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Safety

International road safety comparisons 2016

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Bureau of Infrastructure, Transport and Regional Economics

International road safety comparisons 2016

Department of Infrastructure, Regional Development and Cities
Canberra, Australia

At a glance

This report presents tabulations of road deaths and road death rates for Organisation for Economic Co-operation and Development (OECD) nations and Australian states and territories. The rates allow for a comparison of Australia's road safety performance with that of other OECD nations by accounting for the differing levels of population, motorisation and distances travelled.

- In terms of annual deaths per 100,000 population in 2016:

  Australia's rate of 5.34 (up from 5.06 in 2015) was the 15th lowest rate out of the 31 nations with available data. The nations with the three lowest rates were

  – Norway 2.59
  – Switzerland 2.59
  – Sweden 2.74

  Between 2007 and 2016, Australia's rate declined by 30.6 per cent. Over the same period, the OECD median fell 35.7 per cent (Tables 1.1 and 1.2).

- In terms of the Australian Bureau of Statistics Remoteness Area classification of Australia, rates in 2016 varied from 2.64 in Major Cities to 34.58 in Very Remote Areas. Increases occured in Major Cities, Inner and Outer Regional Australia, and in Very Remote Australia, while the rate for Remote Australia decreased.

- In terms of annual deaths per 10,000 registered vehicles in 2016:

  Australia's rate of 0.70 (up marginally on 2015) was the 13th lowest rate out of the 26 nations with available data. The nations with the three lowest rates were

  – Norway 0.34
  – Switzerland 0.35
  – Sweden 0.44

  Between 2007 and 2016, Australia's rate declined 35.2 per cent. Over this period the OECD median declined 39.9 per cent (Tables 2.1 and 2.2).

- In terms of annual deaths per 100 million vehicle kilometres travelled in 2016:

  Australia's rate of 0.52 (up marginally on 2015) was the 10th lowest rate out of 17 nations with available data. The nations with the three lowest rates were

  – Norway 0.30
  – Ireland 0.38
  – Denmark 0.39

  Between 2007 and 2016, Australia's rate declined 28.6 per cent whilst the OECD median declined 37.7 per cent (Tables 3.1 and 3.2).

- Annual fatalities across all OECD countries have (with the exception of Iceland) shown declining trends over the last 25 years. Further analysis over the last ten years shows that those countries with the highest growth rates in population and in vehicle registrations had the smallest reduction in fatalities (Figures 4.1 and 4.2).

Data sources

International data

The International Road Traffic Accident Database (IRTAD 2018) is the main source of fatality and exposure data in this report. IRTAD is maintained by the Joint Transport Research Centre of the OECD and the International Transport Forum. Each year member nations supply IRTAD with their most recent data, which may include revisions to historical data. Further information on IRTAD is available at <http://internationaltransportforum.org/irtadpublic/about.html>.

Australian data

Australian road fatality data in this report are based on two Bureau of Infrastructure, Transport and Regional Economics (BITRE) databases: the Australian Road Deaths Database (ARDD) and the National Crash Database (NCD). There are minor data differences between the two databases due to the timing differences in data receipt and ongoing validation by data providers. ARDD data are available at <http://www.bitre.gov.au/statistics/safety/fatal_road_crash_database.aspx>. ARDD and NCD data used in this report were current to July 2018.

Australian data for population and registered vehicles were obtained from the Australian Bureau of Statistics, (ABS 2018a, 2018d) and (ABS 2018c) respectively. Estimates of vehicle kilometres travelled were obtained from the Bureau of Infrastructure and Regional Economics (BITRE unpublished).

Acknowledgements

The Department of Infrastructure, Regional Development and Cities gratefully acknowledges the provision of road crash data from the following agencies:

Transport for New South Wales;
VicRoads;
Queensland Department of Transport and Main Roads;
Department of Planning, Transport and Infrastructure South Australia;
Western Australian Police;
Main Roads Western Australia;
Department of State Growth, Tasmania;
Department of Transport, Northern Territory;
Transport Canberra and City Services Directorate, Australian Capital Territory.

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SECTION 1

Road deaths per 100,000 population

The number of road deaths per population is a measure of the public health risk associated with road crashes.

