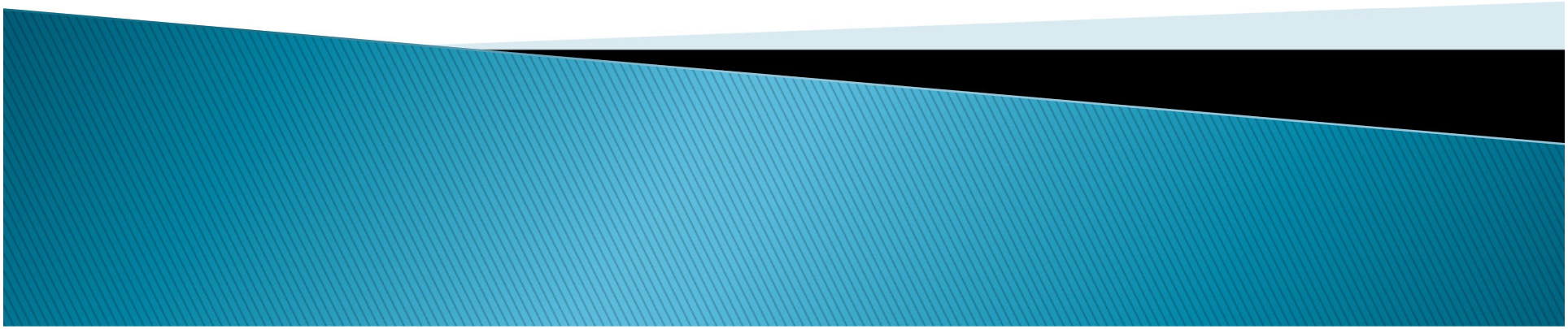
Global Impacts of Traffic-Related Injuries

Fall 2021



Overview – Numbers

- According to the World Health Organization (WHO), between 2000 and 2016, roadway-related crashes increased from about 1.15 million to 1.35 million deaths globally.
- On an annual basis, about 80 million nonfatal injuries warranting medical care occur on highway networks.
- Road traffic injuries are ranked eighth as the leading cause of death (2.5%) among people of all ages, right in front of diarrheal diseases and tuberculosis (WHO, 2018).
- Vulnerable road users (i.e., pedestrians and cyclists) represent 26%of road injury deaths, while drivers and passengers of motorized two-wheel and three-wheel vehicles account for another 28% worldwide.
- While a large proportion of high-income countries have observed either a reduction or no change in traffic-related deaths between 2013 and 2016, a significant number of middle- and low-income countries have observed an increase in traffic-related deaths (WHO, 2018), in large part attributed to the rapid motorization observed in developing countries.

Overview – Economic Burden

- In the United States, for instance, highway crashes are estimated to have caused more than US$871 billion in economic loss and societal harm in 2010.
- In Europe, it is estimated that crashes have cost more than US$325 billion (€280 billion) in economic harm in 2015 (this value is considered underestimated), while in Australia the economic burden was estimated to be US$ 23.9 billion (AU$33.2) in 2016 (Litchfield, 2017).
- Globally, it is estimated that 3% of gross domestic product (GDP) is lost to highway crashes (all severities) and can be as high as 5% for middle- and low-income countries.

TABLE 1.2

Change in rank order of DALYs for the 10 leading causes of the global burden of disease

1990		2020	
Rank	Disease or injury	Rank	Disease or injury
1	Lower respiratory infections	1	Ischaemic heart disease
2	Diarrhoeal diseases	2	Unipolar major depression
3	Perinatal conditions	3	Road traffic injuries
4	Unipolar major depression	4	Cerebrovascular disease
5	Ischaemic heart disease	5	Chronic obstructive pulmonary disease
6	Cerebrovascular disease	6	Lower respiratory infections
7	Tuberculosis	7	Tuberculosis
8	Measles	8	War
9	Road traffic injuries	9	Diarrhoeal diseases
10	Congenital abnormalities	10	HIV

DALY: Disability-adjusted life year. A health-gap measure that combines information on the number of years lost from premature death with the loss of health from disability.

Source: reference 2.

TABLE 1.1

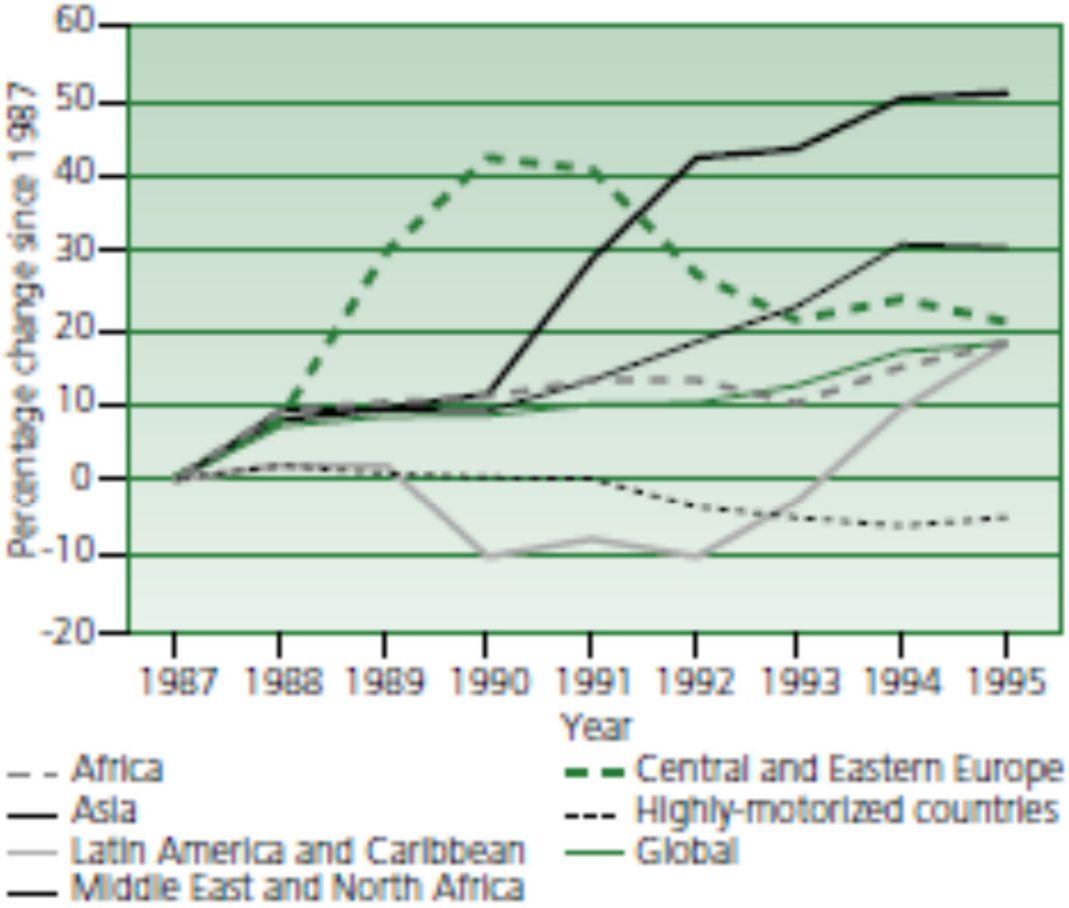
Leading causes of deaths by age group, world, 2002

