TRANSPORT ACCIDENT FATALITIES: AUSTRALIA COMPARED WITH OTHER OECD COUNTRIES, 1980-1999

The purpose of this publication is to examine trends in the numbers of transport accident deaths in Australia in the 1980s and 1990s in the light of the most recent comparable data from most other countries that are members of the Organisation for Economic Cooperation and Development (OECD). Overall, the data indicate that in the period from 1980 to 1999 Australia's transport safety improvement compared favourably with that of other OECD countries and performance reached OECD median levels in the 1990s.

Data for this publication have been obtained from the World Health Organisation's 'Mortality Database' but responsibility for the analyses presented here rests solely with the ATSB.

The OECD was formed in 1961 to promote economic cooperation and development among its members. Current member states are Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, the UK and the USA.

Transport accident deaths as a whole

If the number of deaths attributable to transport accidents each year in each country is expressed as a proportion of the number of deaths due to any cause each year in each country (**Table 1**), it is observed that:

- In the period from 1980 to 1999, the proportion of deaths in Australia due to transport accidents trended downwards - from 3.5% in 1980 to 1.5% in 1999. A downward trend in the proportion of deaths due to transport accidents was also evident in most other OECD countries.

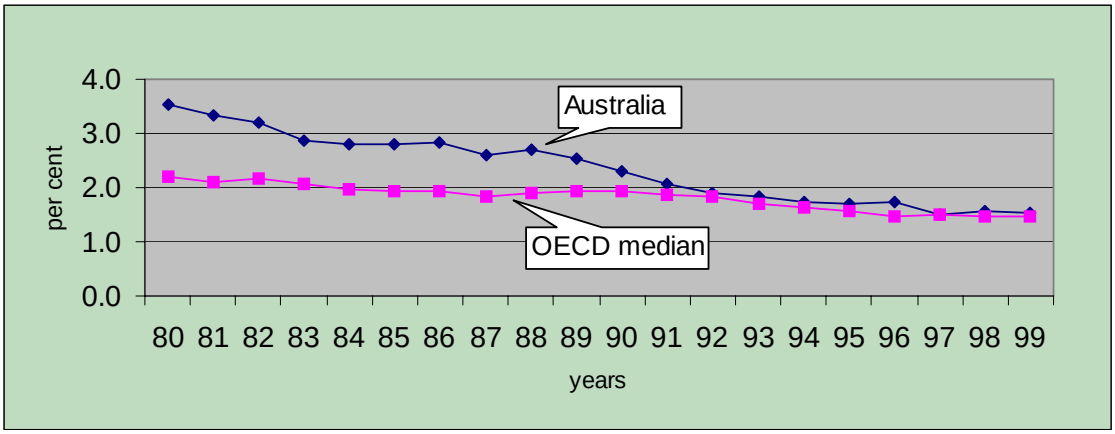
Table 1
Transport accident deaths as a proportion (per cent) of all deaths, OECD countries, 1980-1999

