

References for Chapter 14

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15 The dramatic failure of US safety policy

Introduction

This chapter is intimately related to Chapter 12 on airbags. This is not because airbags, as devices, are central to traffic safety. In 2003 they reduced fatality risk by 10% for 47% of road users, thus reducing US total fatalities by almost 5%. Such a reduction, without affecting anything else, would be important, even if much less important than the driver factors discussed in Chapters 13 and 14.

The role of the airbag in US safety policy was not so much as a device, but as an icon for a safety philosophy that precipitated a national disaster. Below we use simple analyses of readily accessible public data to document the extent of the disaster, and then discuss the background that contributed to it.

The US compared to other countries

Prior to the mid 1960s the US had the safest traffic in the world, whether measured by deaths per registered vehicle, or deaths for the same distance of travel. A series of tabulated rates for the US and 11 other major industrialized countries for the years up to 1978 appeared under the headline *U.S. the Safest Place for Driving*.^{1(p 52)} US rates were substantially lower than those in any of the other countries listed.

By 2002, in terms of deaths per registered vehicle, the US had dropped from first place into sixteenth place, behind Australia, Austria, Canada, Denmark, Finland, Germany, Great Britain, Iceland, Japan, Luxembourg, the Netherlands, New Zealand, Norway, Sweden, and Switzerland.²

Comparing rates in 2002 to rates in 1979

The decline in US safety relative to other countries is explored below by comparing changes in specific US fatality rates with the changes in the same rates in other countries. Three traffic fatality rates are examined:

1. Fatalities per year.
2. Fatalities per thousand registered vehicles (the vehicle rate).
3. Fatalities per billion km of vehicle travel (the distance rate).

Three countries, Great Britain,³ Canada,⁴ and Australia,⁵ are selected for the comparisons. These three countries are chosen because they have much in common with the US in terms of language, beliefs, and traditions. Performance is compared over the 23-year period from 1979 to 2002. It was in the late 1970s/early 1980s that the safety policies of the US and other countries began to

diverge. The results are not all that different if the initial and final times were a few years earlier or later, or if some different comparison countries were chosen.

Fatalities per year comparisons. Figure 15-1 shows the change in the simplest measure of safety performance, total traffic deaths per year. While fatalities in the 23 year period declined in the US by 16.2%, declines of 46.0%, 49.9%, and 51.1% occurred in Britain, Canada, and Australia (Table 15-1). In the prior 1960-1978 period the comparison countries did not systematically outperform the US. On the contrary, fatalities in Canada and Australia increased by 65% and 50% (compared to a 38% increase in the US), but in GB decreased by 2%.

The number of traffic deaths that would have occurred in the US in 2002 if US fatalities had declined by the same percents as in the comparison countries from 1979-2002 are shown in Table 15-2. If the US total had declined by 46.0%, as it did in Great Britain, then US fatalities in 2002 would have been 27,598 instead of the 42,815 that occurred. (All derivations are based on calculations including more decimal places than shown in tables). By matching the British decline, 15,217 fewer Americans would have been killed in 2002. The corresponding fatality reductions for matching Canadian and Australian performance are 17,229 and 17,837.

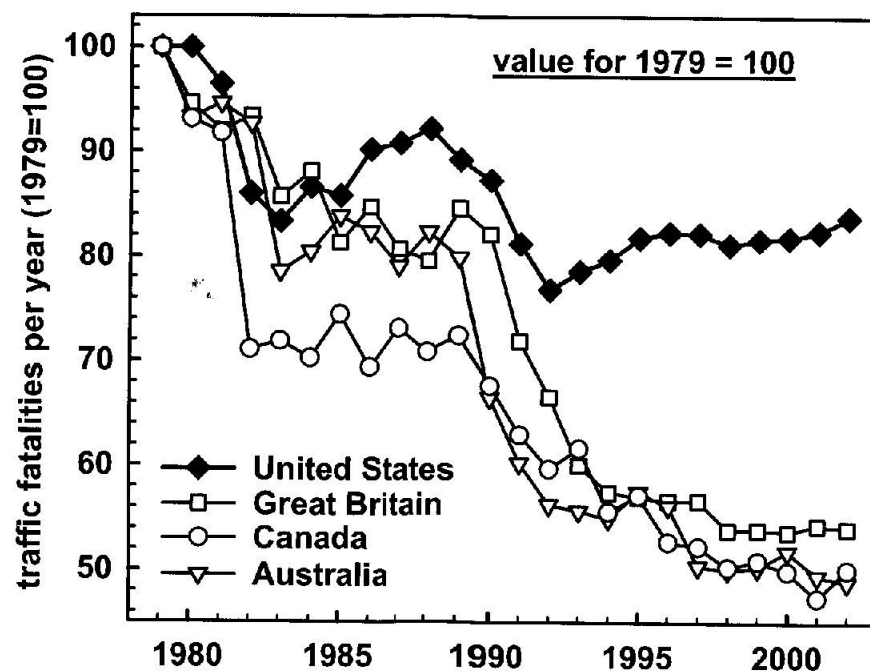


Figure 15-1. Traffic fatalities per year in the US and in three comparison countries. All values are rescaled by dividing the actual number for each year by the number in 1979, and multiplying by 100.

Table 15-1. The percent reduction in the number of fatalities per year between 1979 and 2002 in the US and in three comparison countries.

country	fatalities		percent change 1979 to 2002
	1979	2002	
United States	51,093	42,815	-16.2%
Great Britain	6,352	3,431	-46.0%
Canada	5,863	2,936	-49.9%
Australia	3,508	1,715	-51.1%

Table 15-2. Estimated number of fatalities that would have occurred in the US in 2002 if the US had achieved the same percent decline in fatalities per year between 1979 and 2002 as the comparison countries.

if US decline had matched	instead of -16.2%, 1979-2002 change would have been	instead of 42,815, fatalities in 2002 would have been	number of US lives saved in 2002
Great Britain	-46.0%	27,598	15,217
Canada	-49.9%	25,586	17,229
Australia	-51.1%	24,978	17,837

Fatalities per registered vehicle comparisons. Because of the disparate numbers of vehicles in different countries, raw fatalities can be compared effectively only by renormalizing in some way as in Fig. 15-1. However, rates such as fatalities per thousand registered vehicles (the vehicle rate) can be plotted without the need to select a reference year, as shown in Fig. 15-2. Prior to the late 1970s the comparison countries, in common with all countries, had rates higher than the US. The change in time from a higher to a lower rate than for the US is illustrated additionally for Sweden in Fig 3-6, p. 41. The US rate shows no indication of a drop in response to any major vehicle safety legislation, such as the National Traffic and Motor Vehicle Safety Act of 1966 that required all vehicles manufactured in 1968 or later to satisfy a number of Federal Motor Vehicle Safety Standards (FMVSS). The only notable downward spike, in 1974, is unrelated to vehicles, but reflects various changes stimulated by the 1973 oil embargo, including driver behavior changes, especially speed reductions in response to changes in speed limits (Fig. 9-3, p. 213).

Table 15-3 shows the changes in the vehicle rate from 1979 to 2002 for the US and the comparison countries. The US decline of 46.2% in a 23 year period might seem impressive, but it corresponds to a compound decline of only 2.7% per year. This is less than the average 3.1% from 1900-2002, and still less than the 3.2% from 1900-1978. Thus US safety policy in the 1979-2002 period did not lead to declines as large as occurred in earlier decades.