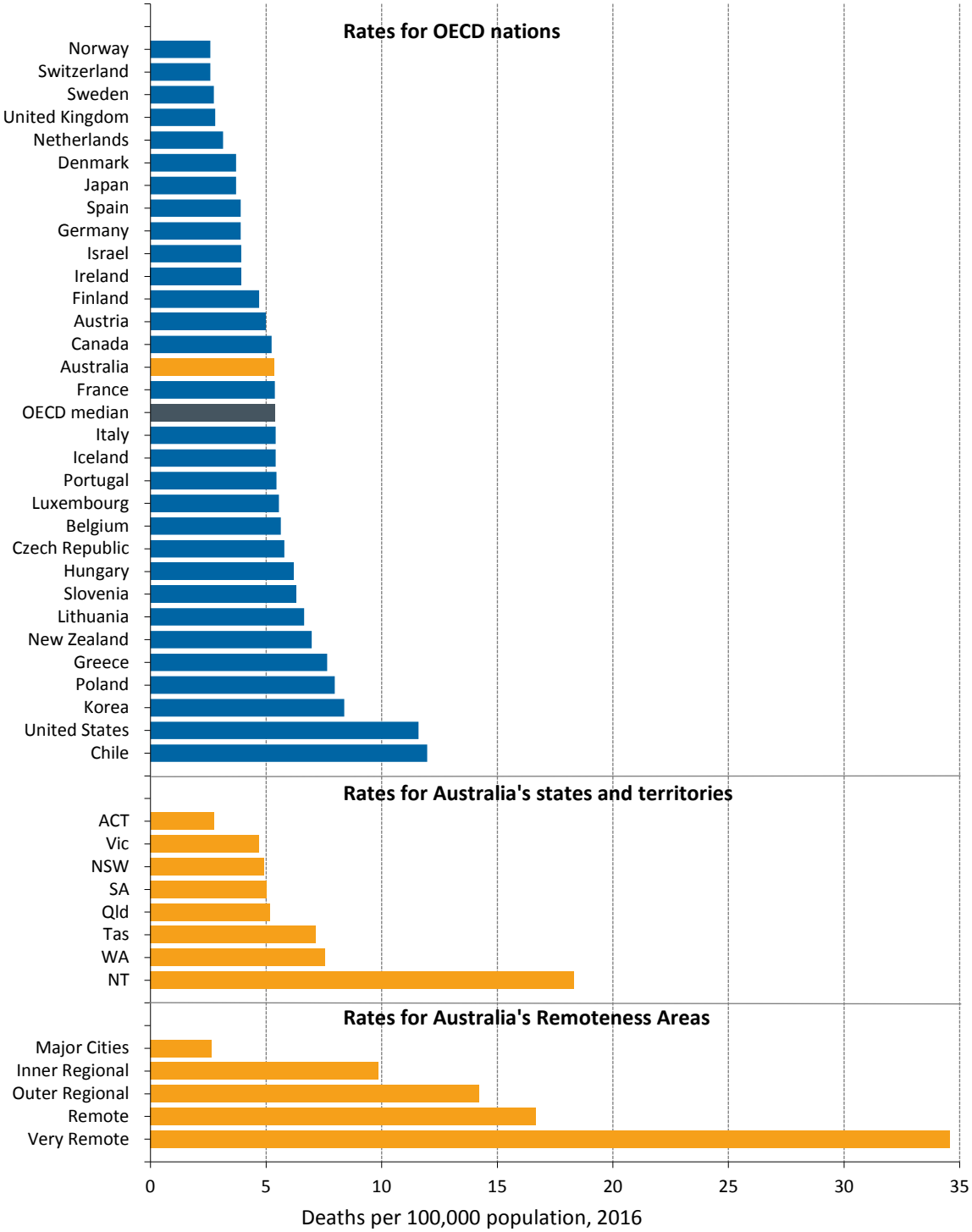
Road deaths per 100,000 population – OECD countries, 2016

Table 1.1 **Road deaths per 100,000 population – 31 OECD countries and Australian states/territories, 2016**

Nation	*Road deaths*	*Population (000s)*	*Deaths per 100,000 population*
Norway	135	5,211	2.59
Switzerland	216	8,327	2.59
Sweden	270	9,851	2.74
United Kingdom	1,860	66,563	2.79
Netherlands	533	16,979	3.14
Denmark	211	5,707	3.70
Japan	4,698	126,933	3.70
Spain	1,810	46,446	3.90
Germany	3,206	82,176	3.90
Israel	335	8,547	3.92
Ireland	186	4,725	3.94
Finland	258	5,487	4.70
Austria	432	8,690	4.97
Canada	1,898	36,258	5.23
Australia	1,293	24,191	5.34
France	3,477	64,605	5.38
OECD median			5.38
Italy	3,283	60,666	5.41
Iceland	18	333	5.41
Portugal	563	10,341	5.44
Luxembourg	32	576	5.55
Belgium	637	11,311	5.63
Czech Republic	611	10,554	5.79
Hungary	607	9,830	6.17
Slovenia	130	2,064	6.30
Lithuania	192	2,889	6.65
New Zealand	327	4,693	6.97
Greece	824	10,784	7.64
Poland	3,026	37,967	7.97
Korea	4,292	51,246	8.38
United States	37,461	323,128	11.59
Chile	2,178	18,192	11.97
ACT	11	403	2.73
Vic	290	6,173	4.70
NSW	380	7,733	4.91
SA	86	1,713	5.02
Qld	251	4,845	5.18
Tas	37	518	7.15
WA	193	2,556	7.55
NT	45	246	18.32

Sources ABS 2018a; Australian Road Deaths Database; IRTAD 2018

Figure 1.1 Road deaths per 100,000 population – 31 OECD countries, Australian states/territories and Australia's Remoteness areas, 2016



Note See page 6 for more information on Remoteness Areas.

