GATEWAY TRENDS

MOTOR VEHICLE CRASHES AS A PUBLIC HEALTH RISK

Introduction

Travel safety has improved considerably over recent decades, yet motor vehicle crashes continue to pose a serious risk to public health across the nation. Crashes involving autos, motorcycles, sports utility vehicles, trucks, and other vehicles remain the leading cause of death for Americans ages one to 34 and the primary cause of injury for persons of all ages. Every day during 1998, an average of 114 people died in motor vehicle crashes on the nation's roads and highways, according to the U.S. Department of Transportation's Fatality Analysis Reporting System. For every one who died, 77 others were injured.[1]

Deaths and injuries due to motor vehicle accidents not only affect the emotional and physical health of individuals and their families, but also impose heavy financial burdens on society as a whole. It is estimated that injuries and deaths resulting from crashes cost more than $150 billion each year in the form of lost productivity, property damage, long-term care costs, medical and rehabilitation costs, and declines in tax revenue, in addition to the costs associated with police, judicial and social service systems.[2]

Where We Stand

The chart at right, taken from East-West Gateway's 1999 report, *Where We Stand: A Strategic Assessment of the St. Louis Region*, confirms that this problem is important to this metropolitan area. Among 35 peer regions, St. Louis ranked 34th in 1991 with nearly 36 accidental deaths per 100,000 residents.[3]

The three metropolitan areas with the highest accidental death rates—Memphis, St. Louis, and Oklahoma City—also rate high in the proportion of their population that is aged 18 and younger (4th, 8th, and 9th among the 35 areas, respectively). Accidents comprise a much higher percentage of all deaths among young people than among those who are older.

A Closer Look at the St. Louis Region

Approximately four of every ten accidental deaths in the St. Louis region result from motor vehicle crashes. As the chart on the next page demonstrates, however, the predominance of crashes as a life-threat varies considerably by age group. In all counties of the region except the City of St. Louis and St. Charles County, three-quarters or more of all accidental deaths to young people aged 15 to 24 between 1996 and 1998 resulted from crashes. The percentage was

ACCIDENT DEATH RATE

1	**Boston**	**14.9**
2	Washington DC	23.0
3	Chicago	25.0
4	Baltimore	25.5
5	Portland	25.6
6	Columbus	26.0
7	Indianapolis	26.2
8	Salt Lake City	26.7
9	Pittsburg	26.9
10	Seattle	27.2
11	Minneapolis	27.3
12	San Diego	27.5
13	Dallas	27.7
14	Austin	27.9
15	San Antonio	28.0
16	Cincinnati	28.1
17	Detroit	28.5
18	Los Angeles	28.5
Average		**29.4**
19	Milwaukee	29.5
20	New York	30.2
21	Denver	30.3
22	Phoenix	31.1
23	Louisville	31.2
24	Cleveland	31.2
25	Atlanta	31.3
26	San Francisco	31.4
27	Kansas City	32.6
28	Philadelphia	32.8
29	Houston	34.1
30	Miami	34.2
31	Nashville	34.6
32	Charlotte	35.6
33	Oklahoma City	35.9
34	**St. Louis**	**35.9**
35	**Memphis**	**38.0**

BETTER — AVERAGE — WORSE

Accidental deaths per 100,000 population, 1991

1 U.S. Department of Transportation, National Highway Traffic Safety Administration, *Transportation Statistics Annual Report:1999*, page 87.

2 *Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear*. Advocates for Highway and Auto Safety, September 16, 1999, pp. iii.

3 East-West Gateway has been comparing St. Louis to a number of peer regions on more than 70 indicators of well-being since the first edition of *Where We Stand* in 1992. Metropolitan areas were selected as "peers" if they met one of two criteria: the area had a population of 950,000 or more and was within 500 miles of St. Louis or the area had an economic function similar to that of the St. Louis region.

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also very high for those in the 25-44 age group, but became less dominant in older generations.