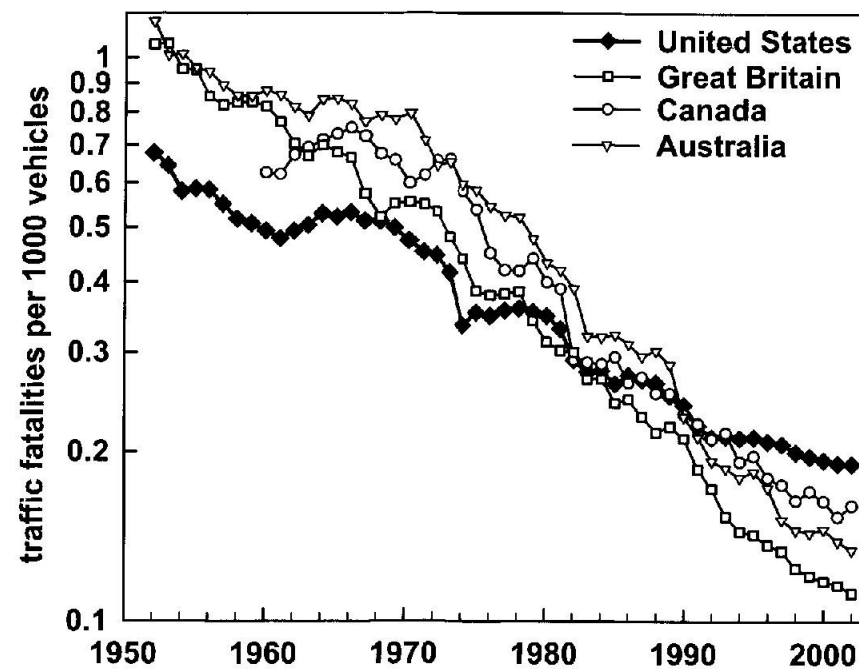


Figure 15-2. Traffic fatalities per thousand registered vehicles in the US and in the three comparison countries.

Table 15-3. The percent reduction in the vehicle rate (number of fatalities per thousand registered vehicles) between 1979 and 2002 in the US and in three comparison countries.

	US	GB	Canada	Australia
<u>1979</u>				
fatalities	51,093	6,352	5,863	3,508
vehicles (thousands)	144,317	18,616	13,329	7,358
fatalities/(thou veh)	0.354	0.341	0.440	0.477
<u>2002</u>				
fatalities	42,815	3,431	2,936	1,715
vehicles (thousands)	224,974	30,557	18,271	12,799
fatalities/(thou veh)	0.190	0.112	0.161	0.134
change in rate, 1979-2002	-46.2%	-67.1%	-63.5%	-71.9%

While the US vehicle rate declined by 46.2%, the rates in Britain, Canada, and Australia declined by 67.1%, 63.5%, and 71.9%. If the US rate had declined by the same 67.1% it did in Britain, then in 2002 the US rate would have been $0.354 \times (1 - 0.671) = 0.116$ fatalities per thousand vehicles, instead of the 0.190 rate observed. Applying the 0.116 rate to the 224,974 thousand vehicles in the US in 2002 would have led to 26,210 fatalities, 16,606 fewer than the 42,815 observed. The US fatality reductions from matching the declines in the Canadian and Australian vehicle rates are 13,718 and 20,429.

Fatalities for the same travel distance comparisons. The best estimates of distance of vehicle travel are for Great Britain, based on observations at fifty sites supported by the Department of Transport. Reliable estimates over a long period are not available for most countries, so the comparison will be confined to Great Britain. Because we compare how rates change in time, the fact that vehicles in the US travel greater distances per year than in other countries is not important provided trends in the distance of travel per vehicle are not markedly different between the countries compared, which they are not. Greater travel in the US leads to lower distance rates every year. While the US dropped from number one ranking to number 16 in deaths per vehicle, for deaths for the same travel distance it dropped from number one ranking to number 10, behind Australia, Canada, Denmark, Finland, Great Britain, the Netherlands, Norway, Sweden, and Switzerland.²

Figure 15-3 shows that while the distance rate in Britain was (as in all countries) previously higher than in the US, in 2002 it was lower. Table 15-4 shows the 1979 to 2002 comparison for the distance rate parallel to the Table 15-3 for the vehicle rate. If the US distance rate had declined by the same 71.3% that occurred in Britain, US fatalities in 2002 would have been $4,553.8 \times 20.8 \times (1 - 0.713) = 27,145$ instead of the 42,815 observed. By matching the British decline, 15,670 fewer Americans would have been killed in 2002.

Average comparisons 2002 versus 1979. I have presented results like the above in publications^{6,7} and in many oral presentations, in most cases for just one of the rates due to limited space or time. One of the most common reactions from surprised readers and audiences is, "What would the result have been if instead of (say) the vehicle rate, you had used the distance rate?"⁸ Anticipating such questions, all three rates are given, leading to the values summarized in Table 15-5.

Averaging over the rates available for the comparison countries gives the results that:

If US matched Great Britain	15,831 fewer US fatalities in 2002.
If US matched Canada	15,474 fewer US fatalities in 2002.
If US matched Australia	19,133 fewer US fatalities in 2002.

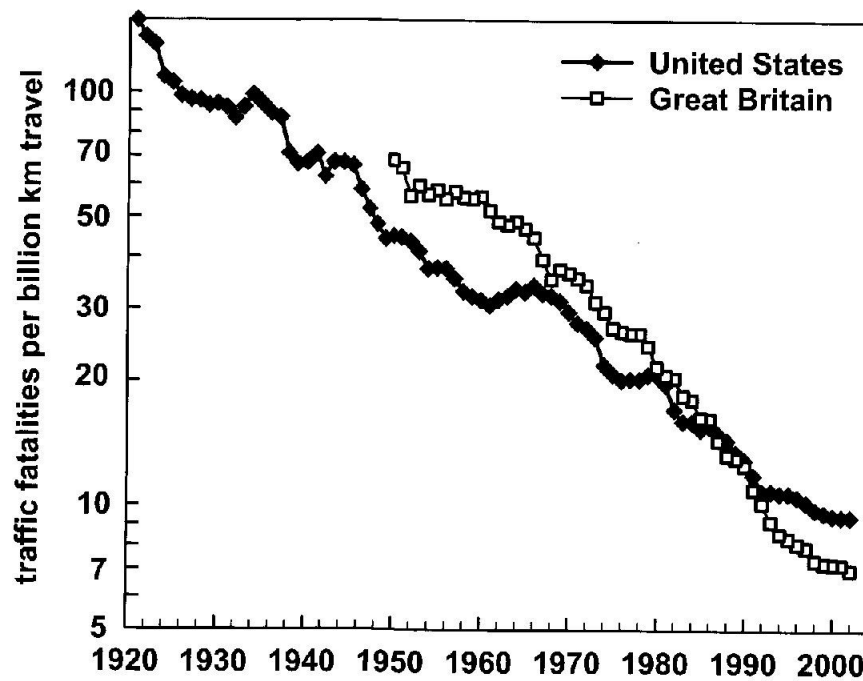


Figure 15-3. Traffic fatalities per billion km of vehicle travel in the United States and in Great Britain.

Table 15-4. The percent reduction in the number of fatalities per billion km of vehicle travel between 1979 and 2002 in the US and in GB.

	US	GB
<u>1979</u>		
fatalities	51,093	6,352
vehicle travel (billion km)	2,460.9	260.5
fatalities/(billion km)	20.8	24.4
<u>2002</u>		
fatalities	42,815	3,431
vehicle travel (billion km)	4,553.8	490.0
fatalities/(billion km)	9.4	7.0
change in distance rate from 1979 to 2002	-54.7%	-71.3%

Table 15-5. Estimates of the reductions in US traffic deaths in 2002 if fatality rates had declined in the US by the same percents as they did in three comparison countries. The average of the seven values is 16,672 fewer US fatalities.

rate	reduction in 2002 traffic deaths if US had matched 1979-2002 percent changes in:		
	GB	Canada	Australia
per year	15,217	17,229	17,837
per thousand vehicles (vehicle rate)	16,605	13,718	20,429
per billion km (distance rate)	15,670	—	—

The average of all seven estimates in Table 15-5 is 16,672. This leads to the conclusion that if the US had matched the changes in safety achieved in the comparison countries from 1979-2002, instead of 42,815 fatalities in 2002, the US would have had 26,143.

Fatality differences accumulated over the 1979-2002 period

All the above has focused on comparing differences between 2002 and the reference year 1979. Table 15-6 shows the calculation of the vehicle rate for Great Britain for every year between 1979 and 2002. The 2002 data are the same as in Table 15-3. The conclusion from this table is that if the US vehicle fatality rate had declined each year since 1979 by the same percent as it did in Britain, 177,593 fewer Americans would have been killed in the 23-year period. Details of this and other calculations for the other values in Table 15-7 are in Excel files on the Internet.⁹ The variation, from 163,007 to 266,686 is not surprising as the cumulative values reflect changes occurring at different times in the different comparison countries, as is apparent in Figs 15-1 and 15-2.