Sources ABS 2018a; ABS 2018d; BITRE analysis of Australian Road Deaths Database; BITRE analysis of National Crash Database; IRTAD 2018

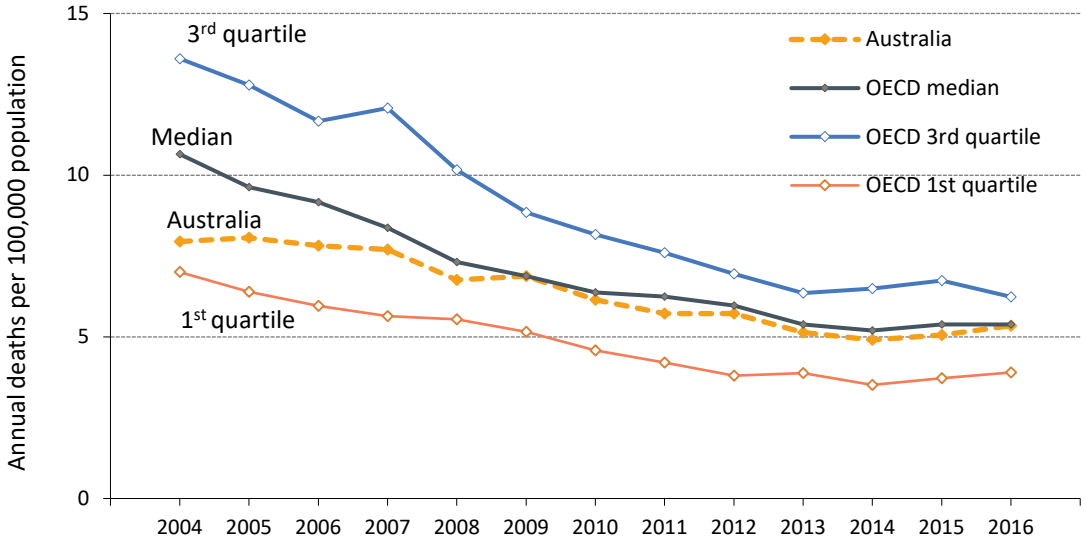
OECD countries, 1990, 2000 and 2004 to 2016

Table 1.2 Annual road deaths per 100,000 population – OECD countries and Australian states/territories, 1990, 2000 and 2004 to 2016

Nation	*1990*	*2000*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Norway	7.8	7.6	5.6	4.8	5.2	5.0	5.4	4.4	4.3	3.4	2.9	3.7	2.9	2.3	2.59
Switzerland	13.9	8.3	6.9	5.5	5.0	5.1	4.7	4.5	4.2	4.1	4.3	3.3	3.0	3.1	2.59
Sweden	9.1	6.7	5.3	4.9	4.9	5.2	4.3	3.9	2.8	3.4	3.0	2.7	2.8	2.7	2.74
United Kingdom	9.4	6.1	5.6	5.5	5.4	5.0	4.3	3.8	3.0	3.1	2.8	2.8	2.9	2.8	2.79
Netherlands	9.2	6.8	4.9	4.6	4.5	4.3	4.1	3.9	3.2	3.3	3.4	2.8	2.8	3.1	3.14
Denmark	12.3	9.3	6.8	6.1	5.6	7.5	7.4	5.5	4.6	4.0	3.0	3.4	3.2	3.1	3.70
Japan	11.8	8.2	6.7	6.3	5.7	5.2	4.8	4.6	4.6	4.3	4.1	4.1	3.8	3.8	3.70
Spain	23.3	14.4	11.1	10.3	9.3	8.5	6.8	5.9	5.3	4.4	4.1	3.6	3.6	3.6	3.90
Germany	-	9.1	7.1	6.5	6.2	6.0	5.4	5.1	4.5	4.9	4.5	4.1	4.2	4.3	3.90
Israel	8.7	7.1	6.8	6.3	5.7	5.3	5.6	4.2	4.6	4.4	3.3	3.4	3.4	3.8	3.92
Ireland	13.6	11.0	9.3	9.6	8.7	7.8	6.3	5.3	4.7	4.1	3.5	4.1	4.2	3.5	3.94
Finland	13.0	7.7	7.2	7.2	6.4	7.2	6.5	5.2	5.1	5.4	4.7	4.8	4.2	4.9	4.70
Austria	20.4	12.2	10.8	9.4	8.8	8.3	8.2	7.6	6.6	6.2	6.3	5.4	5.1	5.6	4.97
Canada	14.3	9.5	8.6	9.0	8.8	8.4	7.3	6.6	6.6	5.9	6.0	5.6	5.2	5.2	5.24
Australia	13.7	9.5	7.9	8.1	7.8	7.7	6.8	6.9	6.1	5.7	5.7	5.1	4.9	5.1	5.34
France	19.8	13.7	9.2	8.7	7.7	7.5	6.9	6.8	6.4	6.3	5.8	5.1	5.3	5.4	5.38
Italy	12.6	12.4	10.6	10.1	9.8	8.8	8.1	7.2	7.0	6.5	6.3	5.7	5.6	5.6	5.41
Iceland	9.5	11.5	7.9	6.5	10.3	4.9	3.8	5.3	2.5	3.8	2.8	4.7	1.2	4.9	5.41
Portugal	29.3	20.0	13.7	13.1	10.2	10.2	9.3	8.8	8.9	8.4	6.8	6.1	6.1	5.7	5.44
Luxembourg	18.7	17.5	11.0	10.2	9.2	9.5	7.2	9.7	6.4	6.4	6.5	8.4	6.4	6.4	5.55
Belgium	19.9	14.4	11.2	10.4	10.2	10.1	8.9	8.8	7.7	7.8	6.9	6.5	6.5	6.5	5.63
Czech Republic	12.5	14.5	13.6	12.6	10.4	11.9	10.4	8.6	7.7	7.4	7.1	6.2	6.5	7.0	5.79
Hungary	23.4	11.7	12.8	12.7	12.9	12.2	9.9	8.2	7.4	6.4	6.1	6.0	6.3	6.5	6.18
Slovenia	25.9	15.8	13.7	12.9	13.1	14.6	10.6	8.4	6.7	6.9	6.3	6.1	5.2	5.8	6.30
Lithuania	29.3	18.3	22.1	23.0	23.1	22.8	15.5	11.6	9.5	9.7	10.0	8.7	9.1	8.3	6.65
New Zealand	21.4	12.0	10.7	9.8	9.5	10.0	8.6	8.9	8.6	6.4	6.9	5.7	6.5	6.9	6.97
Greece	20.3	18.7	15.1	15.0	14.9	14.5	13.9	13.0	11.2	10.3	8.9	8.0	7.3	7.3	7.64
Poland	19.3	16.4	15.0	14.3	13.7	14.6	14.3	12.0	10.2	10.9	9.3	8.7	8.4	7.7	7.97
Korea	33.1	21.8	13.7	13.2	13.0	12.7	12.1	12.0	11.3	10.5	10.8	10.1	9.4	9.1	8.38
United States	17.9	14.9	14.6	14.7	14.3	13.7	12.3	11.0	10.7	10.4	10.8	10.4	10.3	11.1	11.59
Chile	15.7	-	14.3	13.1	13.2	13.0	13.9	11.6	12.1	11.9	11.4	12.0	11.9	11.9	11.97
ACT	9.2	5.7	2.7	7.8	3.9	4.1	4.0	3.4	5.3	1.6	3.2	1.8	2.6	3.8	2.73
Vic	12.5	8.7	7.0	6.9	6.7	6.4	5.8	5.4	5.3	5.2	5.0	4.2	4.2	4.2	4.70
NSW	13.7	9.4	7.7	7.6	7.4	6.4	5.4	6.4	5.7	5.0	5.1	4.5	4.1	4.6	4.91
SA	15.8	11.1	9.1	9.6	7.5	7.9	6.2	7.4	7.3	6.3	5.7	5.9	6.4	6.0	5.02
Qld	13.8	9.0	8.1	8.4	8.4	8.8	7.8	7.6	5.7	6.0	6.1	5.8	4.7	5.1	5.18
Tas	15.4	9.1	12.0	10.5	11.2	9.1	7.8	12.5	6.1	4.7	6.1	7.0	6.4	6.6	7.15
WA	12.2	11.3	9.0	8.1	9.8	11.2	9.4	8.5	8.4	7.6	7.5	6.5	7.3	6.3	7.55
NT	41.5	25.6	17.3	26.7	21.5	27.1	34.1	13.7	21.8	19.5	20.8	15.3	16.1	20.0	18.32