Motor vehicle crashes as a percentage of all accidental deaths, 1996-1998

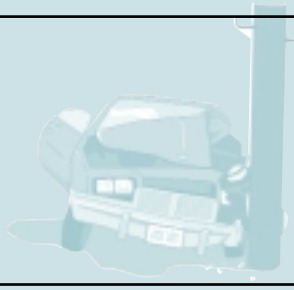
	1 to 15	15 to 24	25 to 44	45 to 64	65+	All ages
Franklin	33.3	84.6	72.7	59.1	35.4	67.8
Jefferson	43.8	84.1	58.2	73.0	30.8	56.6
St. Charles	52.9	65.6	66.2	89.5	16.2	46.9
St. Louis	65.0	81.0	54.1	47.8	18.3	40.2
City of St. Louis	36.0	63.6	32.5	21.8	14.0	26.3
Madison	46.2	85.0	55.8	49.2	30.6	49.0
Monroe	0.0	87.5	66.7	60.0	0.0	51.9
St. Clair	44.4	75.0	51.0	49.1	32.6	47.2
Region Total	**49.3**	**78.1**	**51.7**	**49.4**	**21.3**	**42.9**

All data represents 1996 to 1998 aggregated totals and percents thereof.
Source: Missouri Department of Health, Illinois Department of Public Health.

An average of 385 St. Louis area residents lost their lives due to motor vehicle crashes each year between 1996 and 1998. Approximately one third of these residents were children younger than age 15 or young people aged 15-24. The greatest number of children who died were residents of St. Louis and Jefferson counties in Missouri and Madison County in Illinois. The predominance of motor vehicle crashes as a percentage of all deaths for persons aged 24 and younger was greatest in Franklin and Jefferson counties in Missouri and Monroe County in Illinois.

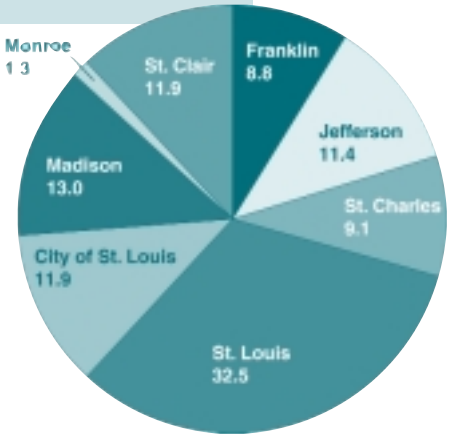
As illustrated in the charts to the right, the annual average number of residents who died from motor vehicle crashes during the three-year period from 1996 to 1998 ranged from a high of 125 fatalities in St. Louis County to five fatalities in Monroe County. Relative to the population of each county, the rate of death from crashes ranges from 12.6 deaths per 100,000 population in St. Louis County to more than twice that rate in Franklin County, which experienced an average annual rate of 36.7 deaths per 100,000 residents. This difference in death rates among counties of the region is fairly dramatic, but it is not inconsistent with urban/rural disparities, nationwide.

Average annual number of resident deaths due to motor vehicle accidents, 1996-1998



Franklin	34
Jefferson	44
St. Charles	35
St. Louis	125
City of St. Louis	46
Madison	50
Monroe	5
St. Clair	46
Region Total	**385**