Rank	0–4 years	5–14 years	15–29 years	30–44 years	45–59 years	≥60 years	All ages
1	Lower respiratory infections 1 890 008	Childhood cluster diseases 219 434	HIV/AIDS 707 277	HIV/AIDS 1 178 856	Ischaemic heart disease 1 043 978	Ischaemic heart disease 5 812 863	Ischaemic heart disease 7 153 056
2	Diarrhoeal diseases 1 577 891	Road traffic injuries 130 835	Road traffic injuries 302 208	Tuberculosis 390 004	Cerebrovascular disease 623 099	Cerebrovascular disease 4 685 722	Cerebrovascular disease 5 489 591
3	Low birth weight 1 149 168	Lower respiratory infections 127 782	Self-inflicted injuries 251 806	Road traffic injuries 285 457	Tuberculosis 400 704	Chronic obstructive pulmonary diseases 2 396 739	Lower respiratory infections 3 764 415
4	Malaria 1 098 446	HIV/AIDS 108 090	Tuberculosis 245 818	Ischaemic heart disease 231 340	HIV/AIDS 390 267	Lower respiratory infections 1 395 611	HIV/AIDS 2 818 762
5	Childhood cluster diseases 1 046 177	Drowning 86 327	Interpersonal violence 216 169	Self-inflicted injuries 230 490	Chronic obstructive pulmonary diseases 309 726	Trachea, bronchus, lung cancers 927 889	Chronic obstructive pulmonary diseases 2 743 509
6	Birth asphyxia and birth trauma 729 066	Malaria 76 257	Lower respiratory infections 92 522	Interpersonal violence 165 796	Trachea, bronchus, lung cancers 261 860	Diabetes mellitus 749 977	Diarrhoeal diseases 1 766 447
7	HIV/AIDS 370 706	Tropical cluster diseases 35 454	Fires 90 845	Cerebrovascular disease 124 417	Cirrhosis of the liver 250 208	Hypertensive heart disease 732 262	Childhood-cluster diseases 1 359 548
8	Congenital heart anomalies 223 569	Fires 33 046	Drowning 87 499	Cirrhosis of the liver 100 101	Road traffic injuries 221 776	Stomach cancer 605 395	Tuberculosis 1 605 063
9	Protein–energy malnutrition 138 197	Tuberculosis 32 762	War 71 680	Lower respiratory infections 98 232	Self-inflicted injuries 189 215	Tuberculosis 495 199	Trachea, bronchus, lung cancers 1 238 417
10	STDs excluding HIV 67 871	Protein–energy malnutrition 30 763	Hypertensive disorders 61 711	Poisonings 81 930	Stomach cancer 185 188	Colon and rectum cancers 476 902	Malaria 1 221 432
11	Meningitis 64 255	Meningitis 30 694	Maternal haemorrhage 56 233	Fires 67 511	Liver cancer 180 117	Nephritis and nephrosis 440 708	Road traffic injuries 1 183 492
12	Drowning 57 287	Leukaemia 21 097	Ischaemic heart disease 53 870	Maternal haemorrhage 63 191	Diabetes mellitus 175 423	Alzheimer and other dementias 382 339	Low birth weight 1 149 172
13	Road traffic injuries 49 736	Falls 20 084	Poisoning 52 956	War 61 018	Lower respiratory infections 160 259	Liver cancer 367 503	Diabetes mellitus 982 175
14	Endocrine disorders 42 619	Violence 18 551	Childhood cluster diseases 48 101	Drowning 56 744	Breast cancer 147 489	Cirrhosis of the liver 366 417	Hypertensive heart disease 903 612
15	Tuberculosis 40 574	Poisonings 18 529	Abortion 43 782	Liver cancer 55 486	Hypertensive heart disease 129 634	Oesophagus cancer 318 112	Self-inflicted injuries 874 955

Source: WHO Global Burden of Disease project, 2002, Version 1 (see Statistical Annex).

FIGURE 2.3

Global and regional road fatality trends, 1987–1995[a]

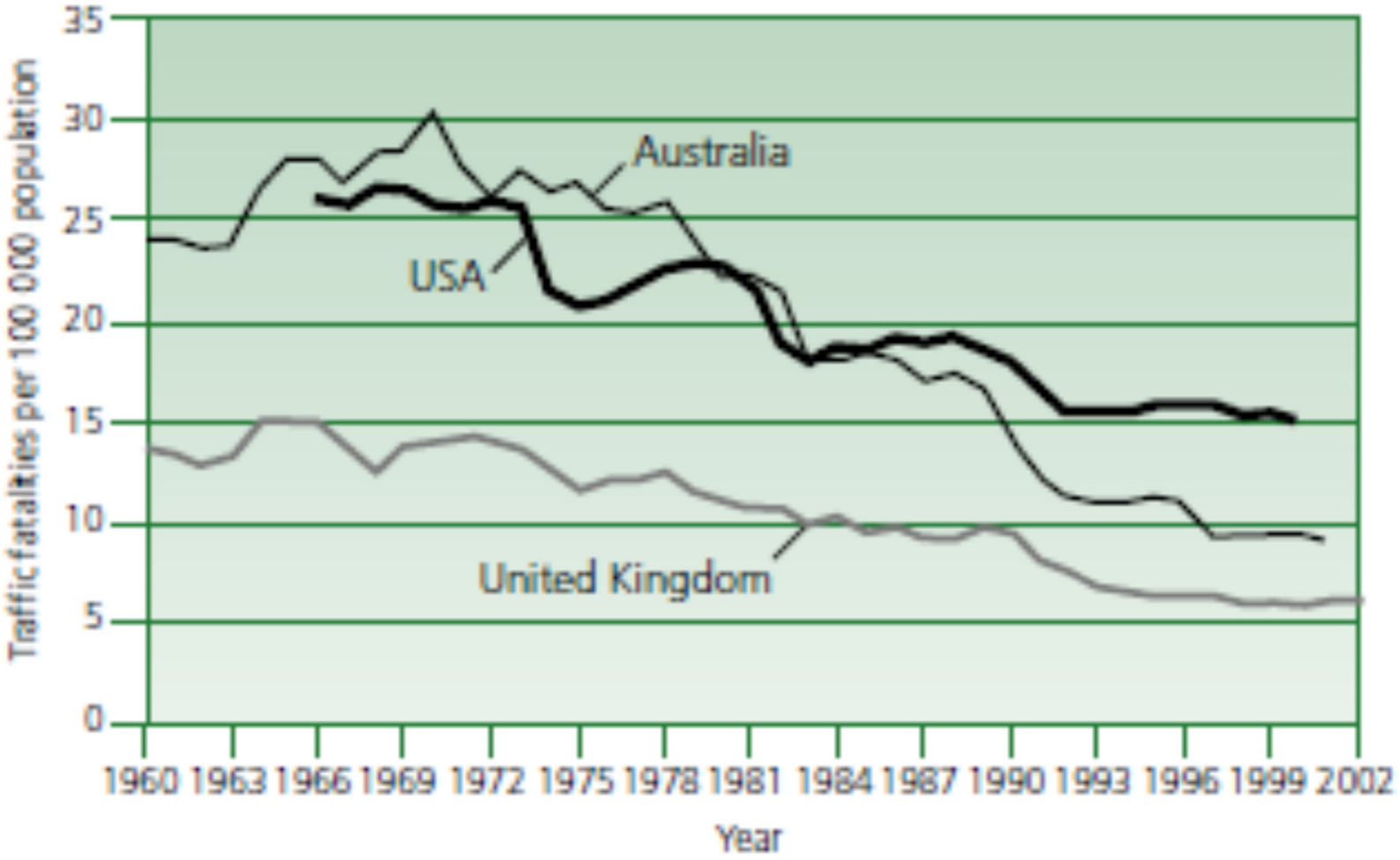


[a] Data are displayed according to the regional classifications of TRL Ltd, United Kingdom.