Sources ABS 2018a; BITRE analysis of Australian Road Deaths Database; IRTAD 2018;

Figure 1.2 **Annual road deaths per 100,000 population – OECD quartiles and Australia, 2004 to 2016**



Sources ABS 2018a; BITRE analysis of Australian Road Deaths Database; IRTAD 2018;

Road deaths per 100,000 population by Remoteness Area – Australia, 2012 to 2016

In this section, Australia's annual fatality rates (per population) are classified by Remoteness Area. This classification is part of the Australian Bureau of Statistics – Australian Statistical Geography Standard (ASGS)[a]. A map of Australia in Figure 1.3 shows the boundaries of the five remoteness areas.

Table 1.3 shows the five different levels of Remoteness, and the provisional proportions of Australia's 2016 population in each.

Table 1.3 Categories of Remoteness Area, with 2016 population

Remoteness Area	*Proportion of population (2016)*
Major Cities of Australia	71.6%
Inner Regional Australia	17.9%
Outer Regional Australia	8.4%
Remote Australia	1.2%
Very Remote Australia	0.8%
Total	**100%**

Sources ABS 2018b

Table 1.4 shows Australia's annual fatality rates per 100,000 population by Remoteness and year.

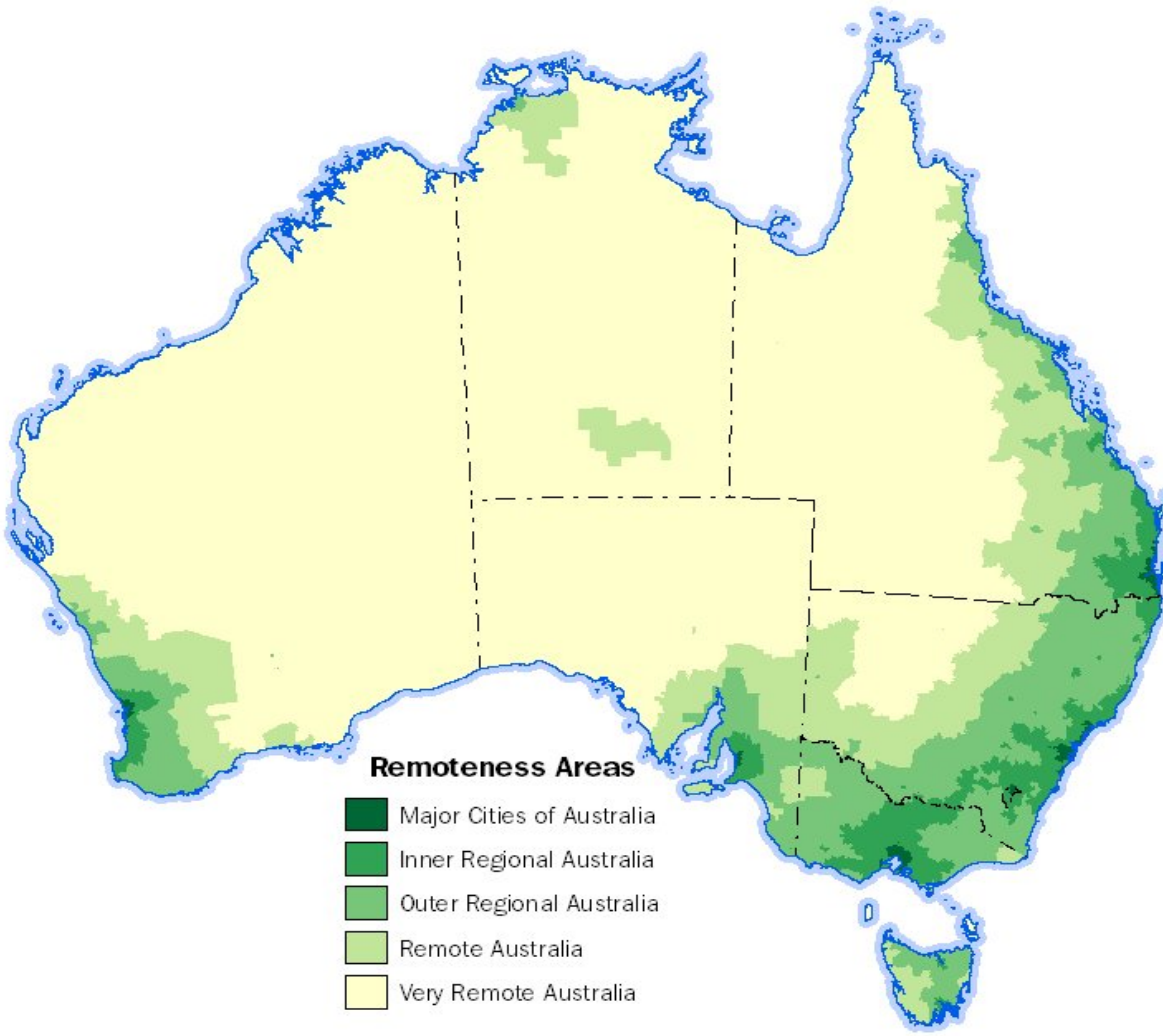
Table 1.4 Annual road deaths per 100,000 population – Australia, by Remoteness Area, 2012 to 2016

Remoteness Area	*2012*	*2013*	*2014*	*2015*	*2016*
Major Cities of Australia	2.8	2.6	2.3	2.43	2.64
Inner Regional Australia	11.0	9.5	9.3	9.05	9.86
Outer Regional Australia	13.7	11.7	11.9	13.93	14.20
Remote Australia	14.8	23.0	20.2	20.46	16.68
Very Remote Australia	27.3	26.3	32.0	28.30	34.58
Total Australia	5.7	5.1	4.9	5.1	5.3

Note Total includes unknown locations.
Sources ABS 2018d; BITRE analysis of National Crash Database

a Information on this geographical classification is found in ABS 2018b.

Figure 1.3 ASGS[a] Remoteness Areas 2016 and selected cities and towns



a ASGS: Australian Statistical Geography Standard
Source Australian Bureau of Statistics 2018b

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SECTION 2

Road deaths per 10,000 registered vehicles

The number of road deaths per registered vehicle is a means of comparing road deaths among nations by taking into account their different levels of motorisation.

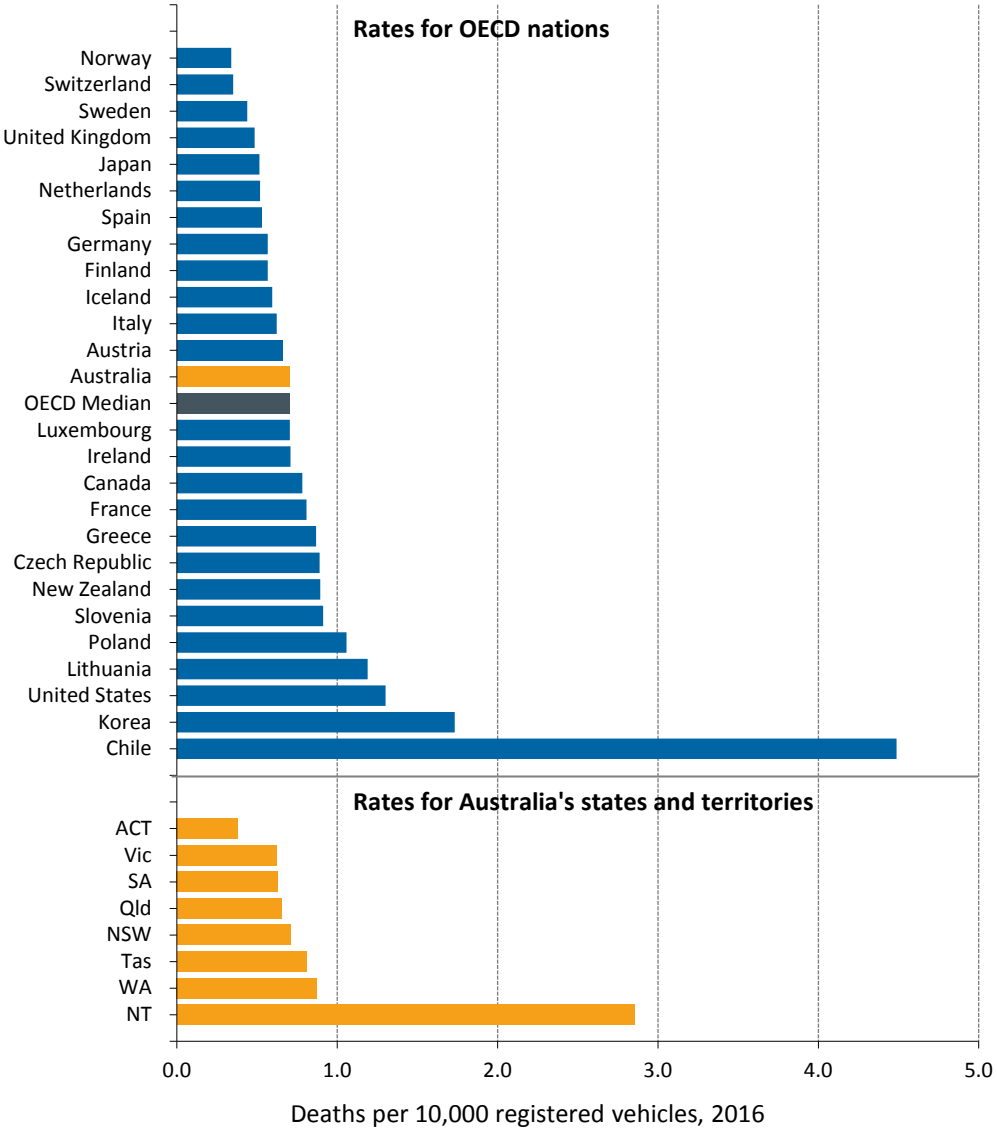
Road deaths per 10,000 registered vehicles – OECD countries, 2016