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Australia	3.5	3.3	3.2	2.9	2.8	2.8	2.8	2.6	2.7	2.5	2.3	2.1	1.9	1.8	1.7	1.7	1.7	1.5	1.6	1.5
Austria	2.2	2.1	2.2	2.2	2.2	1.8	1.8	1.8	1.9	1.9	1.9	1.8	1.6	1.6	1.7	1.5	1.3	1.4	1.2	1.3
Belgium	2.3	2.1	2.0	2.0	1.8	1.7	1.9	2.0	1.8	1.8	1.8	1.8	1.6	1.7	1.8	1.6	1.5			
Canada	3.6	3.5	2.7	2.7	2.6	2.5	2.4	2.5	2.3	2.5	2.2	2.0	1.9	1.9	1.7	1.7	1.5	1.5	1.5	
Czech Republic							0.9	1.0	1.0	1.1	1.2	1.3	1.4	1.4	1.6	1.4	1.4	1.4	1.3	1.4
Denmark															1.0	1.0	0.9	0.9	0.9	
Finland								1.5	1.7	1.9	1.6	1.5	1.5	1.3	1.3	1.2	1.0	1.1	1.1	1.1
France	2.1	2.0	2.1	2.0	2.1	1.9	2.0	1.8	2.0	2.0	2.0	1.9	1.8	1.7	1.6	1.6	1.5	1.5	1.6	1.5
Germany											1.3	1.3	1.2	1.1	1.1	1.1	1.0	1.0	0.9	0.9
Greece	1.9	1.8	2.3	2.4	2.5	2.3	2.2	2.0	2.1	2.3	2.4	2.4	2.3	2.1	2.3	2.4	2.5	2.4	2.3	2.2
Hungary	1.5	1.5	1.4	1.4	1.4	1.5	1.5	1.4	1.6	1.8	2.0	1.8	1.8	1.4	1.4	1.4	1.2	1.2	1.2	1.1
Iceland		2.8	2.8	2.6	2.6	2.2	3.7	2.4	2.4	2.2	2.5	2.4	1.9	1.7	1.2	2.0	0.9	1.4		
Ireland	1.9	2.0	1.8	1.8	1.6	1.5	1.4	1.5	1.5	1.5	1.6	1.4	1.4	1.3	1.4	1.4	1.4	1.4	1.5	1.3
Italy	2.1	2.0	1.9	1.8	1.8	1.7	1.8	1.8	1.7	1.7	1.7	1.8	1.8	1.6	1.5	1.5	1.4	1.4	1.4	1.4
Japan	1.8	1.9	1.9	1.9	1.8	1.9	1.8	1.8	1.9	2.0	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.5	1.4	1.3
Luxembourg	2.8	2.7	2.3	2.3	1.8	2.2	2.0	1.9	2.3	1.8	1.9	2.3	2.1	2.2	2.2	1.9	1.9	1.6	1.5	1.6
Mexico																			3.3	3.3
Netherlands	1.8	1.6	1.5	1.5	1.5	1.2	1.3	1.2	1.1	1.2	1.1	1.0	1.1	0.9	1.0	1.0				
New Zealand	3.3	3.2	3.3	2.8	3.1	3.0	3.2	3.4	3.0	3.4	3.2	2.8	2.6	2.6	2.5	2.4	2.1	2.2	2.2	2.1
Norway							1.5	1.3	1.1	1.3	1.4	1.0	1.0	0.9	0.9	0.9	0.8	0.9	1.0	0.9
Poland				2.1	1.8	1.7	1.7	1.7	1.8	2.2	2.4	2.4	2.1	1.9	2.1	2.0	1.9			2.0
Portugal	3.1	3.7	3.6	3.4	3.0	2.9	2.8	3.0	3.0	3.2	2.8	2.9	3.0	2.4	2.4	2.5	2.2	2.0	1.9	1.6
Slovakia													2.1	1.8			1.6	2.0	2.0	1.7
South Korea						3.2	3.5	4.2	4.3	5.9	7.2	7.0	6.5	6.4	6.7	7.3	7.4	6.5		
Spain	2.2	2.0	1.8	1.9	2.0	1.9	2.1	2.2	2.4	2.6	2.5	2.4	2.1	1.9	1.7	1.7	1.7	1.7	1.8	1.7
Sweden								1.0	1.0	1.1	1.0	0.9	0.9	0.7	1.2	0.6	0.6			0.6
Switzerland																				
Turkey																				
UK	1.1	0.8	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	1.0	0.8	0.8	0.6	0.6	0.6	0.6	0.6	0.6	0.6
USA	2.9	2.8	2.5	2.4	2.4	2.4	2.4	2.4	2.4	2.3	2.3	2.1	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9
OECD median	2.2	2.1	2.2	2.1	2.0	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.8	1.7	1.6	1.6	1.5	1.5	1.5	1.5

Note: All per cent values in Table 1 are rounded. Gaps indicate data not available.