Averaging over the rates available for the comparison countries gives the results that:

If US matched Great Britain	163,007 fewer US fatalities 1979-2002.
If US matched Canada	247,972 fewer US fatalities 1979-2002.
If US matched Australia	207,854 fewer US fatalities 1979-2002.

The average of the 7 values in Table 15-6 is 214,286. This leads to the conclusion that because US safety performance failed to match that in the comparison countries in the 23-year period from 1979 to 2002, about 200,000 additional Americans died in traffic crashes.

Table 15-6. The change in the vehicle fatality rate (fatalities per thousand vehicles) in the US and GB from 1979 to 2002, and what US fatalities would have been if the US rate had matched changes in the British rate.

year	United States			Great Britain			change since 1979	A	B	C
	fatalities	vehicles (thou)	rate	fatalities	vehicles (thou)	rate				
1979	51,093	144,317	0.354	6,352	18,616	0.341	0.0%	0.354	51,093	0
1980	51,091	146,845	0.348	6,010	19,199	0.313	-8.3%	0.325	47,695	3,396
1981	49,301	149,330	0.330	5,846	19,347	0.302	-11.4%	0.314	46,819	2,482
1982	43,945	151,148	0.291	5,934	19,762	0.300	-12.0%	0.312	47,091	-3,146
1983	42,589	153,830	0.277	5,445	20,209	0.269	-21.0%	0.280	43,004	-415
1984	44,257	158,900	0.279	5,599	20,765	0.270	-21.0%	0.280	44,455	-198
1985	43,825	166,047	0.264	5,165	21,159	0.244	-28.5%	0.253	42,056	1,769
1986	46,087	168,545	0.273	5,382	21,699	0.248	-27.3%	0.257	43,375	2,712
1987	46,390	172,750	0.269	5,125	22,152	0.231	-32.2%	0.240	41,469	4,921
1988	47,087	177,455	0.265	5,052	23,302	0.217	-36.5%	0.225	39,919	7,168
1989	45,582	181,165	0.252	5,373	24,196	0.222	-34.9%	0.230	41,741	3,841
1990	44,599	184,275	0.242	5,217	24,673	0.211	-38.0%	0.219	40,428	4,171
1991	41,508	186,370	0.223	4,568	24,511	0.186	-45.4%	0.193	36,038	5,470
1992	39,250	184,938	0.212	4,229	24,577	0.172	-49.6%	0.179	33,018	6,232
1993	40,150	188,350	0.213	3,814	24,826	0.154	-55.0%	0.159	30,023	10,127
1994	40,716	192,497	0.212	3,650	25,231	0.145	-57.6%	0.150	28,894	11,822
1995	41,817	197,065	0.212	3,621	25,369	0.143	-58.2%	0.148	29,185	12,632
1996	42,065	201,631	0.209	3,598	26,302	0.137	-59.9%	0.142	28,619	13,446
1997	42,013	203,568	0.206	3,599	26,974	0.133	-60.9%	0.138	28,182	13,831
1998	41,501	208,076	0.199	3,421	27,538	0.124	-63.6%	0.129	26,820	14,681
1999	41,717	212,685	0.196	3,423	28,368	0.121	-64.6%	0.125	26,628	15,089
2000	41,945	217,028	0.193	3,409	28,898	0.118	-65.4%	0.122	26,564	15,381
2001	42,196	221,230	0.191	3,450	29,747	0.116	-66.0%	0.120	26,622	15,574
2002	42,815	224,974	0.190	3,431	30,557	0.112	-67.1%	0.117	26,210	16,605
total number of fewer US fatalities if US rate had declined in step with British rate										177,593

A: what US rate would have been if it had declined by same percent as British rate

B: what US fatalities would have been for US vehicle fleet if vehicle rate had been as in column A

C: the number of US fatalities prevented if US rate had declined in step with British rate

Table 15-7. Estimates of the number of fewer American deaths in the period 1979 to 2002 if changes in US rates had matched changes in rates of comparison countries. The average of the seven values is 214,286.

rate	reduction in 2002 traffic deaths if US had matched 1979-2002 percent changes in:		
	GB	Canada	Australia
per year	163,007	247,972	207,854
per thousand vehicles (vehicle rate)	177,593	221,413	266,686
per billion km (distance rate)	215,480	-	-

Search for an explanation

While 200,000 additional US fatalities were shown by straightforward analyses of publicly available data, it is not possible to explain why this occurred by a similarly simple analysis. Yet there must be an explanation, even if it cannot be formulated in simple multiplicative factors. The explanation below reflects my judgmental conclusions based on experience and involvement in many traffic safety issues in many countries spread over a number of decades. I believe that the interpretation owes much to my perspective from growing to adulthood outside the US before later becoming a US citizen.

As the difference between US performance and that in other countries is so great, it must flow from large basic differences between the US and other countries. I believe that the key is the uniquely powerful role litigation has come to play in the US, producing the following interlaced effects:

1. US safety policy priorities have been ordered almost perfectly opposite to where technical knowledge shows benefits are greatest (as represented in Fig. 13-4, p. 339).
2. This happened because US policy was defined and led by ideologically driven lawyers lacking knowledge or interest in technical matters.
3. Such leadership emerged because of the uniquely powerful influence of law on all aspects of US society, which is without parallel in any other country.

Comparison countries are normal

When I have mentioned safety differences between the US and comparison countries, the most common American response is to ask, "What do the comparison countries do that is so special?" It is natural to assume that you are normal, and all who differ from you are abnormal. Those asking the question are generally surprised by my answer that the comparison countries did nothing particularly special. They made mistakes, adopted flawed policies, etc. All their laws are passed by democratic legislative bodies answerable to electorates they must not displease. The performance of the selected countries is not particularly different from that of the Netherlands, Sweden, Finland, or Japan. The comparison countries do not, and nor should they, celebrate any traffic safety triumph. Over a thousand deaths per year to healthy young citizens in each country is no cause for celebration. Indeed, all the best performing countries acknowledge traffic crashes as a major public health problem requiring urgent attention to a much greater extent than occurs in the US.

It is the US that is aberrant

One of the most remarkable features of the extraordinary failure of US safety policy is that it is one of the nation's best-kept secrets. Those primarily

responsible for so spectacular a failure receive only praise, and lots of it, from their long-time supporters and allies, the mass media. Even the US injury control establishment thinks all is well. Two injury-control academics (with law degrees) disagreed with my editorial in the *American Journal of Public Health*.¹⁰ They wrote that the US "reduction in the risk of fatal motor vehicle crash is one of the major success stories of public health and injury prevention."¹¹ They supported this statement by noting a more than 70% decline in the distance rate in the 35 years from 1966 to 2001, and attributed the "success" to vehicle regulation and litigation. They were unaware that a larger decline occurred in the first 35 years (1921-1956) for which data were available, and in which the factors they claimed produced the declines were not present.¹² More particularly, they were unaware that in the same 1966 to 2001 period they choose, the British rate declined by 84%, and that if US declines had matched those in Britain during this period, more than 300,000 fewer Americans would have been killed. The dramatic failure of US safety policy shows in any period after the mid 1960s.

Irrelevance of numbers and technical knowledge

A dramatic change in the US approach to safety occurred when activist lawyer Ralph Nader convinced the US media, government, and public that the problem was unsafe and defective vehicles. Even if claims in his 1965 book *Unsafe at Any Speed* had merit, their effect was to focus attention on a dozen or so deaths occurring over a number of years, while ignoring the 50,000 deaths occurring annually at that time.

A picture is worth a thousand words

The photograph in Fig. 15-4 shows Ralph Nader demonstrating an airbag simulator "safely" deploying into the face of an unbelted three-year-old girl. The photograph was taken on 5 July 1977 at a Washington, DC press conference convened to support airbags. By 1977 the technical community had been long aware that deploying airbags posed risks to occupants, particularly children. A study titled "Airbag effects on the out-of-position child" was presented at a Society of Automotive Engineers meeting in Detroit in May 1972, by which time the published paper was already available.¹³ The study, performed in the US, used child dummies and baboons of size and weight similar to children to investigate if deploying airbags posed injury threats to children. It found that they did. A Swedish study titled "Possible effects of air bag inflation on a standing child" was presented at technical meetings in Canada and France in 1974, and documented in the proceedings of these meetings.^{14,15} The study used pigs to simulate what would happen to an out-of-position child who leaned against the air bag as it deployed. In eight of the twenty-four trials the airbag deployment killed the pig.