Table 2.1 **Road deaths per 10,000 registered vehicles – 26 OECD countries and Australian states/territories, 2016**

Nation	*Road deaths*	*Total registered vehicles (000s)*	*Deaths per 10,000 registered vehicles*
Norway	135	3,970	0.34
Switzerland	216	6,156	0.35
Sweden	270	6,150	0.44
United Kingdom	1,860	38,388	0.48
Japan	4,698	91,326	0.51
Netherlands	533	10,264	0.52
Spain	1,810	34,094	0.53
Germany	3,206	56,623	0.57
Finland	258	4,550	0.57
Iceland	18	303	0.59
Italy	3,283	52,659	0.62
Austria	432	6,546	0.66
Australia	1,293	18,387	0.70
OECD Median			0.70
Luxembourg	32	454	0.71
Ireland	186	2,625	0.71
Canada	1,898	24,270	0.78
France	3,477	43,026	0.81
Greece	824	9,489	0.87
Czech Republic	611	6,866	0.89
New Zealand	327	3,656	0.89
Slovenia	130	1,424	0.91
Poland	3,026	28,601	1.06
Lithuania	192	1,614	1.19
United States	37,461	288,034	1.30
Korea	4,292	24,755	1.73
Chile	2,178	4,853	4.49
ACT	11	288	0.38
Vic	290	4,681	0.62
SA	86	1,365	0.63
Qld	251	3,854	0.65
NSW	380	5,374	0.71
Tas	37	458	0.81
WA	193	2,209	0.87
NT	45	158	2.85

Sources ABS 2018c; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

Figure 2.1 **Road deaths per 10,000 registered vehicles – 26 OECD countries and Australian states/territories, 2016**



Sources ABS 2018c; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

OECD countries, 1990, 2000 and 2004 to 2016

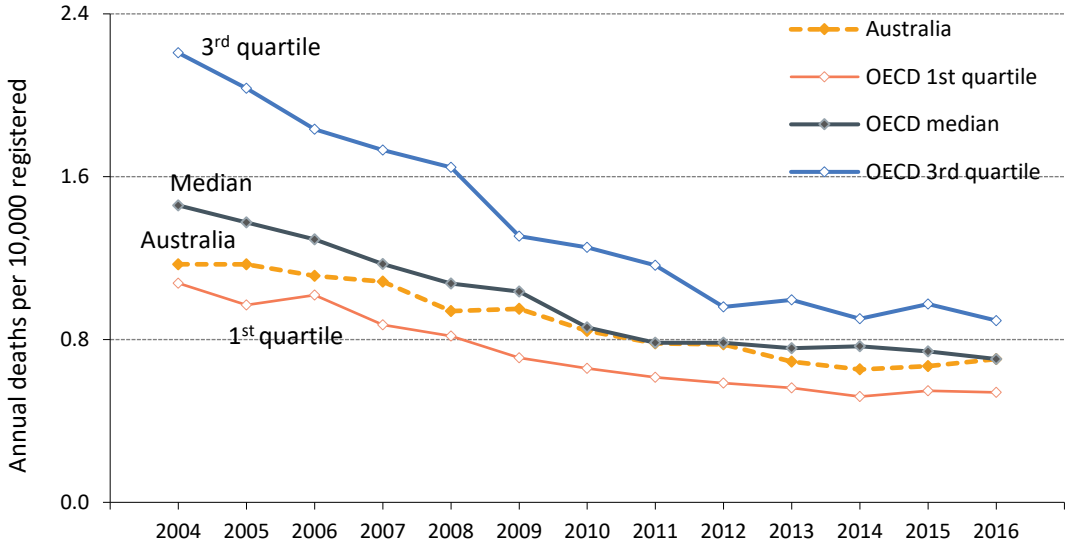
Table 2.2 Annual road deaths per 10,000 registered vehicles – OECD countries and Australian states/territories, 1990, 2000 and 2004 to 2016