Figure 1 shows that the proportion of deaths due to transport accidents in Australia remained above the OECD median until the early 1990s and stayed close to the OECD median thereafter.

Figure 1
Transport accident deaths as a proportion (per cent) of all deaths, irrespective of cause, Australia compared with the OECD median, 1980-1999



An important group of deaths in each country is deaths due to an 'external cause'. These are deaths due to a cause such as a transport accident, other accident, violence or some other 'unnatural' cause and they are called here 'accidental deaths' for ease of reference. If the number of deaths attributable to transport accidents each year in each country is expressed as a proportion of the number of accidental deaths each year in each country (**Table 2**), it is observed that:

- In the period from 1980 to 1999 in Australia, the proportion of accidental deaths each year attributable to transport accidents trended downwards - from 47% in 1980 to 24% in 1999. A downward trend in the proportion of accidental deaths due to transport accidents was also evident in many other OECD countries (just over half). In the OECD countries as a whole, the proportion of accidental deaths each year attributable to transport accidents varied considerably from country to country - from below 20% in some countries in some years to over 50% in others in some years.

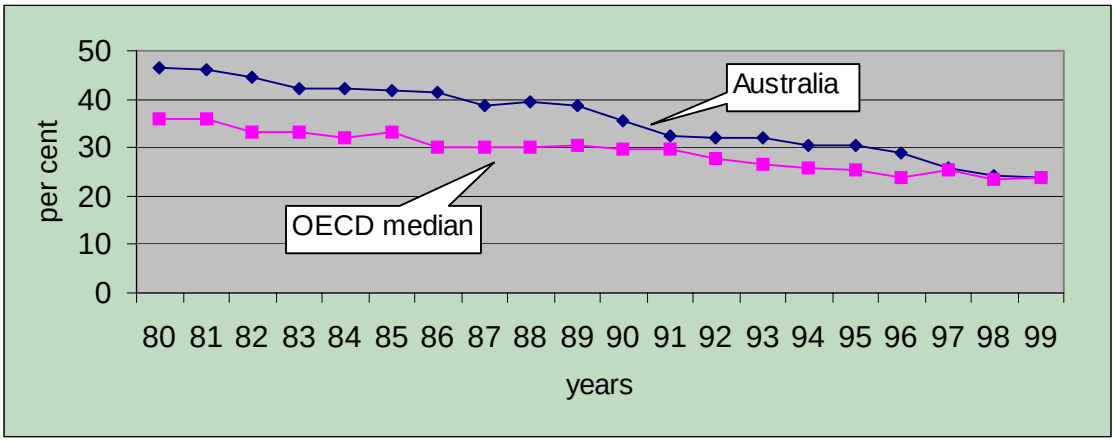
Table 2
Transport accident deaths as a proportion (per cent) of all deaths due to an external cause, OECD countries, 1980-1999