Figure 15-4. Ralph Nader demonstrates an air bag simulator on a 3-year-old girl at a press conference convened in Washington DC to support airbags. The photograph was taken on 5 July 1977, long after the technical community had documented concerns about risks to children from deploying airbags. [credit: AP/Wide World Photos]

The individual exercising the greatest influence on US safety policy was untrained, uninformed, uninvolved, and uninterested in technical matters. Press conferences, not technical meetings, were his milieu. The individuals influencing safety policy in other countries were mostly technically trained, and attended technical meetings such as those at which the information on harm from airbags was communicated.

Quantitative information now augments the early 1970s qualitative understanding that airbags posed threats to children. Airbags increase fatality risk to unbelted children in front seats by 84%. Even if the child is belted, the airbag still increases risk by 31%.¹⁶ NHTSA reports that (by July 2003) 144 children had been killed by airbag deployments in crashes that would not otherwise have caused major, or any, harm.¹⁷ An important contributor to the failure of US safety policy is the advocacy role of the media. Reports of children killed by airbags rarely mentioned Ralph Nader or his disciples. Yet his name is mentioned often in the media to praise his role in making the US safer!

The airbag mandate

Nader's protégé, lawyer Joan Claybrook, had an even greater influence on US safety policy than her mentor. Claybrook became the senior safety official in the US when President Carter appointed her Administrator of the National Highway Traffic Safety Administration (NHTSA) in 1977. A NHTSA official is quoted as saying, "Joan came to NHTSA with a mission and that mission was air bags."^{18(p 109)} More specifically, the mission was an airbag mandate, a government requirement that airbags be installed in vehicles. Technical information, such as the effectiveness of airbags, never impeded that goal.

Earliest quantitative estimate of airbag effectiveness

The earliest quantitative estimate of airbag effectiveness was reported in a study by General Motors published in 1973, before airbag field data were available.¹⁹ A panel of four expert engineers examined details of fatal crashes in which 706 occupants died. Using crash reports, medical and/or autopsy reports, photographs, and other relevant information, the panel discussed the injury mechanisms for each fatally injured occupant, and arrived at a judgment about whether an airbag would have prevented the fatality. The study concluded that airbags would have prevented 18% of the fatalities to front-seat occupants.

The NHTSA effectiveness values used to justify the mandate

The airbag effectiveness numbers used to justify the mandate were published by NHTSA in 1977 in the Federal Register, the daily compilation of federal regulations, legal notices, etc. The relevant table is reproduced as Fig. 15-5.^{20(Table I, p 34297)} Airbags were claimed to reduce AIS 4 to AIS 6 injuries by 40%. This injury range includes nearly all fatalities, so airbags are claimed to reduce fatality risk by 40%. The claims are for unbelted occupants.

Occupant Crash Protection System Effectiveness Estimates

AIS Injury Level	Lap Belt	Lap and Shoulder Belt	Air Cushion	Air Cushion and Lap Belt	Passive Belt and Knee Bolster	Knee Bolster
1	.15	.30	0	.15	.20	.06
2	.22	.57	.22	.33	.40	.10
3	.30	.59	.30	.45	.45	.15
4-6	.40	.60	.40	.66	.50	.15

Figure 15-5. NHTSA's 1977 estimates of effectiveness used to justify mandating airbags (called air cushions in the table). Reproduction of Table I on page 34297 of Ref. 20.

So great was the belief in airbags that part of the cost of installing them was to be offset by the cost savings due to not installing safety belts (Fig. 12-6).^{20(Table III, p 34299)} Because US airbag standards are still defined for unbelted dummies, US airbags must inflate more rapidly than those of other countries, whose standards are for belted occupants. This contributes to the risk of airbag-caused injuries being so much greater in the US.

VARIOUS ESTIMATES OF THE COST OF FULL FRONT AIR BAGS

COST ITEM	GM 6-77	FORD 10-76	DELOREAN 10-76 4 Pass. 6 Pass.	MINICARS 6-77 Advanced	NOT 10-76 6-77
Purchase Cost					
Equipment	102	121	72	85	78 68 75 89
Manufacturing	66	68	9	12	44 39 28 28
Profit	45	56	35	42	122 107 12 13
- Removed Belts	-20	-10	-26	-27	-18 -18
Total	193	235	90	112	OTHER ELEMENTS 97 112
Operating Cost					
NOT PROVIDED					
Deployment	9	9	NOT		2 5
Fuel	26	88	PROVIDED		30 23
Maintenance	18	63			- -
Inspection	—	27	—	—	— —
Total	53	187	18	27	32 28
Combined Total	246	422	108	139	129 141

Figure 15-6. In support of requiring airbags, NHTSA documents that the cost would be partially offset by savings from not having to install safety belts (4th row, negative costs labeled *Removed Belts*). Reproduction of Table III on page 34299 of Ref. 20, where it is cited as FR Doc.77-19137. Filed 6-30-77; 1:00 pm.

Key estimates of airbag effectiveness in reducing (mainly non-fatal) injury risks, in chronological order of their publication, are shown in Table 15-8 (more extensive lists for all injury levels are presented in Ref. 21). The second entry in Table 15-8 showing an approximate 9% effectiveness for AIS \geq 3 injury risk is based on a GM study of data from the fleet of 10,000 GM airbag-equipped cars sold in the mid 1970s.²² While sample sizes were small, the evidence from this fleet (known well before the 1 February 1978 publication date of the paper²²) was more than sufficient to reject as implausible the NHTSA estimates. The other values in Table 15-8 were discussed in Chapter 12.

Table 15-8. Key estimates of the effectiveness of airbags in reducing injury risk.

<i>source</i>	<i>year</i>	<i>AIS injury level</i>	<i>effectiveness</i>
NHTSA (Fig. 15-5)	1977	≥ 4	40%
		3	30%
		2	22%
Pursel et al. (GM) ²²	1978	≥ 3	9%
Segui-Gomez ²³	2000	≥ 4	>0
		1-3	<0
McGwin et al. ²⁴	2002	≥ 2	<0
McGwin ²⁵	2003	3	-2%*
		2	-2%*
		1	-2%*

* Values derived from original source for this table

Key estimates of the effectiveness of airbags in reducing fatality risk are listed in Table 15-9. As late as 1984, the 40% fatality reducing effectiveness figure had not been totally abandoned by NHTSA, but it was then included just as the upper limit of a wide (20-40)% range.²⁶ Although NHTSA has benefited from an entirely different type of leadership since 1981, it is always difficult for institutions to repudiate prior positions, no matter how indefensible. As distinct from the 1977 estimates published to support policy goals, NHTSA's technical staff applied technically sound methods to FARS data,²⁷ and estimated effectiveness to be substantially lower than the 18% estimate in the 1973 GM study. The method of the GM study systematically biases effectiveness estimates upwards. All the subjects were dead, so only factors that could have reduced the probability of death were considered. No information was considered about occupants who had not been killed. Yet if all of these had airbags, some would have been killed by airbags. Not estimating such effects would bias the estimate upwards, and contribute to the 18% estimate being higher than the current 12% estimate for unbelted occupants (Table 11-4, p. 286).

Table 15-9. Key estimates of the effectiveness of airbags in reducing fatality risk.