Nation	*1990*	*2000*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Norway	1.4	1.2	0.9	0.7	0.8	0.7	0.8	0.6	0.6	0.5	0.4	0.5	0.4	0.3	0.34
Switzerland	2.2	1.2	1.0	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.4	0.4	0.35
Sweden	1.7	1.2	0.9	0.8	0.8	0.9	0.7	0.6	0.5	0.6	0.5	0.4	0.5	0.4	0.44
United Kingdom	2.1	1.2	1.0	1.0	1.0	0.9	0.8	0.7	0.5	0.6	0.5	0.5	0.5	0.5	0.48
Japan	1.9	1.2	1.0	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.51
Netherlands	2.2	1.3	0.9	0.8	0.8	0.8	0.7	0.7	0.5	0.5	0.6	0.5	0.5	0.5	0.52
Spain	5.1	2.2	1.7	1.5	1.3	1.2	0.9	0.8	0.7	0.6	0.6	0.5	0.5	0.5	0.53
Germany	-	1.4	1.0	1.0	0.9	0.9	0.9	0.8	0.7	0.8	0.7	0.6	0.6	0.6	0.57
Finland	2.8	1.5	1.3	1.3	1.1	1.2	1.0	0.8	0.7	0.7	0.6	0.6	0.5	0.6	0.57
Iceland	1.7	1.8	1.1	0.9	1.3	0.6	0.5	0.7	0.3	0.5	0.3	0.6	0.1	0.6	0.59
Italy	2.1	1.6	1.3	1.3	1.2	1.1	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.62
Austria	3.7	1.8	1.6	1.4	1.3	1.2	1.2	1.1	0.9	0.9	0.9	0.7	0.7	0.7	0.66
Australia	2.3	1.5	1.2	1.2	1.1	1.1	0.9	1.0	0.8	0.8	0.8	0.7	0.7	0.7	0.70
Luxembourg	3.3	2.4	1.4	1.3	1.1	1.2	0.9	1.2	0.8	0.8	0.8	1.0	0.8	0.8	0.71
Ireland	4.5	2.5	1.8	1.9	1.6	1.4	1.1	1.0	0.9	0.8	0.7	0.8	0.8	0.6	0.71
Canada	2.3	1.6	1.4	1.5	1.5	1.3	1.2	1.0	1.0	0.9	0.9	0.8	0.8	0.8	0.78
France	3.6	2.3	1.5	1.4	1.2	1.2	1.1	1.1	1.0	1.0	0.9	0.8	0.8	0.8	0.81
Greece	7.4	3.1	2.1	2.0	1.9	1.8	1.7	1.5	1.3	1.2	1.0	0.9	0.8	0.8	0.87
Czech Republic	3.3	3.2	2.8	2.5	2.0	2.2	1.9	1.5	1.3	1.3	1.2	1.0	1.1	1.1	0.89
New Zealand	3.3	1.8	1.5	1.3	1.3	1.3	1.1	1.2	1.2	0.9	0.9	0.8	0.9	0.9	0.89
Slovenia	-	-	2.5	2.3	2.2	2.4	1.7	1.3	1.0	1.1	1.0	0.9	0.8	0.9	0.91
Poland	-	-	3.4	3.2	2.8	2.8	2.5	2.1	1.7	1.7	1.4	1.3	1.2	1.1	1.06
Lithuania	12.7	5.0	4.6	4.3	3.9	3.7	2.4	1.7	1.4	1.4	1.3	1.1	1.8	1.6	1.19
United States	2.4	1.9	1.8	1.8	1.7	1.6	1.4	1.3	1.3	1.2	1.3	1.2	1.2	1.3	1.30
Korea	-	-	-	-	-	-	-	-	-	-	-	2.3	2.1	1.9	1.73
Chile	-	10.6	9.9	8.6	8.3	7.7	7.8	6.4	6.3	5.7	5.1	5.1	4.7	4.6	4.49
Israel	4.1	2.5	2.3	2.1	1.9	1.7	1.7	1.3	1.4	1.3	1.0	1.0	0.9	1.0	-
Portugal	-	3.9	2.5	2.3	1.8	1.8	1.6	1.5	-	-	-	-	-	-	-
ACT	1.6	0.9	0.4	1.2	0.6	0.6	0.6	0.5	0.7	0.2	0.4	0.3	0.4	0.5	0.38
Vic	2.1	1.2	1.0	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.62
SA	2.3	1.4	1.3	1.3	1.0	1.1	0.8	1.0	1.0	0.8	0.7	0.8	0.8	0.8	0.63
Qld	2.5	1.6	1.2	1.2	1.2	1.2	1.0	1.0	0.7	0.8	0.8	0.8	0.6	0.6	0.65
NSW	1.9	1.6	1.3	1.2	1.2	1.0	0.8	1.0	0.9	0.8	0.8	0.7	0.6	0.7	0.71
Tas	2.4	1.3	1.7	1.4	1.5	1.2	1.0	1.6	0.8	0.6	0.7	0.8	0.7	0.8	0.81
WA	2.6	1.6	1.2	1.1	1.2	1.4	1.2	1.0	1.0	0.9	0.9	0.8	0.9	0.7	0.87
NT	8.6	5.0	3.3	5.0	3.9	4.9	6.1	2.4	3.7	3.3	3.5	2.5	2.6	3.2	2.85

Note ABS vehicle registration data was not available for the year 2000. The average of 1999 and 2001 is used as an estimate for that year.