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Australia	47	46	45	42	42	42	41	39	39	39	35	32	32	32	30	30	29	26	24	24
Austria	29	29	29	29	29	25	25	25	27	27	28	28	26	26	26	24	21	25	22	23
Belgium	32	29	28	29	27	28	31	30	29	30	29	28	26	26	27	25	24			
Canada	39	39	33	34	32	34	32	33	33	34	32	30	29	28	26	26	24	25	24	
Czech Republic							14	15	16	17	17	18	20	20	21	20	20	20	20	23
Denmark															17	18	16	15	16	
Finland								17	18	20	17	16	17	15	14	13	12	13	13	13
France	23	23	22	22	23	21	22	21	22	22	21	21	20	19	19	19	18	18	19	19
Germany											25	25	25	24	25	24	23	24	23	23
Greece	36	32	42	43	44	44	43	36	40	43	52	56	56	47	51	54	57	54	51	50
Hungary	18	17	17	16	16	17	17	16	18	21	22	21	20	17	17	17	15	17	17	16
Iceland		38	35	30	32	37	45	34	36	34	33	36	30	29	21	25	18	25		
Ireland	37	39	36	37	37	34	30	33	34	33	33	31	32	32	30	31	31	30	29	27
Italy	37	38	36	36	35	33	34	33	32	32	32	33	34	30	31	30	28	28	30	29
Japan	25	26	26	25	24	26	23	25	26	28	28	28	27	26	24	22	22	21	18	17
Luxembourg	36	36	28	34	30	33	31	30	32	30	30	32	31	32	31	29	30	26	22	23
Mexico																			26	27
Netherlands	34	32	30	30	29	27	28	27	27	27	27	24	26	25	25	25				
New Zealand	43	44	44	44	45	43	43	45	43	45	43	41	38	41	39	38	35	35	35	35
Norway							24	21	18	21	23	17	19	17	17	18	16	17	19	16
Poland				28	25	24	24	25	26	31	32	31	28	27	28	27	27			28
Portugal	42	46	44	43	40	40	39	40	42	46	43	44	45	42	42	44	41	38	38	35
Slovakia													28	24			24	28	32	29
South Korea						28	29	32	31	39	47	45	42	43	48	51	51	47		
Spain	42	39	34	35	37	39	39	40	42	44	44	43	40	39	36	37	36	37	38	39
Sweden								18	18	19	18	17	18	15	24	14	14			13
Switzerland																				
Turkey																				
UK	30	23	28	28	28	27	27	28	26	28	29	26	25	21	21	20	20	20	19	19
USA	35	35	33	33	34	34	34	34	34	33	33	31	30	29	30	30	31	31	30	30
OECD median	36	36	33	33	32	33	30	30	30	31	30	30	28	27	26	25	24	25	24	24

Note: All per cent values in Table 2 are rounded. Gaps indicate data not available.

Figure 2 shows that the proportion of accidental deaths each year in Australia attributable to transport accidents remained above the OECD median until the late 1990s.

Figure 2
Transport accident deaths as a proportion (per cent) of all deaths due to an external cause, Australia compared with the OECD median, 1980-1999



If transport accident deaths are expressed as a rate per 100,000 population (commonly used in public health statistics) each year in each country (**Table 3**), it is observed that:

- In the period from 1980 to 1999 in Australia, the number of transport accident deaths per 100,000 population each year trended downwards - from 26 in 1980 to 10 in 1999. A downward trend in the number of transport accident deaths per 100,000 population each year was also evident in many other OECD countries (just over half).

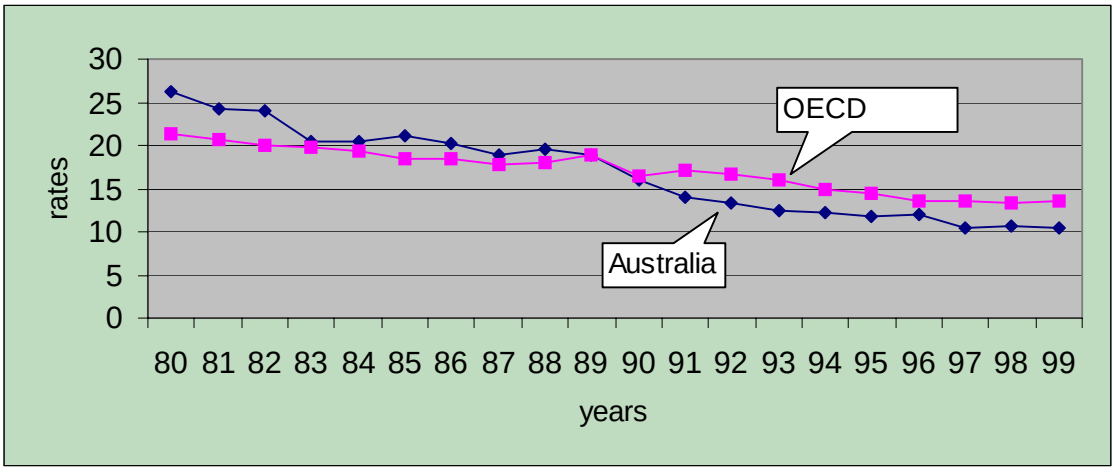
Table 3
Number of transport accident deaths per 100,000 population, OECD countries, 1980-1999