<i>source</i>	<i>year</i>	<i>effectiveness estimate</i>
Wilson and Savage (GM) ¹⁹	1973	18%
NHTSA (Fig. 15-5)	1977	40%
NHTSA ²⁶	1984	20-40%
Kahane (NHTSA) ²⁷	1996	11%
NHTSA ²⁸	2001	12%
Cummings et al. ²⁹	2002	8%

The triumph of ideological zeal

The 1977 NHTSA claim of a 40% fatality reduction effectiveness for airbags, and the 12,100 lives per year it was stated would be saved by driver and passenger airbags,²⁰(Table 11, p. 34298) formed the basis for the airbag mandate pursued with such tenacity by Claybrook. As airbags deploy only in frontal crashes, which account for about half of deaths, an overall effectiveness of 40% would require about 80% effectiveness in frontal crashes. Such an expectation is in stark violation of the knowledge the science of biomechanics had established many decades earlier. The 40% figure, plucked out of thin air, is not just wrong; it is unrealistic, and arguably absurd. The 1973 GM study estimating 18% effectiveness was already available, augmented by actual deployment experience from the GM fleet of 10,000 airbag-equipped vehicles. The experience from this fleet was inconsistent with effectiveness approaching the NHTSA claims. NHTSA dismissed the GM findings, writing, "The Department finds the methods used in the General Motors study to be of doubtful value in arriving at an objective assessment of the experience of the air-bag-equipped vehicles. General Motors is a vastly interested party in these proceedings, and the positions that it adopts are necessarily those of an advocate for a particular result."²⁰(p. 34292) The document continues with a stream of baseless allegations and denies other claims supported by technical information, claims that subsequently turned out to be true. The case of an infant killed by a deploying airbag in a modest-sized fleet of 10,000 airbag-equipped cars²⁰(p. 34294) is dismissed as something anomalous that will never recur. The document states, "Considering all the arguments on both sides of the issues, the Department concludes that the observed experience of the vehicles on the road equipped with airbags does not cast doubt on the effectiveness estimates in the December 1976 decision."²⁰(p. 34292) The estimates referred to are those in Fig. 15-5.

When the auto industry wanted to delay or weaken the airbag mandate for reasons now established beyond doubt to be valid, Nader claimed (based on Claybrook's numbers) that each year of delay would mean 10,000 unnecessary deaths and 100,000 unnecessary disabling injuries.¹⁸(p. 113)

While Claybrook's NHTSA made unsupportable claims about the benefits of airbags, the technical reports^{13,14} identifying airbag threats to children were dismissed. A July 1980 NHTSA report states, "air bags will provide substantial crash protection to otherwise unrestrained small children in crashes."^{30(p 71)} In the same document NHTSA cites, and dismisses, statements by General Motors, based on their own animal testing and other technical considerations, that a "child might be injured by an inflating bag."^{30(p 70)}

Issues surrounding airbags and the mandate

A Claybrook aide is quoted as saying, "Joan didn't do much on mandatory belt use because her primary interests were in vehicle regulation. She was fond of saying 'it is easier to get twenty auto companies to do something than to get 200 million Americans to do something.'"^{18(p 123)} The something she wanted the auto companies to do was to install airbags because they were claimed to be *passive* devices, while safety belts were *active* devices. Passive devices require no knowledge or actions on the part of the users, while active devices require users to do something, like fastening a belt.

A cornerstone of the support for the airbag mandate was the belief that attempts to influence the behavior of road users were futile. The nation's top traffic safety official believed that Americans could never be persuaded to wear belts. By contrast, the US surgeon general (*not* a lawyer) believed that Americans could be persuaded to stop smoking. He was right.

The support for airbags was based on philosophical and ideological advocacy unrelated to data-based performance measures. It was argued that it was self-evident that passive solutions were superior. The analogy that putting chlorine in the drinking water is a more effective cholera countermeasure than a campaign to get everyone to boil untreated water was considered persuasive. The fact that no passive device that could protect occupants in crashes existed, or was feasible, was denied. Affirming as a tenet of belief that such devices existed prevented the adoption of effective reality-based policies.

The airbag mandate prevented belt wearing laws

When other countries were following Australia's lead in passing belt wearing laws, the number one priority of safety leaders in the US was mandating airbags. Airbag-mandate enthusiasts saw belt laws as a threat to their campaign. The founder of an organization to advocate seat belt usage states, "Nader's organization went after me, saying that I was selling out the air-bag movement."^{31(p 59)}

Not only did Claybrook not support mandatory wearing laws, she did not even accept that belts were effective when used. In a November 1983 television interview (transcribed below, and in Ref. 32), Joan Claybrook says of airbags:

"They're much better than seat belts, according to the government's most recent data,"

and continues to dismiss safety belts as

"the most rejected technology we have. So I believe that airbags would add a great dimension to cars and car safety, would protect all front seat occupants in those types of crashes where 55% of the public is now killed."

Claybrook continues,

"Airbags are really the best solution – they fit all different sizes and types of people, from little children up to 95th percentile males, very large males. ... So they really work beautifully and they work automatically and I think that that gives you more freedom and liberty than being either forced to wear a seat belt or having a car that's not designed with the safety engineering we know today."

Behavior can be changed – to save the airbag mandate

When it became clear in 1997 that deploying airbags were killing occupants in otherwise harmless crashes, pressure began to mount to rescind the airbag mandate. Airbag-caused injuries are the only traffic injuries for which there is a simple, feasible, enormously cost-effective countermeasure that is:

100% effective.

100% passive.

Simply removing the device is a perfect solution. If it is not installed in the first place, the safety benefits are accompanied by reduced vehicle cost.

The former enthusiasts for passive solutions vigorously rejected this simple, elegant, passive solution. In a strange irony, the supporters of the airbag mandate, who claimed that behavior could not be changed, provided one of the clearest illustrations of how behavior can be changed.

Those killed by airbags were mainly short female drivers, and children and infants in front seats with passenger airbags. A massive publicity campaign was mounted to persuade short drivers to sit further from the steering wheel, and to place children in rear seats. The success of this persuasion is apparent in the sharp decline in airbag inflation fatalities in Fig. 15-7.

The 90% decline in fatalities from 1997 to 2002 is mainly, but not exclusively, due to changes in behavior. From model year 1998 onwards there was a phase-in of second generation airbags that reduced the risk of inflation-produced injuries. However, as it takes many years for complete turnover of the fleet, much of the effect is from changed behavior by owners of earlier airbags.

Figure 15-7 provides clear evidence that road users were persuaded to change their behavior in order to save the lives of themselves and their families. If a similar effort had been applied to persuade people to avoid the crashes that kill over 40,000 annually rather than the airbags that were killing 50, dramatically more lives could have been saved. Even if the persuasion was focused only on occupant protection, persuading occupants to wear belts while getting rid of airbags would have had an enormously greater life-saving effect. More effort was directed at saving the airbag mandate than on saving lives.