Source: reproduced from reference *2* with the permission of the author.

FIGURE 2.4

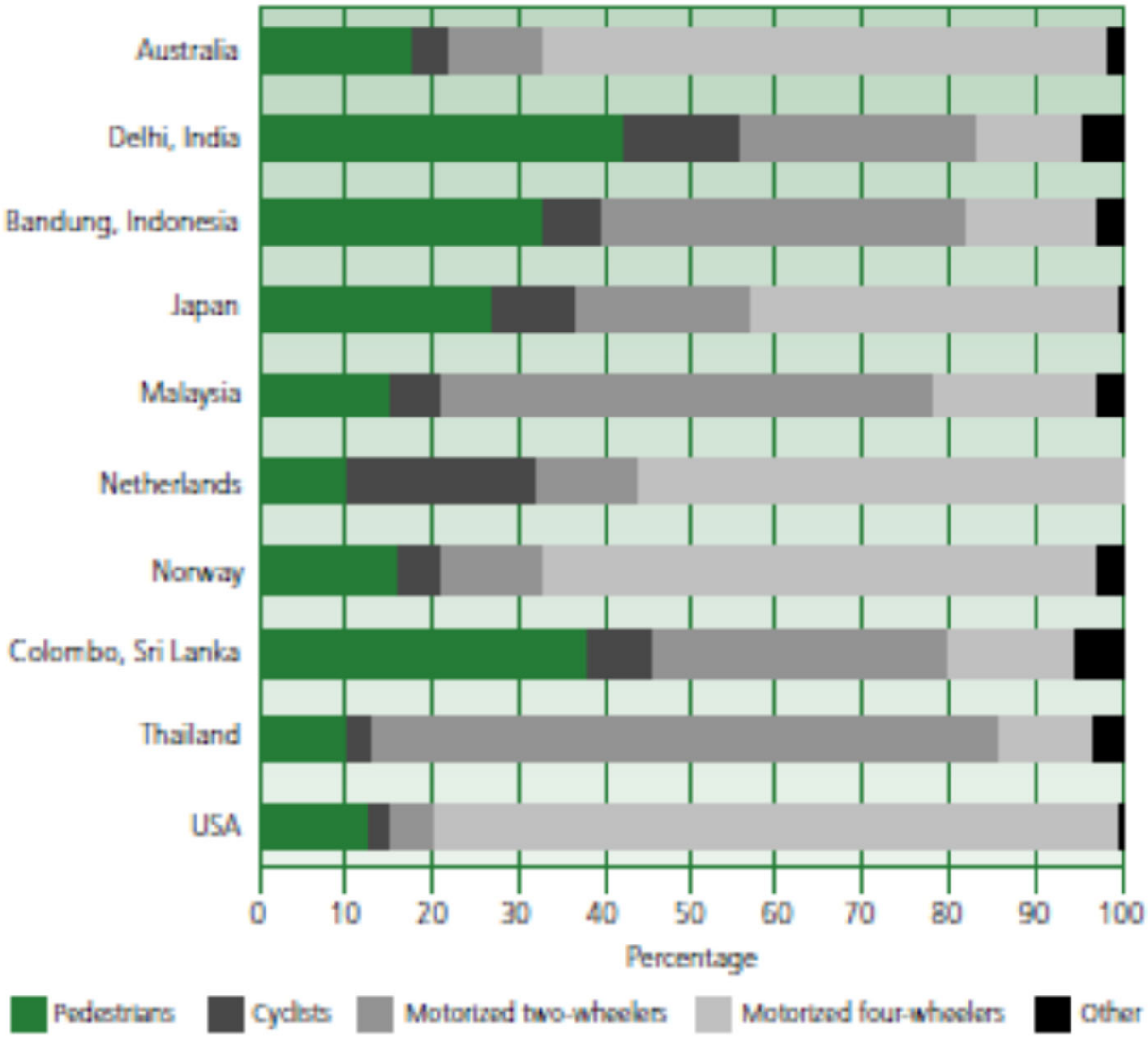
Road traffic fatality trends in three high-income countries (Australia, United Kingdom, United States of America)



Sources: Transport Safety Bureau, Australia; Department of Transport; United Kingdom; Fatality Analysis Reporting System, United States of America.

FIGURE 2.7

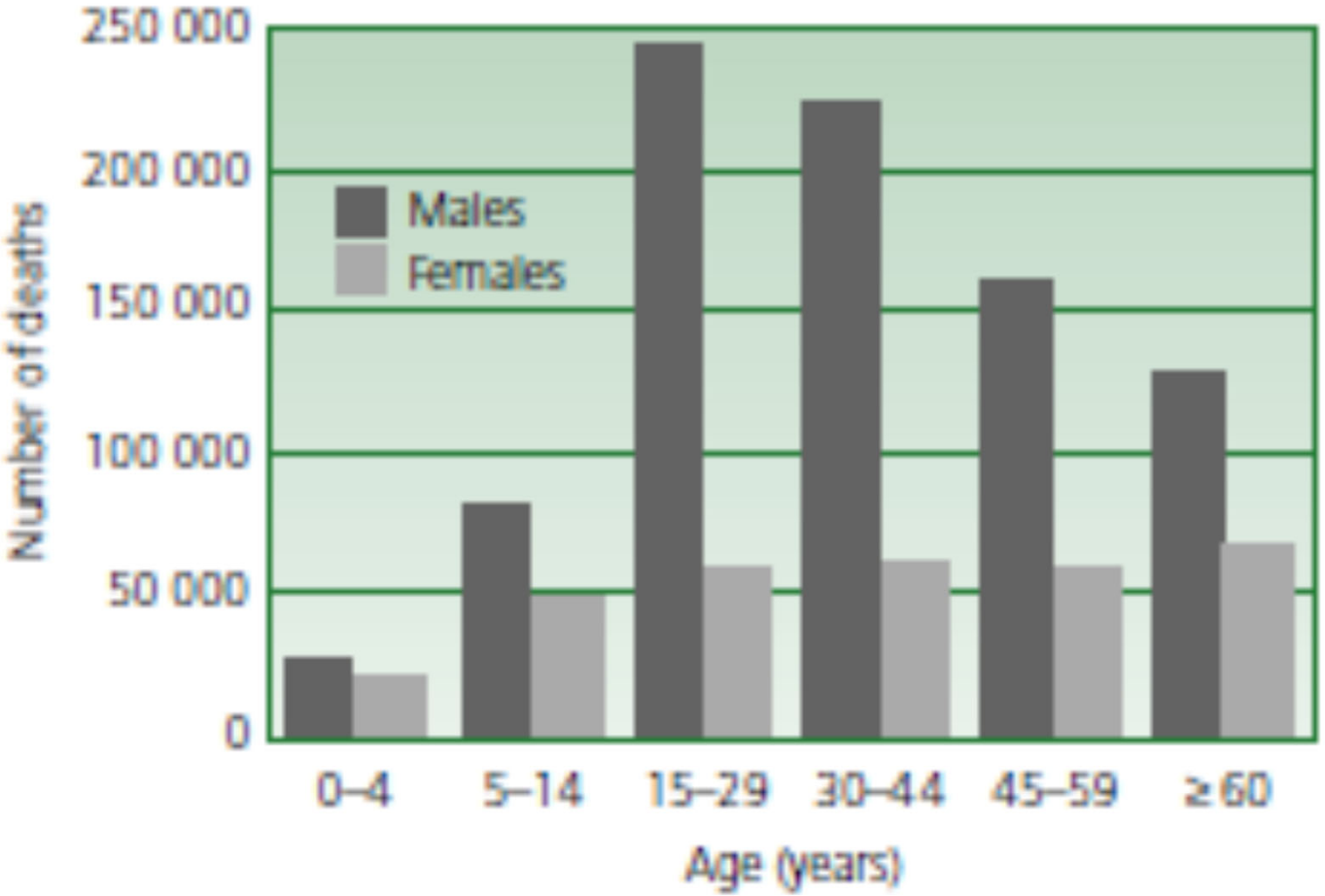
Road users killed in various modes of transport as a proportion of all road traffic deaths



Source: reference 44.