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Australia	26	24	24	21	20	21	20	19	19	19	16	14	13	13	12	12	12	11	11	10
Austria	27	26	27	27	26	22	20	20	21	20	20	19	17	17	17	15	13	13	11	13
Belgium	27	24	23	24	21	19	22	21	19	19	19	18	17	18	19	16	15			
Canada	25	25	19	19	18	18	18	18	17	18	16	14	13	13	12	12	11	11	11	
Czech Republic							11	12	13	13	15	15	17	16	18	16	15	15	14	15
Denmark															12	12	11	10	10	
Finland								15	17	18	16	15	15	13	12	11	10	11	11	11
France	21	21	21	21	21	19	19	18	19	19	18	17	16	16	15	14	14	13	14	14
Germany											15	15	14	13	12	12	11	11	10	10
Greece	18	16	21	22	22	22	20	19	19	21	23	23	22	20	22	23	24	23	22	21
Hungary	20	20	20	20	19	21	20	19	21	25	29	26	26	20	20	19	16	17	17	16
Iceland		20	19	18	17	15	24	17	17	15	16	17	12	11	8	14	6	10		
Ireland	18	19	17	17	15	14	13	14	14	14	14	13	12	12	12	12	12	12	12	12
Italy	20	19	18	18	17	17	17	16	16	16	16	17	17	15	15	15	14	14	14	14
Japan	11	11	12	12	11	12	11	11	12	13	13	13	13	12	12	12	12	11	11	10
Luxembourg	32	30	26	26	20	25	22	21	24	20	19	23	21	22	20	17	18	14	13	13
Mexico																				
Netherlands	15	13	13	13	12	10	11	10	10	10	9	9	9	8	9	8				
New Zealand	28	26	26	23	24	25	27	28	25	27	26	21	20	20	19	19	16	16	16	
Norway							15	14	12	14	15	10	11	9	9	10	8	9	10	9
Poland				20	18	17	17	17	17	22	25	25	22	19	21	20	19			19
Portugal	30	36	34	33	29	28	27	28	30	31	29	31	30	26	24	26	24	21	20	17
Slovakia													21	17			16	19	20	16
South Korea						16	16	19	19	26	32	32	31	32	35	38	38	33		
Spain	17	16	13	15	15	16	17	18	20	22	21	20	18	16	15	15	15	15	16	16
Sweden								11	11	12	11	10	9	8	13	7	6			6
Switzerland																				
Turkey																				
UK	13	10	12	11	11	11	11	10	10	10	11	9	9	7	7	7	7	7	6	6
USA	25	24	21	20	21	21	21	21	21	20	20	18	17	17	17	17	17	17	17	17
OECD median	21	21	20	20	19	18	18	18	18	19	16	17	17	16	15	14	14	13	13	13

Note: All values in Table 3 are rounded. Gaps indicate data not available.

Figure 3 shows that the number of transport accident deaths per 100,000 population in Australia remained above the OECD median in the 1980s, but remained below the OECD median in the 1990s.

Figure 3
Number of transport accident deaths per 100,000 population, Australia compared with the OECD median, 1980-1999



Motor vehicle traffic accident deaths

In Australia in the 1980s and 1990s, the proportion of transport accident fatalities each year due to motor vehicle traffic accidents ranged between 86% and 91%. In one-half of the OECD countries, proportions over 90% were the norm in the period, while in about one-third, proportions over 80% were the norm. In a few of the OECD countries, this proportion was below 80%.