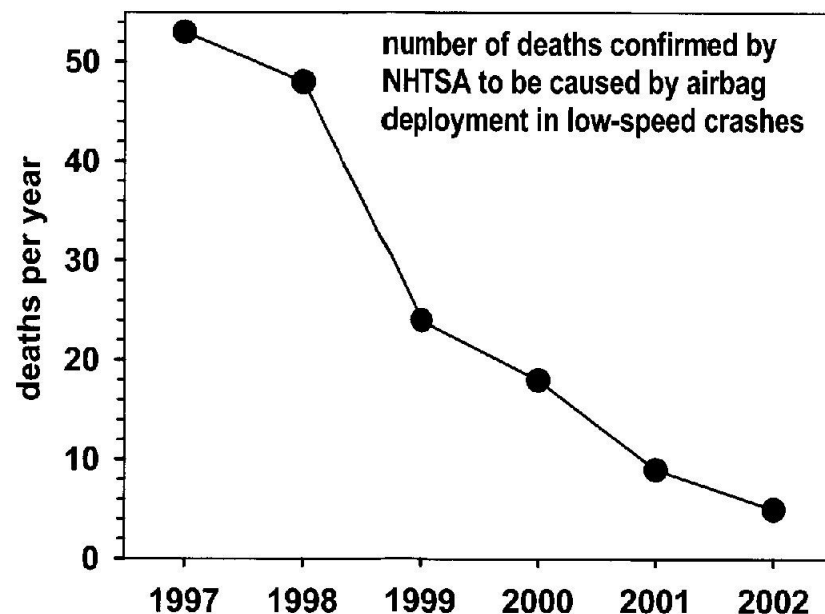
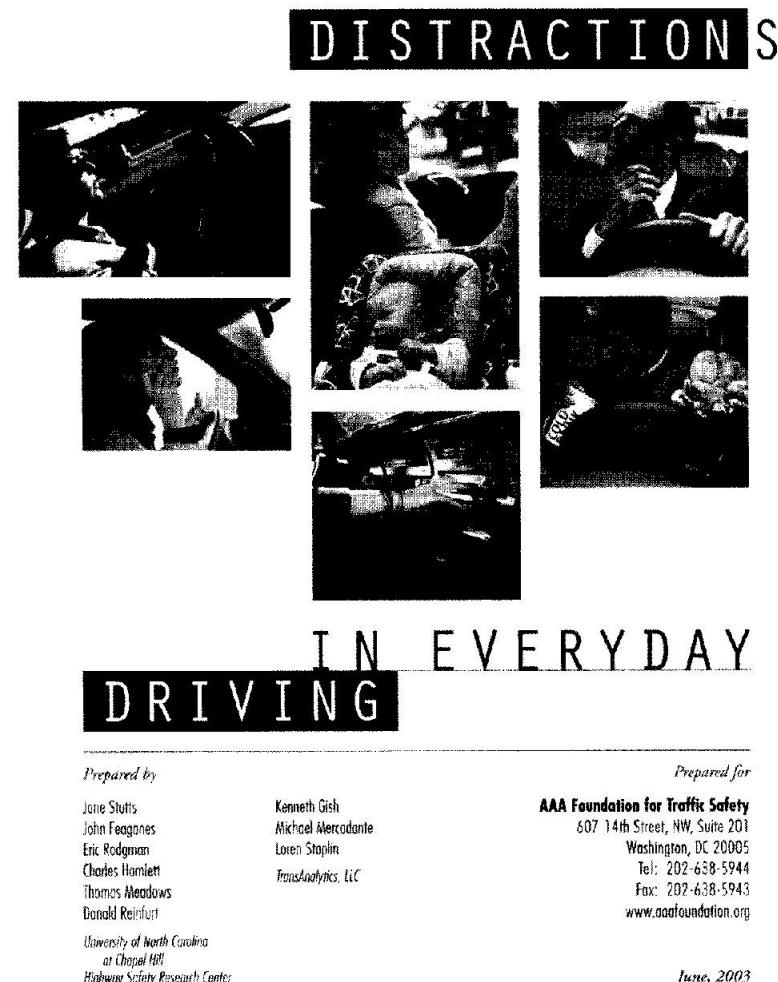


Figure 15-7. The effect of a change in behavior. The number of deaths caused by airbag-inflation declined after campaigns persuaded short women to sit further from the steering wheel and persuaded adults to place children in rear seats. The effect is largely due to behavior change, because the vehicles on the road remain largely the same vehicles in consecutive years. Data from Ref. 17.

On-off switches. Even for vehicles, such as pickup trucks, that do not have rear seats, the simple passive solution of not installing airbags was still rejected. Instead, off-on switches were installed which drivers were instructed to place in the off position when transporting children. As could have been predicted with certainty, children were transported with the switch on (and adults with it off).³³

Children in rear seats – a source of driver distraction

One of the behavior changes successfully promoted to save the airbag mandate was to place children in rear seats to protect them from deploying airbags. It is natural for children to demand, and receive, parental attention. The study “The role of driver distraction in traffic crashes”³⁴ described in Chapter 8, found that children were about four times, and infants almost eight times, as likely as adult passengers to be a source of driver distraction. The cover of that report is reproduced in Fig. 15-8. The authors give more prominence to the picture of the mother looking rearwards at her infant than to the driver talking on a cell phone. In many jurisdictions talking on a cell phone while driving, which increases risk by more than a factor of four,³⁵ is banned. Yet placing children in rear seats is advocated as a safety measure.



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Figure 15-8. Cover of report.³⁴ Reproduced with permission.

Summary of reasons for the airbag mandate

The mandate was enacted because advocates claimed that airbags:

1. Are passive (require no user knowledge or action).
2. Replace belts (permit vehicles to not have belts).
3. Reduce driver fatality and injury risk by 40%.
4. Reduce risk regardless of gender, age, etc.
5. Hurt nobody.

All 5 claims are false!

Particularly false is the claim that airbags are passive devices. Drivers, passengers, and parents must know a list of rules on how to avoid death and injury from deploying airbags. Arguably, airbags are the least passive safety devices ever installed on vehicles. Rather than being *passive* devices, they are *belligerent* devices. The collapsible steering column is a truly passive device – most of those benefiting from it do not know that it is there. The manual belt is a mixed passive/active device – the user has to know and do little – just follow one simple rule, “buckle up.” The airbag is an active device which requires major actions on the part of occupants, including insuring that the distance from their chest to the module is at least 10 inches, and possibly adjusting the seat and fixing pedal extenders, and placing children and infants in rear seats. And of course, to avoid being killed by the airbag, the occupant must fasten the safety belt.

Why did the auto industry go along?

Although the auto industry opposed the airbag mandate prior to its enactment,¹⁸ it later began to support and promote airbags. The auto industry had good reasons to accept defeat graciously once the mandate was in place, especially as continuing opposition would likely have been futile. More importantly, NHTSA also administered fuel economy standards which were more central to the industry's business, so it made good business sense to avoid ongoing friction on what became increasingly a settled historical matter.

The well-publicized claims of unrealistically high airbag benefits eventually generated consumer demand for airbags. The auto industry, in common with other businesses, was happy to sell in response to this demand, and also motivated to increase the demand by its own advertising. The auto industry installs, but does not generally manufacture, airbags. As airbags represent about 2% of the cost of a vehicle, the auto industry's earnings from them are a small fraction of total earnings.

The airbag manufacturing industry is totally committed to the mandate. What industry would not want a law compelling people to buy its products even if they did not want them? US consumers have paid over \$60 billion for airbags. Most of this is in the pockets of airbag manufacturers, who naturally use a portion of it to lobby the political process to make sure that consumers continue to be compelled to purchase their products.

Other items

US lacks academic safety institutions. Countries like Sweden, Finland, the Netherlands, Australia, and New Zealand, with populations and resources far less than many US states, support important institutions devoted to performing traffic safety research. There are university departments, and scholars with titles like Professor of Traffic Psychology. The researchers from these institutions are

invited to make technical inputs into policy-making. The university research that is supported in the US is nearly all in biomechanics and crashworthiness, reflecting the US priority of attempting to squeeze small increments of additional survivability in crashes rather than trying to reduce crashes. Reviewing the world's safety literature suggests that much of the best traffic safety research performed in the US is by the auto and insurance industries. The US would be well served if research addressing important safety issues was conducted in university departments receiving ongoing funding.

Blaming SUVs. The individuals who focused the nation's safety efforts so narrowly on vehicle factors are now blaming a vehicle, the SUV, for the nation's increasing fatalities. The SUV's popularity is partially due to the belief that vehicle factors offering crash protection are the most important safety factors. Another is due to the fuel economy standards administered by NHTSA, which treat SUVs as light trucks rather than cars (p. 88-91). While the shift to SUVs influences fatalities, it could not be by more than a few thousand per year up or down.

Regulating industry could save lives. If the lawyers spearheading US safety policy wanted to wage war on industry to improve safety, they would, if they had better understood safety, have chosen different industries and issues. The radar detector industry is not a major industry, but restricting its products and marketing would benefit safety. The industries that really impact safety are the alcoholic beverage industry and the mass media. Effective regulation of these would generate large safety benefits (Chapter 10). If the advocates felt they had to fight with the auto industry, there are two issues, which would really improve safety, that the industry would likely have resisted. First, regulating vehicle advertising to prohibit it from glorifying irresponsible driving. Second, requiring an inexpensive vehicle modification to prevent vehicles from exceeding a set speed (police and emergency vehicles exempted). Among the many lives that such a regulation would save would be those lost in present high-speed police chases, many involving stolen vehicles.

Where is US safety policy now?

The history of the airbag mandate contains lessons that may eventually benefit US safety policy. We must not forget George Santayana's celebrated aphorism, *Those who do not remember the past are condemned to relive it.*

However, it is not yet history. The most important elected official with safety responsibilities, Senator John McCain, has his door open to Claybrook,³⁶ but closed to science, thus keeping the same beliefs that led to the deaths of so many still at the heart of the US approach to safety. Now that NHTSA is acting more in the public interest, its Administrator is subject to more severe political oversight and criticism than occurred when it was making demonstrably absurd claims.