FIGURE 2.8

Road traffic deaths by sex and age group, world, 2002



Source: WHO Global Burden of Disease project, 2002, Version 1 (see Statistical Annex).

Crash Characteristics in the United States

Traffic Safety Facts 2016

TRAFFIC SAFETY FACTS 2018

A Compilation of Motor Vehicle Crash Data

https://crashstats.nhtsa.dot.gov/#!/DocumentTypeList/12

Figure 1. Fatal Crashes, 1975-2018

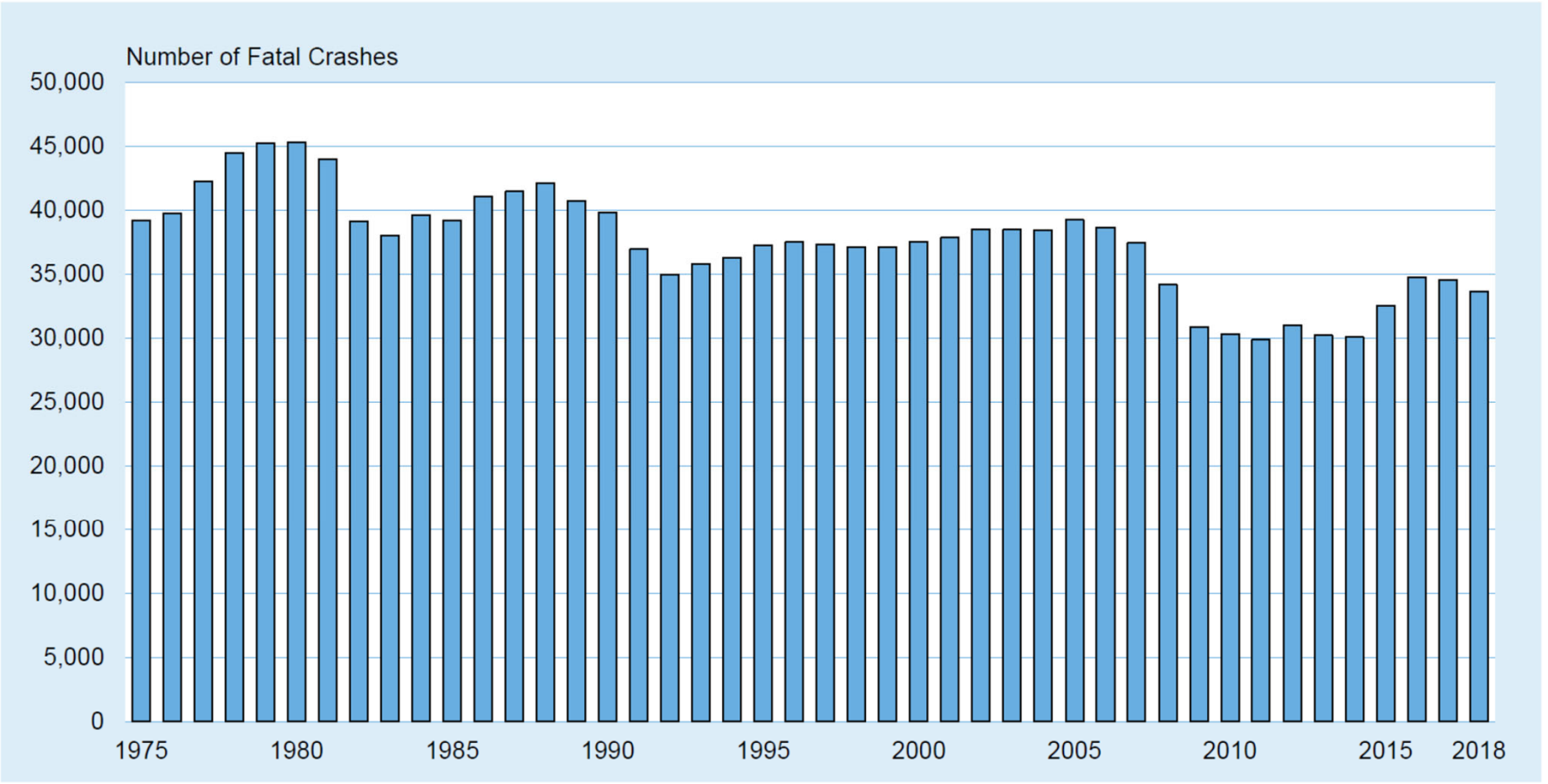
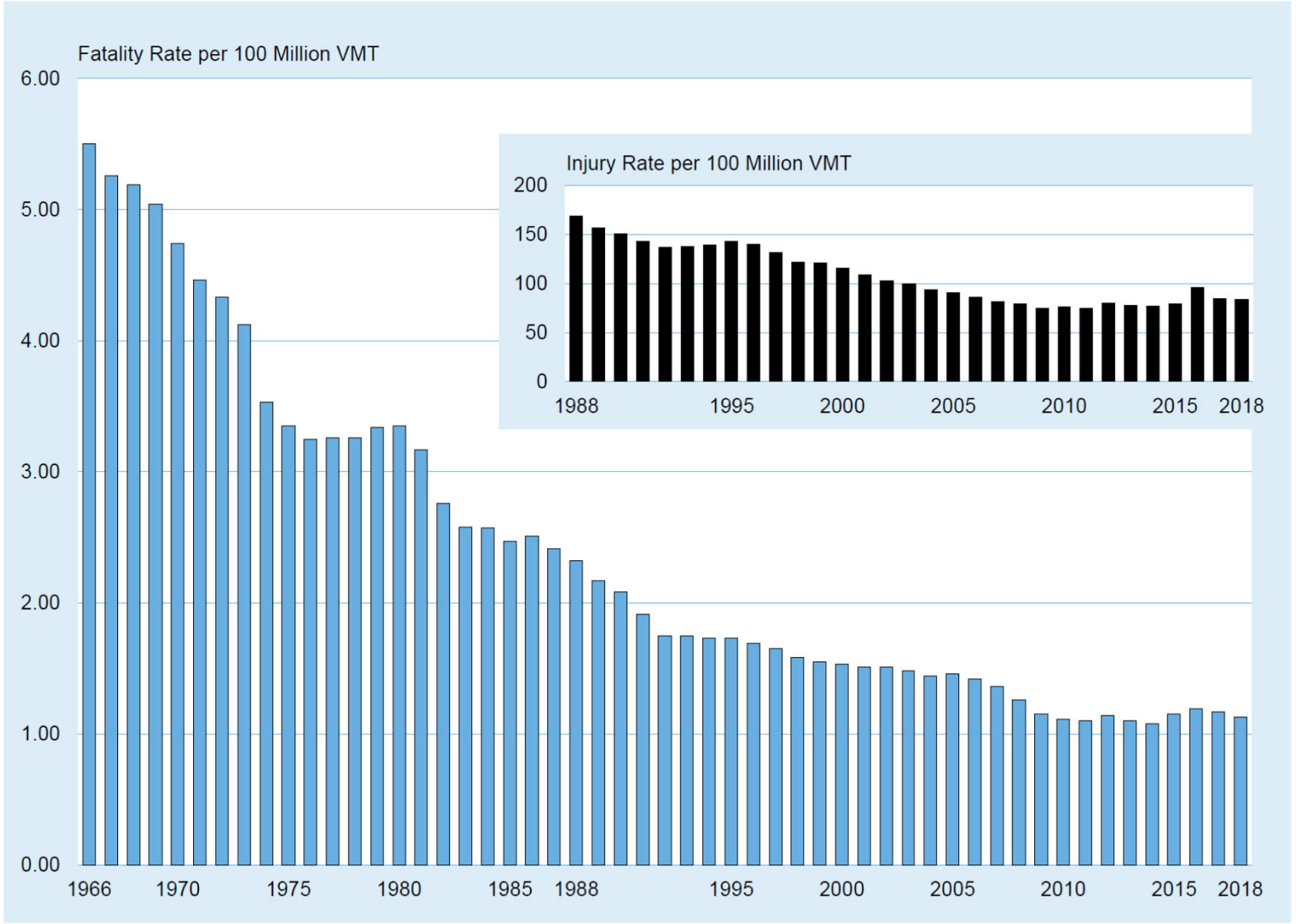
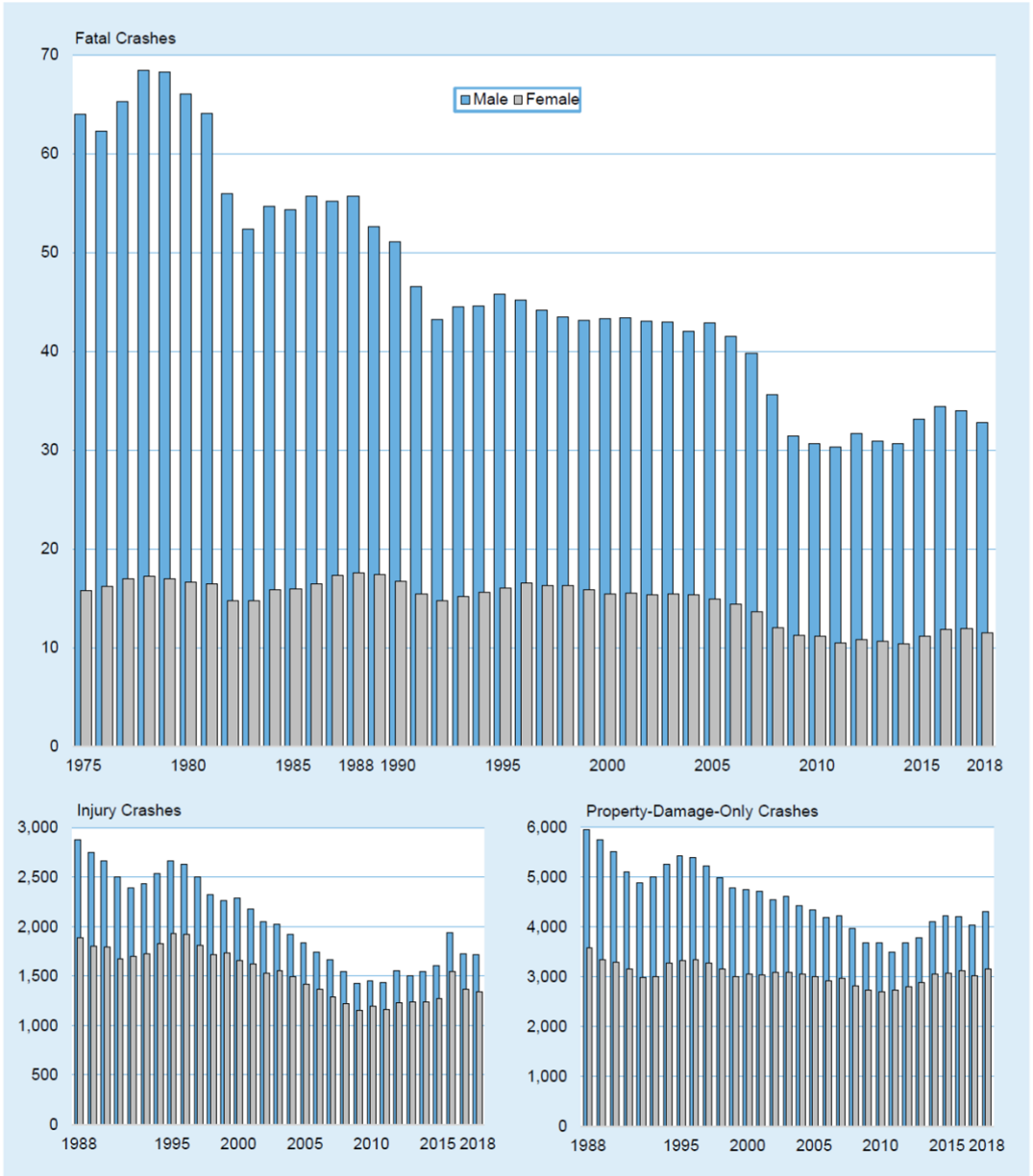