In the period from 1980 to 1999, Australia had an upward trend in the number of motor vehicles registered each year, as did most other OECD countries. In Australia, the number of motor vehicles registered in 1999 was 1.6 times the number registered in 1980. In most OECD countries, the number of motor vehicles registered in 1999 was between 1.1 and 2.0 times the number registered in 1980. Exceptions were Poland (2.4 times), Spain (2.4 times), Portugal (3.8 times), Greece (4.6 times) and South Korea (19.4 times).

While the number of motor vehicles registered each year trended upwards in the period from 1980 to 1999 in Australia, there was a trend downwards in the number of deaths each year due to motor vehicle traffic accidents. This was also the case in about half of the other OECD countries.

The number of registered motor vehicles in each country can be used as the basis for calculation of a rate - the number of motor vehicle traffic accident deaths per 10,000 registered motor vehicles each year (**Table 4**). This rate provides a means of comparing the number of motor vehicle traffic accident fatalities in different countries taking into account the different level of motorisation in each country. In Australia in the period from 1980 to 1999, the number of motor vehicle traffic accident deaths per 10,000 registered motor vehicles trended downwards. This was also the case in about two-thirds of the other OECD countries.

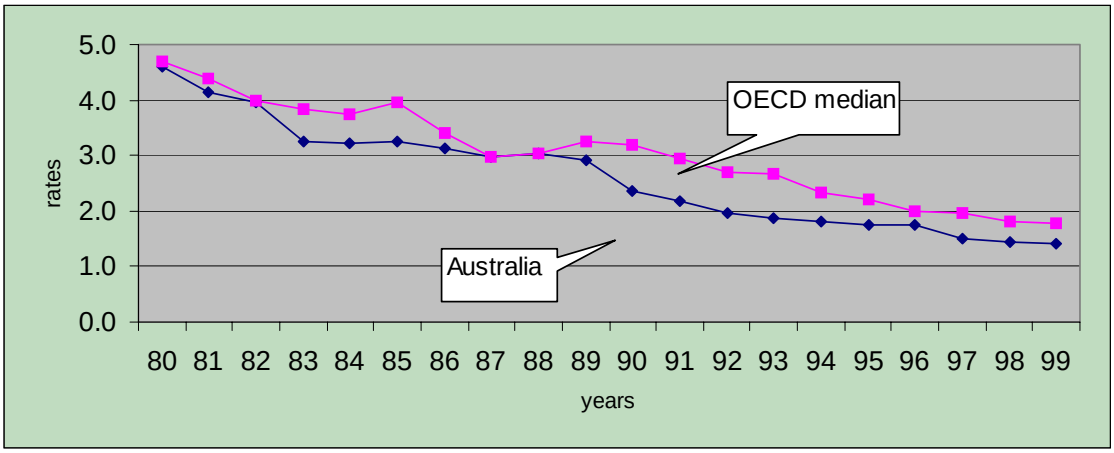
Table 4
Number of motor vehicle traffic accident deaths per 10,000 registered motor vehicles, OECD countries, 1980-1999