Source: Missouri Department of Health, Illinois Department of Public Health

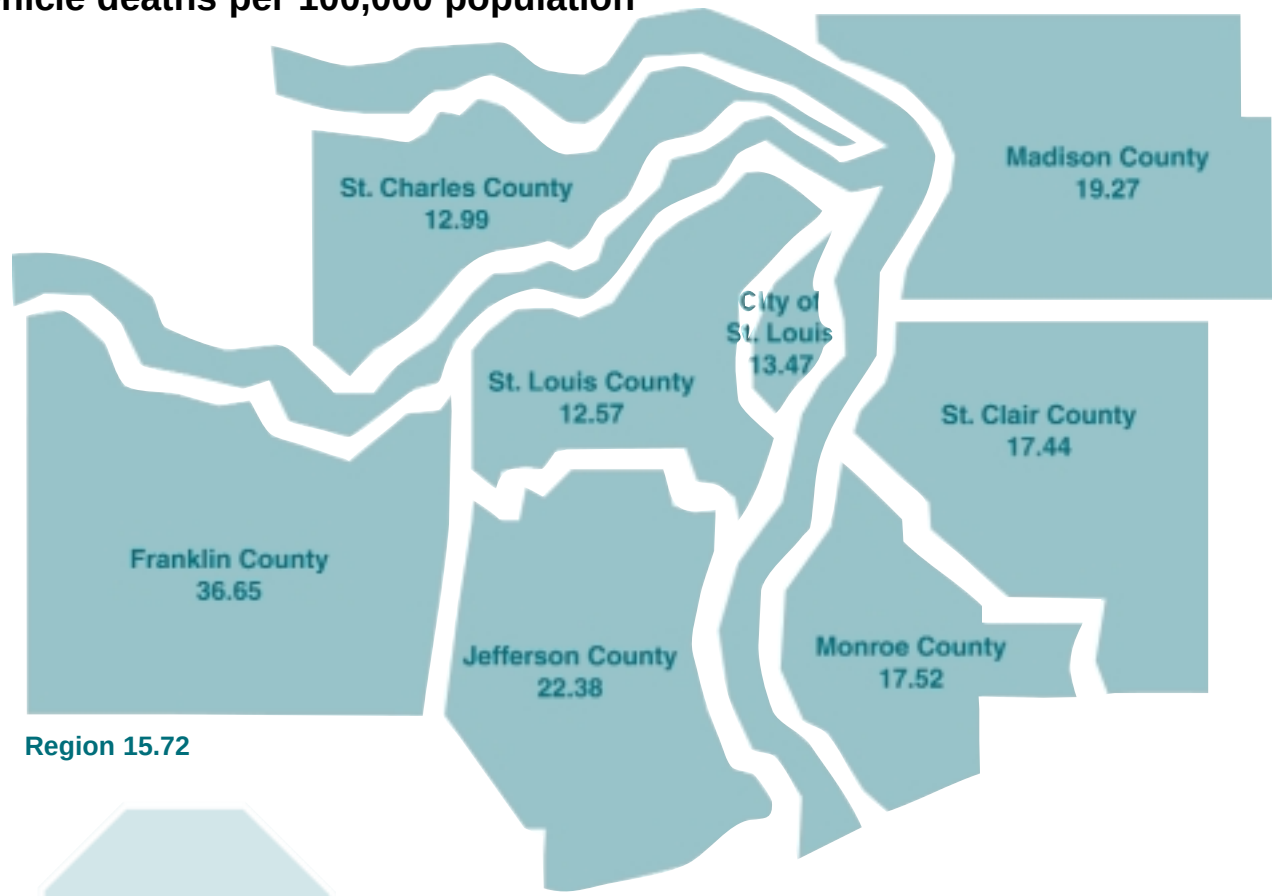


Percentage of total deaths due to motor vehicle accidents, by county

Driver Behaviors

Many factors and conditions combine to create the conditions for transportation safety problems, but 85 percent of these involve some kind of human error, according to the National Highway Traffic Safety Administration. Human error factors include, but are not limited to, driving under the influence of alcohol or other drugs, disregard for safety laws, speeding, and improper safety belt restraint.

Motor vehicle deaths per 100,000 population 1998



Region 15.72

Driving under the influence is considered by law enforcement officials to be a violent crime with annual direct costs estimated to be $45 billion nationwide.[4] According to information provided by the Missouri Highway Patrol and Illinois State Police, 276 (30 percent) of the 906 traffic fatalities which occurred on St. Louis roadways during the three years 1996 -1998 were alcohol related.