Figure 2. Motor Vehicle Fatality and Injury Rates per 100 Million Vehicle Miles Traveled, 1966-2018



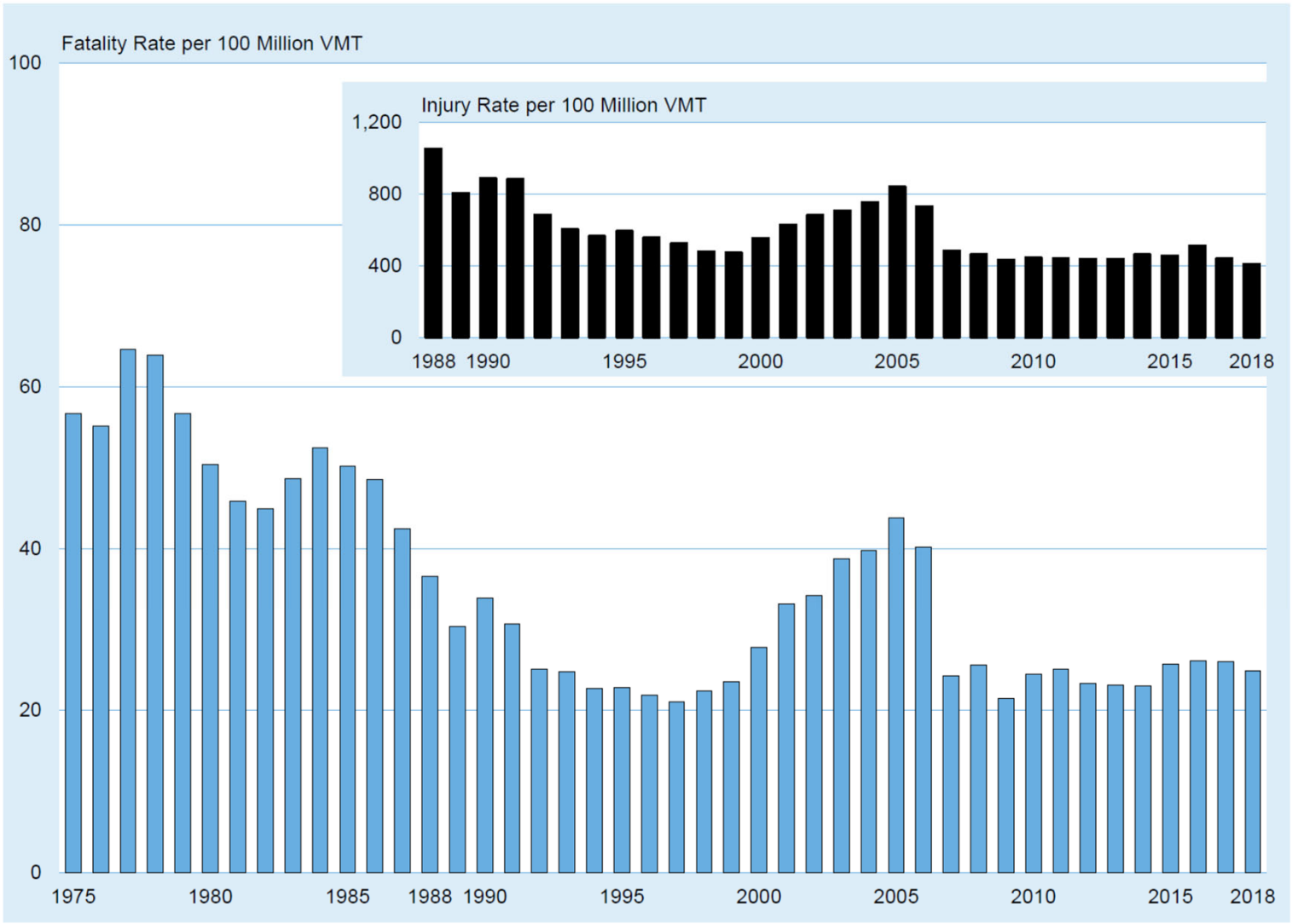
Source: Vehicle Miles Traveled—FHWA, revised by NHTSA for passenger cars and light trucks