	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99
Australia	4.6	4.2	4.0	3.2	3.2	3.3	3.1	3.0	3.0	2.9	2.3	2.2	2.0	1.9	1.8	1.7	1.7	1.5	1.4	1.4
Austria	5.7	5.4	5.4	5.5	5.0	4.1	3.8	3.7	3.7	3.6	3.4	3.2	2.7	2.6	2.6	2.3	1.9	2.0	1.6	1.8
Belgium	6.0	5.5	5.2	5.3	4.6	4.2	4.7	4.3	4.3	4.1	3.9	3.7	3.4	3.5	3.6	3.1	2.8			
Canada	3.9	3.8	2.8	2.8	2.8	2.8	2.6	2.6	2.4	2.5	2.1	2.1	2.0	2.0	1.8	1.8	1.7	1.6	1.5	
Czech Rep							2.5	2.6	2.8	2.9	3.3	3.3	3.6	3.5	1.4	1.6	1.5	1.4	1.2	1.8
Denmark															2.5	2.6	2.2	1.9	2.0	
Finland								2.7	3.0	3.3	2.7	2.5	2.4	1.9	2.0	1.8	1.5	1.5	1.6	1.6
France	4.1	4.0	4.0	3.9	3.9	3.5	3.7	3.3	3.6	3.5	3.4	3.2	3.0	2.9	2.8	2.7	2.5	2.4	2.4	2.2
Germany											2.5	2.4	2.2	2.0	1.9	1.8	1.7	1.6	1.4	1.4
Greece	12.0	10.0	11.8	11.7	11.1	10.0	8.9	8.2	7.7	8.0	8.1	7.8		4.5	4.7	4.9	4.9	4.2	4.0	3.5
Hungary	9.6	8.9	8.4	8.3	8.7	9.3	8.4	7.8	7.8	9.3	12.1	9.6	9.5	7.2	6.7	6.6	4.9	5.0	4.9	4.8
Iceland	0.0	2.5	2.5	2.0	2.2	2.2	2.1	2.1	2.3	1.6	1.8	2.2	1.5	1.5	0.7	1.8	0.7	0.9		
Ireland	6.2	6.5	6.1	6.0	5.5	5.1	4.6	4.6	4.7	4.5	4.3	3.8	3.3	3.5	3.3	3.3	3.2	3.0	2.9	2.5
Italy	4.8	4.4	4.0	3.8	3.3	3.2	3.1	2.8	2.7	2.6	2.6	2.7	2.6	2.2	2.1	2.0	1.9	1.9	1.9	1.8
Japan	2.3	2.2	2.2	2.2	2.0	2.0	1.8	1.8	1.9	1.9	1.9	1.8	1.8	1.7	1.6	1.6	1.5	1.4	1.4	1.3
Luxembourg	7.1	6.3	4.7	5.5	4.0	4.3	4.0	3.8	4.2	3.3	3.2	3.6	3.2	3.2	2.7	2.3	2.5	2.0	1.8	1.7
Mexico																				
Netherlands	3.4	3.2	3.0	3.0	2.9	2.5	2.6	2.4	2.2	2.2	2.0	1.9	1.9	1.8	1.7	1.7				
New Zealand	3.5		4.0	3.4	3.6	3.8		4.0	3.5	3.6	3.4	3.0	2.9	2.7	2.6	2.5	2.2	2.2	2.1	2.0
Norway							2.2	1.8	1.6	1.6	1.4	1.4	1.3	1.1	1.2	1.3	1.1	1.3	1.4	1.2
Poland						7.3					9.1	8.8	7.2	6.4	6.6	6.3	5.6			4.8
Portugal	14.0	16.0	14.3	12.8	10.9	9.9	9.0	9.0	8.6	7.8	7.1	6.9	6.0	4.9	4.1	4.3	3.7	3.1	2.8	2.1
Slovakia													6.4	5.6			0.1	0.1	0.1	0.1
South Korea						36.2	33.2	34.5	29.9	33.9	33.9	27.5	22.0	18.5	17.9	17.6	15.7	12.1		
Spain	6.0	4.7	3.7	3.9	4.3	4.2	4.4	4.5	4.7	4.9	4.5	4.2	3.4	3.1	2.8	2.7	2.6	2.9	2.9	2.4
Sweden								1.9	1.9	2.0	1.7	1.5	1.5	1.3	1.1	1.1	1.1			1.0
Switzerland																				
Turkey																				
UK	3.6	2.5	3.1	2.9	2.7	2.6	2.5	2.5	2.2	2.2	2.2	2.0	1.9	1.5	1.4	1.4	1.3	1.3	1.2	1.2
USA	3.2	3.1	2.7	2.6	2.6	2.7	2.6	2.6	2.5	2.6	2.5	2.3	2.2	2.2	2.2	2.1	2.1	2.1	2.0	2.0
OECD median	4.7	4.4	4.0	3.8	3.7	4.0	3.4	3.0	3.0	3.3	3.2	3.0	2.7	2.7	2.3	2.2	2.0	1.9	1.8	1.8

Note: All values in Table 4 are rounded. Gaps indicate data not available.