Another behavior that contributes heavily to traffic accidents and fatalities is the driver's disregard for safety laws. On an annual basis, for example, more than 800 deaths and over 200,000 injuries nationwide can be attributed to drivers running red lights–considered to be one form of aggressive driving.[5] Between 1992 and 1998, when crash fatality rates were going down in general, fatal crashes at traffic signals increased 18 percent nationwide. During that time, in St. Louis City alone, 18 people were killed by drivers failing to stop at red lights.[6]

Speeding also is a contributing factor. In 1997, more than 13,000 people nationwide died in speed-related crashes.[7] Drivers traveling at higher speeds have less time to perceive and react to problems ahead. The loss of one second or less in reaction time makes a huge difference between a miss or hit on the highway. At higher speeds the physical forces exerted on people inside the vehicle are much greater.

All too often, officials suspect that victims who died in car accidents would have lived if only they had used their seat belts. According to the Missouri Division of Highway Safety, only 33 percent of drivers and 31 percent of passengers were wearing their seat belts in fatal motor vehicle crashes that occurred in Missouri in 1998. Of those persons uninjured in crashes in Missouri that year, 91 percent were wearing seat belts.

4 *Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear*. Advocates for Highway and Auto Safety, September 16, 1999, pp. 35.

5 Insurance Institute for Highway Safety, Highway Loss Data Institute.

6 IBID

7 *Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear*. Advocates for Highway and Auto Safety, September 16, 1999, pp. 47.

If improvements are to be made, it will require the combined efforts of many fields, including education, health, transportation, law, engineering, architecture, and safety sciences. Understanding the causes and lowering the occurrences of motor vehicle crashes are key components of our individual and national initiatives to create and sustain healthy and safe communities.

For more information

Readers interested in learning more about transportation safety may want to visit the following web sites:

National Highway and Traffic Safety Administration
www.nhtsa.dot.gov

Insurance Institute for Highway Safety, Highway Loss Data Institute
www.hwysafety.org

Missouri Division of Highway Safety
www.mdhs.state.mo.us

Missouri Department of Public Health
www.health.state.mo.us

Illinois State Police
www.state.il.us/isp

Illinois Department of Public Health
www.idph.state.il.us

Issues for the Future

According to the report, *Stuck in Neutral: Recommendations for Shifting the Highway and Auto Safety Agenda into High Gear*, some of the most critical transportation safety issues of the coming decades will be the result of the "echo boom generation" (children of the baby boom) reaching driving age, resulting in far larger numbers of inexperienced drivers on the nation's roadways. The report notes that although teenagers drive fewer miles than other age groups, they are involved in three times as many fatal accidents. They are more likely to be involved in single vehicle crashes due to speeding, reckless driving and over-compensating during sudden maneuvers. They are less likely to wear seat belts.

Stuck in Neutral suggests that the future of transportation safety will also be shaped by two other trends: aging drivers and more aggressive driving practices.

As the baby boomers age and life expectancy increases, there will be more older drivers.[8] *Stuck in Neutral* indicates that as age increases, some individuals experience a reduction in motor skills, cognition, attentiveness, alertness and dexterity. These decreased capabilities translate into longer perception-reaction time, decreased peripheral vision, increased sensitivity to glare, limited torso flexibility and range of limb and neck motion. The report also notes that, nationally, older populations are over-represented in traffic fatalities. In 1997, people 70 years and older represented only nine percent of the population but were involved in more than 14 percent of the nation's traffic fatalities.

The report defines aggressive driving as speeding, tailgating, following too closely, failing to signal for lane changes or other forms of negligent or inconsiderate behavior. Aggressive driving differs from road rage. Road rage is actually a criminal offense where anger precipitates a violent act. Road rage could be a physical confrontation or an assault with a motor vehicle or possibly a weapon. It may even be an over-reaction to someone else's aggressive driving. A report from the Arizona Department of Public Safety indicates aggressive driving is a concern for keeping the roads safe not only because it may instigate episodes of road rage but also because rush hour crashes are frequently caused by aggressive drivers and are a major contributor to congestion. Ten percent of rush hour crashes contribute to a second crash.

8 For a discussion of the changing age composition of the St. Louis region, see *Gateway Trends #2*, June 2000.