Figure 3. Driver Involvement Rates per 100,000 Licensed Drivers 16 and Older, by Sex and Crash Severity, 1975-2018



Source: Licensed Drivers—FHWA

Figure 7. Motorcyclist Fatality and Injury Rates per 100 Million Vehicle Miles Traveled, 1975-2018



Source: Vehicle Miles Traveled—FHWA

Figure 8. Proportion of People Killed, by Highest Driver Blood Alcohol Concentration in the Crash, 1982-2018

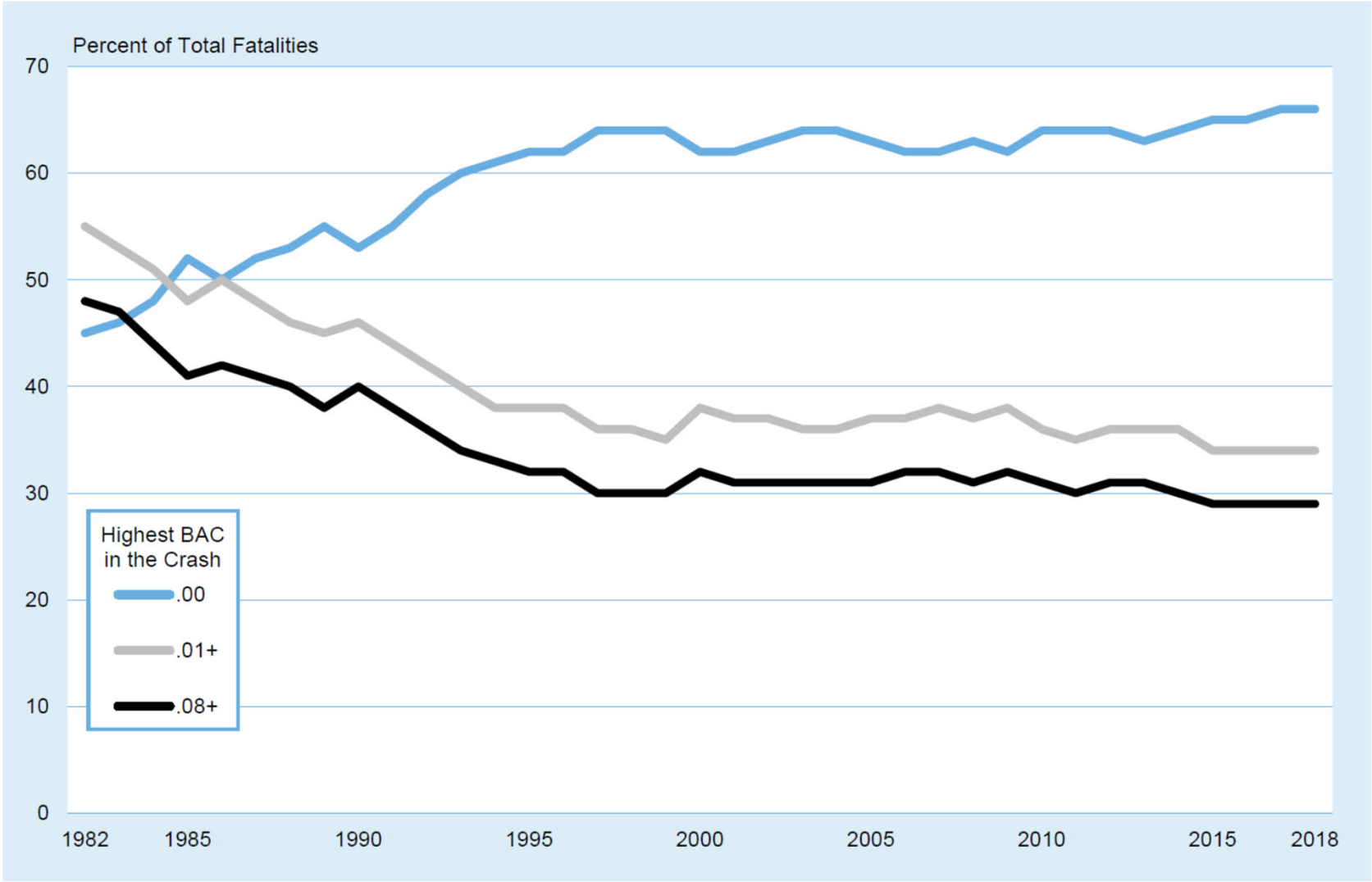


Figure 11. Average Fatal Crashes per Hour, by Time of Day, Weekdays, and Weekends