Figure 4 shows that the number of motor vehicle traffic accident deaths per 10,000 registered motor vehicles in Australia remained below the OECD median through most of the 1980s and 1990s.

Figure 4
Number of motor vehicle traffic accident deaths per 10,000 registered motor vehicles, Australia compared with the OECD median, 1980-1999



Rail, water and air transport

In Australia in the period from 1980 to 1999:

- the proportion of transport accident deaths each year due to railway accidents ranged between 1% and 3%. Similarly, in most other OECD countries (more than two-thirds), the proportion of transport accident deaths due to railway accidents did not exceed 5% in any year in the same period. In Australia there was a downward trend in the number of railway accident fatalities. This was also the case in about one-third of the other OECD countries.

- the proportion of transport accident deaths each year due to water transport accidents ranged between 2% and 4%. Similarly, in most other OECD countries (more than two-thirds), the proportion of transport accident deaths due to water transport accidents did not exceed 5% in any year in the same period. In Australia there was a downward trend in the number of water transport accident fatalities. This was also the case in about one-third of the other OECD countries.

- the proportion of transport accident deaths each year due to air transport accidents (including accidents involving balloons, hang gliders and ultra lights) ranged between 2% and 3%. Similarly, in most other OECD countries (more than two-thirds), the proportion of transport accident deaths due to air transport accidents did not exceed 5% in any year in the same period. In Australia there was no trend in the number of air transport accident fatalities (the numbers oscillated around a mean of 62, the mean and median being roughly equal). This was also the case in most of the other OECD countries; only a few had a downward trend.

The ATSB is currently unable to present rail, water and air transport fatality data from the OECD countries in terms of a rate that enables comparisons while taking account of the different levels of rail, water and air transport activity in each country. This is because it is not possible to obtain internationally consistent activity data for rail, water and air transport in the OECD countries that could be used to calculate meaningful rates.

Explanatory notes

The data for this publication have been obtained from the World Health Organisation's website at http://www.who.int/en/. The numbers of registered motor vehicles in each OECD country were obtained from the IRTAD database (see http://www.irtad.com). This measure, rather than the number of kilometres travelled by motor vehicles, has been used to calculate the rate of motor vehicle traffic accident fatalities in each of the OECD countries because the data from each country are more complete for the period from 1980 to 1999 for this measure.

The ATSB also compares road crash fatality rates in the OECD countries in a publication titled *International Road Safety Comparisons*, which is updated annually. In that publication, the fatality data are obtained from the IRTAD database and the rates for some countries in some years are slightly higher than in this publication. This is because the IRTAD database records 'road vehicle traffic' fatalities and not just 'motor vehicle traffic' fatalities. 'Road vehicles' include pedal cycles, trams and horses, as well as motor vehicles.

All OECD countries provide cause of death data to the WHO and all use the ICD, an international standard classification of causes of death which provides a consistent basis for international comparisons. Note that the WHO data record year of death, not year of registration of death. The Australian Bureau of Statistics (ABS) uses the latter in its publications but supplies year of death to the WHO. ABS does this by collecting two years of registrations and then supplying the data to the WHO. This picks up most of the deaths in any given year, though there will always be a few late death registrations that will appear in the ABS data but not in the WHO data.

Data in this publication are based on ICD 9 and ICD 10. Some countries used ICD 8 in the period studied or departed from standards adopted by most other OECD countries when supplying data to the WHO. In such cases, the data were not used for this publication and a footnote has been added to the tables, 'gaps indicate data not available'.

Further details on the work behind this publication can be obtained by sending an email to stats@atsb.gov.au.