The most extraordinary aftermath of the debacle of the airbag mandate is that the architects of policies that led to the deaths of 200,000 additional Americans are routinely referred to in the mass media as *safety advocates*.

The importance of what the public believes

We have shown in earlier chapters that driver behavior factors have by far the largest effects on traffic safety. Driver behavior is largely determined by what people believe, and what they believe is enormously influenced by the mass media. The media do not merely report on safety, I believe they largely determine it. Attitudes to risk are based almost entirely on inputs from the media. People have no direct experience of dangers from things like cholesterol or radioactivity. Their concerns and protective responses are almost 100% due to inputs from the media.

There are no data on how safety is treated by US media compared to media in other countries today, or in the mid-1960s when the US had the best safety. Nor are there quantitative measures of safety attitudes in different countries. However, having visited 51 countries and spoken professionally about traffic safety in 25 of them, I have come to some fairly confident conclusions based on observing much media and interacting with large numbers of people in many countries.

I perceive a clear difference in attitudes between citizens of the US and citizens of countries with superior safety performance. When I mention traffic safety to an American, the response will likely bring up vehicle safety, product liability trials, vehicle defects, vehicle recalls, crash tests, specific vehicles that have been in the news, airbags, etc. That is, a collection of items focusing on the vehicle, all of which are relatively unimportant to safety. A citizen of a country with superior safety is far more likely to mention belt wearing, drunk driving, speeding, and risky driving, items that greatly influence safety. Of course the distributions have much overlap, but there is an unmistakably clear difference in the average answer of an American and a non-American.

Safety and US mass media

I believe that the reason why Americans think unimportant factors are important is due to massive media coverage of the unimportant and meager coverage of the important. Product liability trials seeking massive awards are unique to the US, and receive major coverage which does not include crucial information. A high profile trial may perhaps involve a driver who was severely injured (but not killed) after ejection in a rollover crash. The public is, perhaps, informed that a tire manufacturer was responsible, but not informed that the driver was speeding and illegally not wearing the safety belt that would have made ejection near impossible. In some states a jury must be kept ignorant of the fact that an injured plaintiff was not wearing a belt, even though such behavior is illegal.³⁷ Instead of providing evidence of consequences of disobeying traffic law, US media coverage fosters the belief that the problem is manufacturing and design decisions over which drivers have no control.

The media conveys no sense that during the period of a trial focusing on just one injury, thousands of Americans were killed in crashes in which no lawyer bonanza was identified. The US media is so supportive of the process that they never ask the most obvious questions. I have heard a television reporter ask a general for details of his battle plan, but I have never heard a reporter ask an attorney how much of the \$5 million dollar settlement went into his or her pocket, how much went to the so called *expert* witnesses, how much went for lavish travel and other expenses, and how much (if any) went to the injured plaintiff.

In the course of a year, dozens of US national television and radio news bulletins start by reporting that a certain vehicle manufacturer has recalled so many vehicles for a defect in, say, the ignition system, and comment that there have been no injuries, or perhaps one minor injury. Why should anyone who does not own one of the vehicles be interested? The media claim that they are responding to public interest is unconvincing. The public would be far more interested in hearing the attorney explain why his or her fees and the plaintiff's compensation should be secret, especially if the explanations were followed by a few sharp follow-up questions regarding what public or safety interest is served by such secrecy. They would be much more interested in having the attorney explain (or refuse to explain) why the jury is prohibited from knowing if a belt wearing law was violated.

The net effect is that Americans are inundated with coverage of things that they are told are related to safety, when in fact they have negligible influence on safety. The view that safety is in the hands of a few institutions over which they have no control, except through litigation, is repeatedly reinforced. The reality that the most important element in their own safety is their own driver behavior is buried under a mountain of misinformation.

US law at the heart of the problem

The unifying factor at the heart of the failure of US safety policy is the uniquely powerful role of litigation in every aspect of US society. No other nation is burdened with anything resembling the US legal system. In other democracies elected legislators with varied backgrounds are influenced by inputs from diverse sources, including the technical community. In the US, legislators, who are overwhelmingly lawyers, get nearly all their inputs from other lawyers.

While it might not be a conscious goal, it is not too surprising that when lawyers are the main decision makers, measures that open deep pockets for legal assault are more appealing than measures that reduce harm. Since the period when the US was the world's safety leader, litigation in the US has exploded,³⁸ and has been spectacularly successful in directing focus away from countermeasures known to be successful in favor of vehicle factors that are of minor safety importance but are major sources of litigation wealth. No impartial observer can imagine that any net good emerges from the resulting system which lavishly supports a pestilence of avaricious lawyers, "expert" witnesses,

consultants skilled at identifying jurors lowest in knowledge and reasoning skills, and a vast court superstructure. Even advocates of the US system rarely conclude that US cars must be much safer than Swedish cars because the US spends astronomically more per capita on litigation than does Sweden.

It is unfortunately difficult for anyone born in the US to be an impartial observer. Just as certain propositions are off limits for discussion in theocracies, in the US it is off limits to even discuss if the legal system now exists mainly to benefit its members, with everyone else compelled to pay an enormous law tax on everything they do in order to insure that right is not done. It is not uncommon for college educated Americans to recite to me, like a catechism, the statement "The US legal system is the best in the world". My response, "Can you identify six ways the US legal system is superior to that in Sweden?" generates a blank stare. I keep going until "Can you identify one way in which the US system is superior to that in any democracy?" produces the same non-response. It seems being better than the Soviet Union or the Third Reich is sufficient evidence to self-award the *best in the world* title. Americans are unlikely to demand changes to a system that is diminishing their freedom, stealing their wealth, making the products they purchase more expensive, less innovative,³⁹ and less safe, and killing them, if they really believe it is the best in the world. It is difficult to be optimistic about the future because the enormous wealth of the legal system allows it to be the major financial contributor to the US electoral process.

However, a cause for optimism is that once the US does recognize it has a problem, it moves with a speed and energy unequalled in other countries.

Specific differences

Ideally, one would like to account for the 200,000 additional Americans killed between 1979 and 2002 in a list quantifying contributions from specific factors. However, many of the likely contributions do not readily admit to quantification. For example, it is difficult to estimate the change in driver care caused by repetitive messages implying that vehicle factors are paramount. There is, however, one factor for which a quantitative estimate can be made.

Deaths caused by not having belt wearing laws

Canada's first belt wearing law was in effect in January 1976 (in the Province of Ontario). The first belt law in the US was in effect in December 1984 (in New York State).⁴⁰ It took additional years before all Canadian provinces and nearly all US states had belt laws, so that most Americans were covered by belt wearing laws about a decade later than most Canadians. This delay had, and continues to have, a large impact on US safety.

Figure 15-9 shows that once belt laws were in effect in the US, belt wearing increased in a manner not dissimilar from the Canadian experience (pre-law Canadian rates were around 25%). This is convincing evidence of the absurdity

of the claim by Claybrook's NHTSA that Americans would not wear belts. The evidence shows that drivers in the US were not all that different from those in Canada. The longer laws are in effect, the easier it is to strengthen them by, for example, moving from secondary to primary enforcement.⁴¹ Thus rates increase, but over long periods of time. The lower present rate in the US is due primarily to the US starting a decade later than Canada.