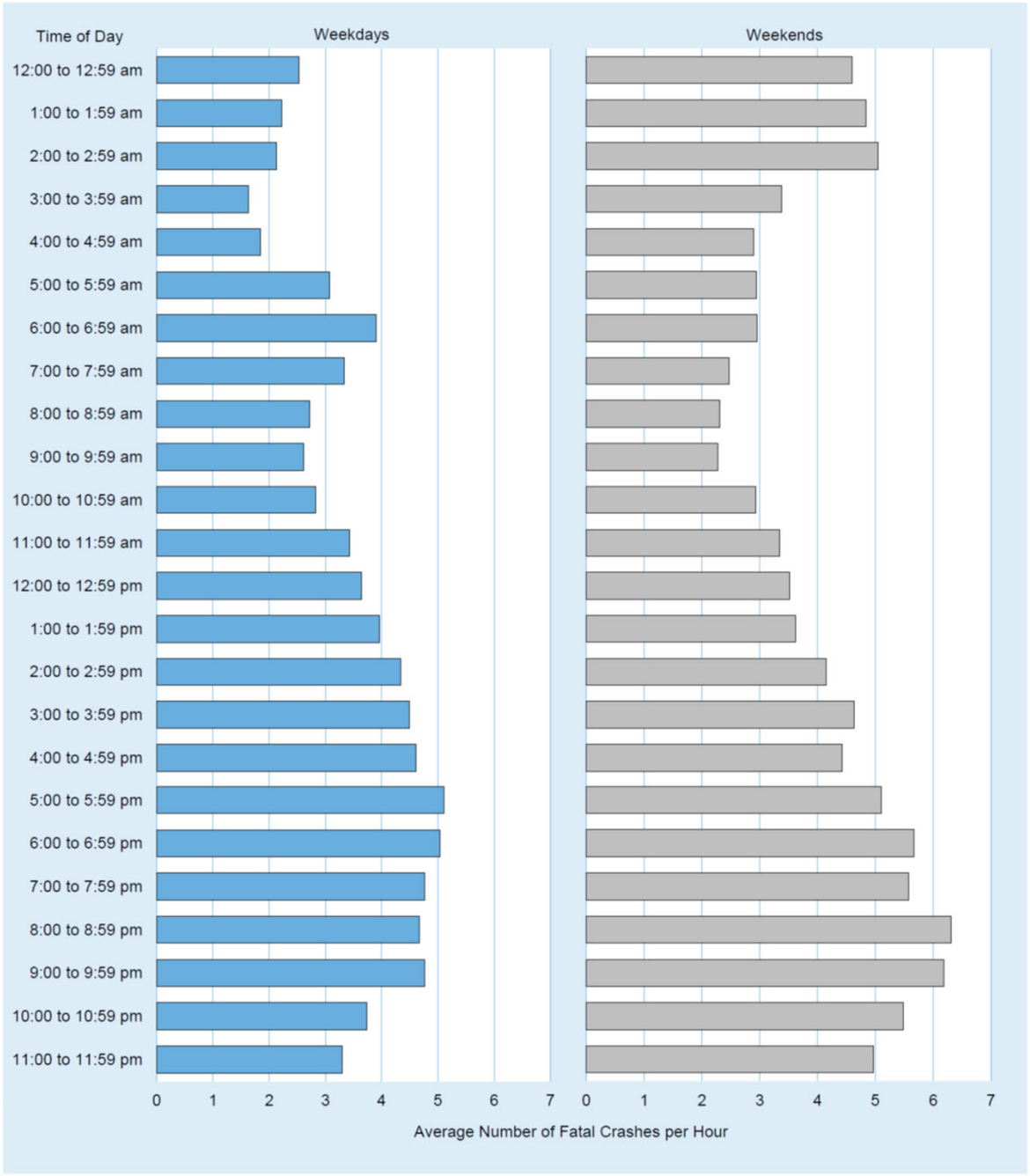


Figure 17. Percentage of People Killed and Injured, by Age

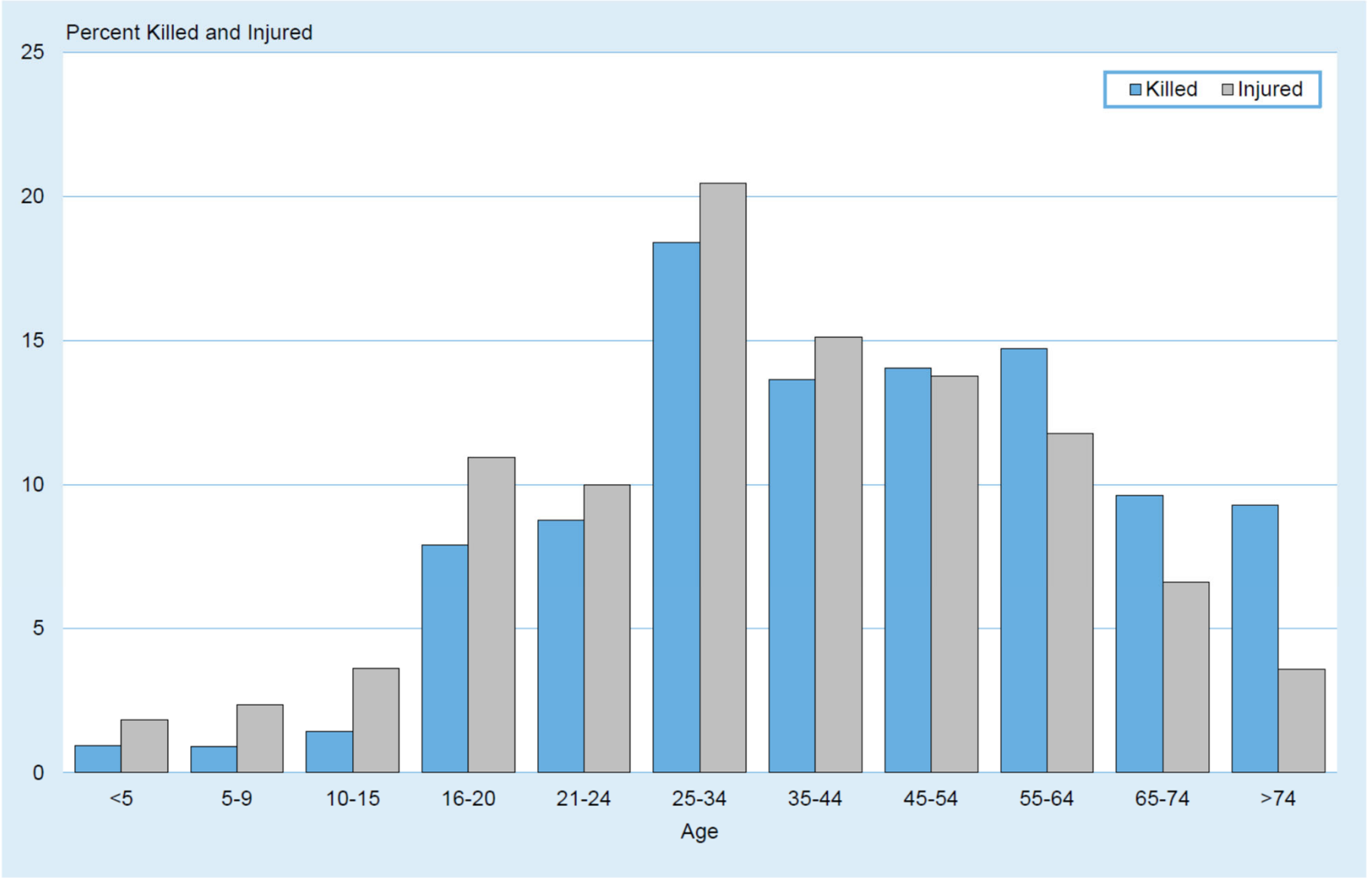
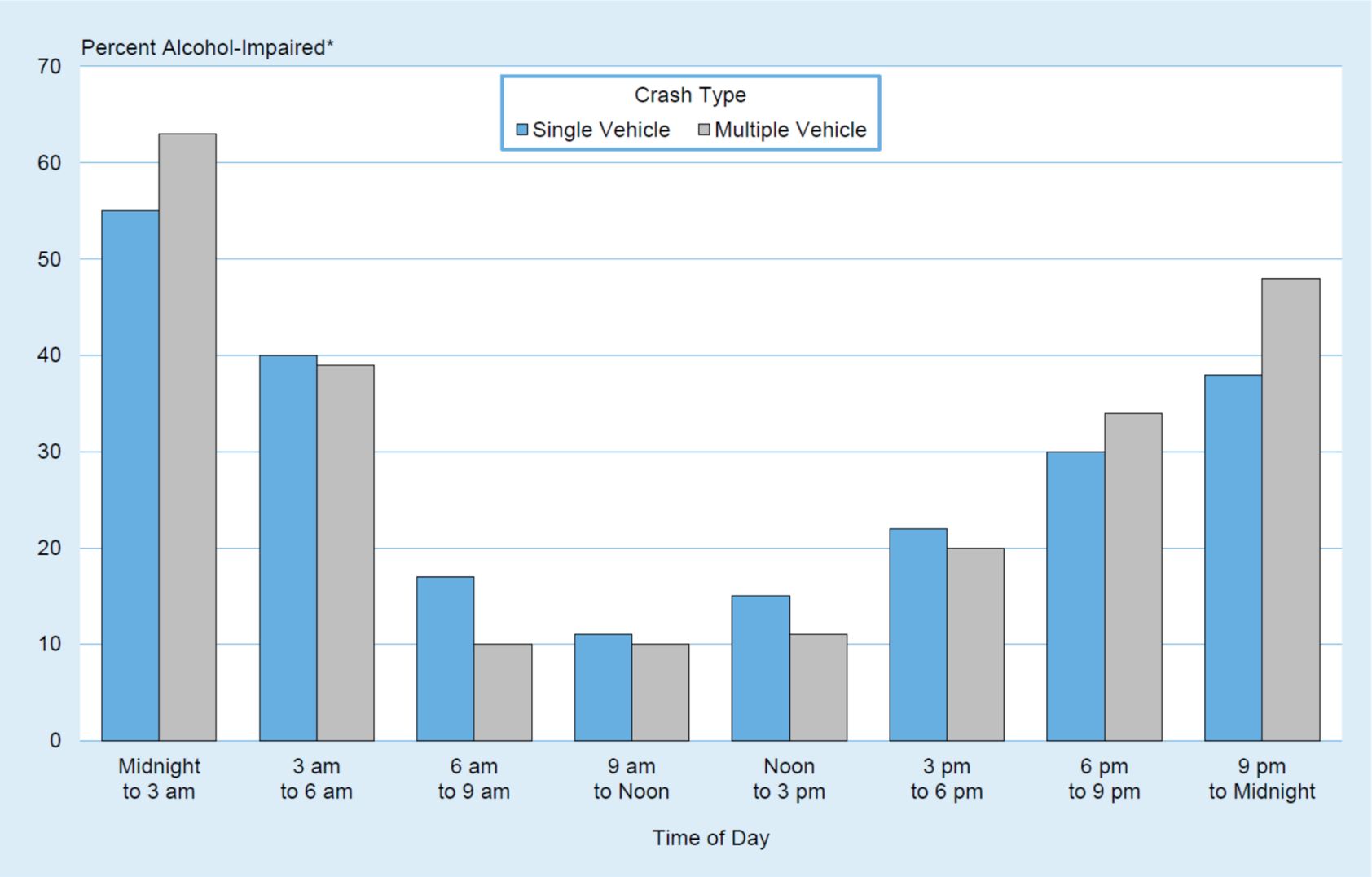


Figure 19. Percentage of People Killed in Alcohol-Impaired-Driving Crashes, by Time of Day and Crash Type



*Highest blood alcohol concentration among drivers or motorcycle riders involved in the crash was .08 g/dL or greater. NHTSA estimates alcohol involvement when alcohol test results are unknown. For more information, see page 9 of this report.

Figure 23. Percentage of Vehicle Occupants Killed, by Speed Limit and Land Use

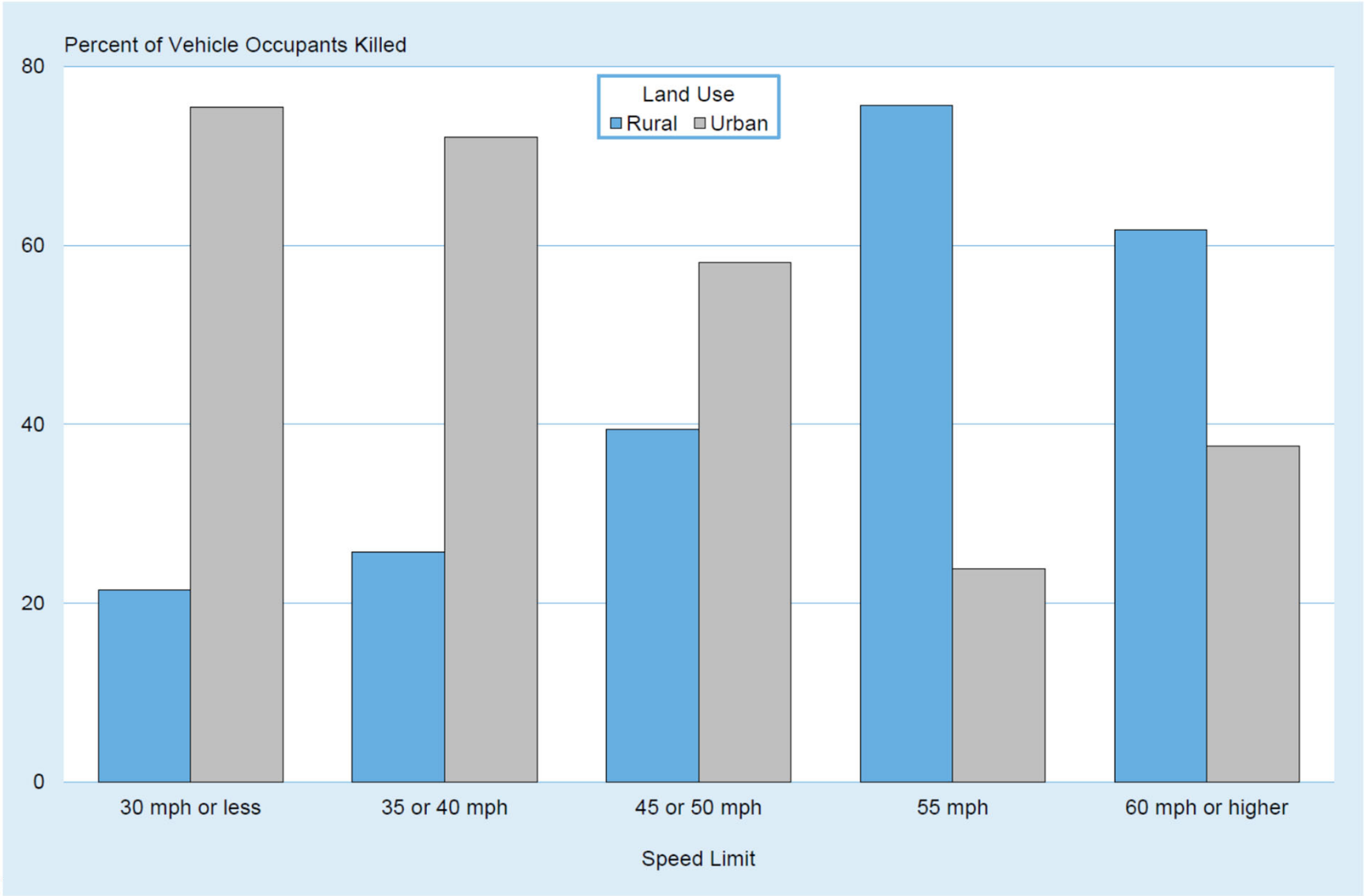


Figure 28. 2018 Traffic Fatalities, by State and Percentage Change from 2017