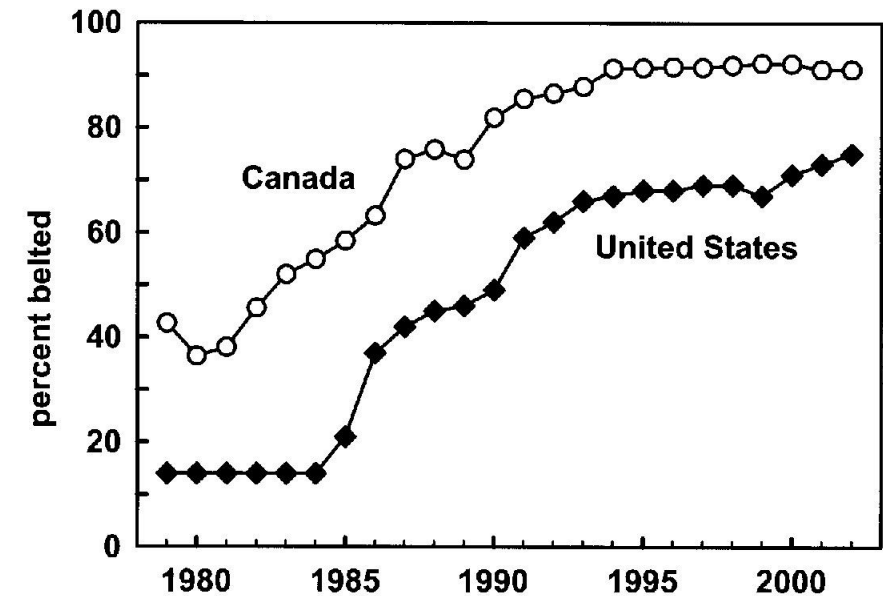


Figure 15-9. Increases in belt wearing rates in Canada (first belt law January 1976) and in the United States (first belt law December 1984).

The consequences of this late start, computed in Table 15-10, show that the late passage of mandatory belt wearing laws was responsible for an additional 96,000 American deaths from 1979 to 2002. The parallel comparison with Britain gives a larger difference, and with Australia, a much larger difference.

It could be argued that the 96,000 extra US deaths should be reduced by deaths prevented by mandated airbags. Extrapolating even the highest estimates to the 1979-2002 period produces a total that falls well short of 10,000,²⁸ leaving a net increase due to not having mandatory wearing laws in excess of 86,000. Studies from Transport Canada^{42,43} estimate that, during the eleven-year period 1990-2000, belts prevented 11,690 Canadian deaths, and airbags 313.

The one specific policy of pursuing the airbag mandate and not working for mandatory belt laws accounts for about half of the additional 200,000 US fatalities.

Table 15-10. Reductions in US fatalities if belt use rates in the US had matched those in Canada.

	<i>belt wearing rates (%)</i>		<i>observed US fatalities*</i>	<i>F**</i>	<i>US fatality reduction with Canadian belt use</i>
	<i>US</i>	<i>Canada</i>			
1979	14	43	31,113	9.7	3,021
1980	14	36	31,068	7.2	2,226
1981	14	38	29,993	7.9	2,362
1982	14	46	26,402	10.9	2,865
1983	14	52	25,951	13.2	3,437
1984	14	55	26,782	14.5	3,883
1985	21	58	26,591	13.9	3,701
1986	37	63	28,690	11.4	3,267
1987	42	74	29,516	15.6	4,610
1988	45	76	30,338	15.7	4,777
1989	46	74	29,893	14.2	4,240
1990	49	82	29,074	18.1	5,253
1991	59	85	27,369	16.1	4,398
1992	62	86	26,221	15.4	4,044
1993	66	88	26,747	15.0	4,007
1994	67	91	27,540	16.8	4,638
1995	68	91	28,608	16.3	4,672
1996	68	92	28,980	17.1	4,969
1997	69	91	28,836	15.8	4,558
1998	69	92	28,463	16.6	4,733
1999	67	92	28,439	17.7	5,020
2000	71	92	28,440	15.6	4,423
2001	73	91	28,297	13.6	3,843
2002	75	91	28,837	12.5	3,594
total					96,541

* fatalities to drivers and right-front-passengers of cars and light trucks.

** percent reduction in fatalities from increasing belt use from US to Canadian levels (computed by Eqn 11-15, p. 293).

Other specific differences

While other countries developed policies aimed at driver behavior, the US paid less attention to drivers, instead concentrating most effort on vehicle factors.

Drunk driving. The per se limit in the US during 1979-2002 was substantially higher than in any comparison country. For most states it was BAC > 0.1%. It was not until 2000 that the US Congress passed legislation providing financial incentives for states to have BAC > 0.08% laws in effect by 2004. During the time when the airbag mandate was being debated some even argued that the

most effective approach to drunk driving was to have airbags in all vehicles. After all, this would reduce deaths to drunk drivers and most of their other victims by 40%, while policies aimed at changing such behaviors as drunk driving were doomed to failure. In Chapter 10 a number of measures that could substantially reduce annual deaths from drunk driving are described. The largest progress in reducing harm from drunk driving resulted not from government leadership, but from the creation in 1980 of Mothers Against Drunk Driving (MADD). As MADD helped change laws, government had a law-enforcement role in these harm reductions. Without MADD, US fatalities would exceed those in the comparison countries by even larger amounts.

Speed. Even though one of the largest reductions in US casualties was associated with reductions in the speed limit in response to the 1973 oil embargo, speed limits were later increased. How increasing speed affected safety was addressed in the normal US advocacy manner. Those who liked higher speed limits argued they would not affect safety, while their opponents argued that they would. There was little sense that this was a technical question that had a technical answer. This is where the US pays a safety price for not having research institutions that can provide technical results that the public finds credible. Even those who enjoy ice cream tend to accept that it is not a health food because they respect the qualifications and motivations of the experts providing them medical information.

Radar speed detectors. Devices to detect police radar are vigorously marketed in the US. These have only one purpose – to assist in violating traffic law. This is why they are prohibited in Canada. I believe the difference is another reflection of the US regarding safety more in terms of making vehicles safe to crash rather than in preventing crashes. It is not related to respect for personal liberty. The liberty of a short lady to purchase an airbag-free vehicle is denied by the US government. The US is far more ready than other countries to put people in prison for consuming specified drugs in the privacy of their homes. While consuming harmful drugs may be deplorable, it does not directly and immediately threaten other people's lives as does speeding. Not all of the countries with better performing safety records prohibit radar detectors. All countries have major inadequacies in their safety policy.

Epilogue

The anti-technical lawyer zealots who defined and led US policy precipitated a massive safety disaster that continues. If a fraction of the energy and tenacity devoted to counterproductive policies had been applied to promote effective policies, the US could have remained the world's traffic safety leader. Goethe (1749-1832) perhaps best summarizes what in fact happened:

There is nothing more fearful than ignorance in action.

Summary and conclusions

Prior to the mid 1960s the US had the world's safest traffic, whether measured by deaths per registered vehicle, or deaths for the same distance of travel. By 2002 the US had dropped from first to 16th place in deaths per registered vehicle, and from first to 10th place in deaths for the same distance of travel. From 1979 to 2002, over 200,000 more Americans were killed in traffic than would have been killed if the US had matched the safety progress of Britain, Canada, or Australia.

The critical change in the direction of US safety policy occurred when Ralph Nader convinced the US media, government, and public that deaths in traffic were mainly due to unsafe and defective vehicles. This began a process of ordering safety policy priorities almost perfectly opposite to where technical knowledge showed benefits to be greatest, and of ignoring and denying technical information.

In 1977 another activist lawyer, Nader protégé Joan Claybrook, assumed the most important US government safety position, Administrator of the National Highway Traffic Safety Administration. Her primary goal was an airbag mandate, the compulsory installation of airbags in vehicles. To pursue this she issued absurdly high claims of airbag effectiveness, ignored harm from airbags, denied the superior protection from safety belts, and did not support belt wearing laws for the US like those being passed in other countries.

The uniquely powerful role of the US legal system was central to the failure of US safety policy. Even if not at a conscious level, the lawyer-controlled process favored measures that opened deep pockets for legal assault over measures that saved lives. The public was inundated with information suggesting that product-liability trials, vehicle defect recalls, crash tests, and airbags were centrally important. As drivers have no control over such factors, the impression was conveyed that those whose lives were at risk in traffic were uninvolved hapless victims of large rich institutions. The media did not mention that these factors had little to do with the overwhelming majority of the 40,000 annual US deaths. The crucial factors over which drivers do have control, wearing belts, alcohol, speeding, and risky driving, were de-emphasized. Yet these are the factors that have massive effects on safety.

A major portion of the additional 200,000 American deaths is attributable to just one specific policy of NHTSA under Claybrook. Focusing on mandating airbags instead of placing the US on the same path as Canada in passing mandatory belt wearing laws led to the deaths of an additional 90,000 Americans from 1979 through 2002.

For US safety performance to improve, public understanding of what is important must be more related to what really is important.

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