Sources ABS 2017c; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

Figure 2.2 Annual road deaths per 10,000 registered vehicles – OECD quartiles and Australia, 2004 to 2016



Sources ABS 2017c; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

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SECTION 3

Road deaths per 100 million vehicle kilometres travelled

The number of road deaths per vehicle kilometres (VKT) travelled is a risk measure which takes account of the estimated amount of vehicle travel.

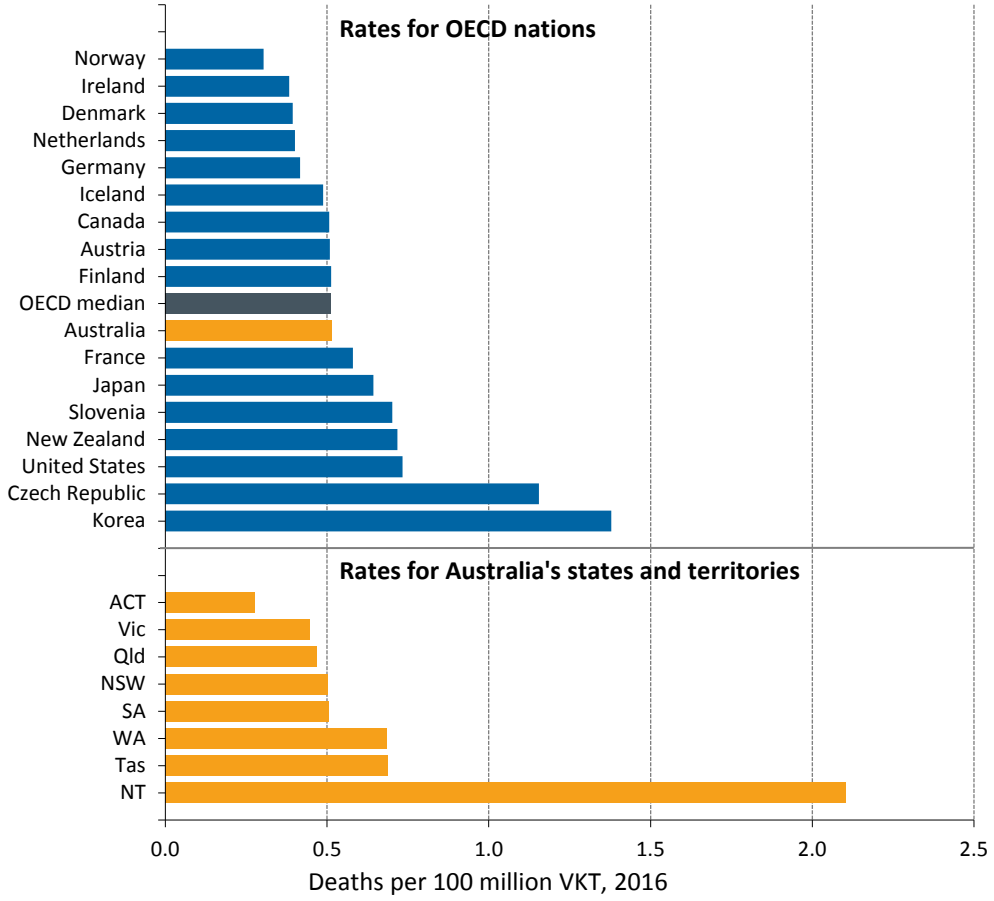
Road deaths per 100 million vehicle kilometres travelled – OECD countries, 2016

Table 3.1 **Road deaths per 100 million vehicle kilometres travelled – 17 OECD countries and Australian states/territories, 2016**

Nation	*Road deaths*	*Total VKT (millions)*	*Deaths per 100 million VKTs*
Norway	135	44,496	0.30
Ireland	186	48,519	0.38
Denmark	211	53,621	0.39
Netherlands	533	133,093	0.40
Germany	3,206	769,100	0.42
Iceland	18	3,693	0.49
Canada	1,898	374,740	0.51
Austria	432	85,014	0.51
Finland	258	50,361	0.51
OECD median			0.51
Australia	1,293	250,774	0.52
France	3,477	599,640	0.58
Japan	4,698	729,906	0.64
Slovenia	130	18,517	0.70
New Zealand	327	45,564	0.72
United States	37,461	5,108,714	0.73
Czech Republic	611	52,919	1.15
Korea	4,292	311,236	1.38
ACT	11	3,957	0.28
Vic	290	64,888	0.45
Qld	251	53,470	0.47
NSW	380	75,651	0.50
SA	86	17,060	0.50
WA	193	28,228	0.68
Tas	37	5,379	0.69
NT	45	2,140	2.10

Sources BITRE analysis of Australian Road Deaths Database; BITRE unpublished VKT estimates; IRTAD 2018

Figure 3.1 **Road deaths per 100 million vehicle kilometres travelled – 17 OECD countries and Australian states/territories, 2016**



Sources BITRE analysis of Australian Road Deaths Database; BITRE unpublished VKT estimates; IRTAD 2018

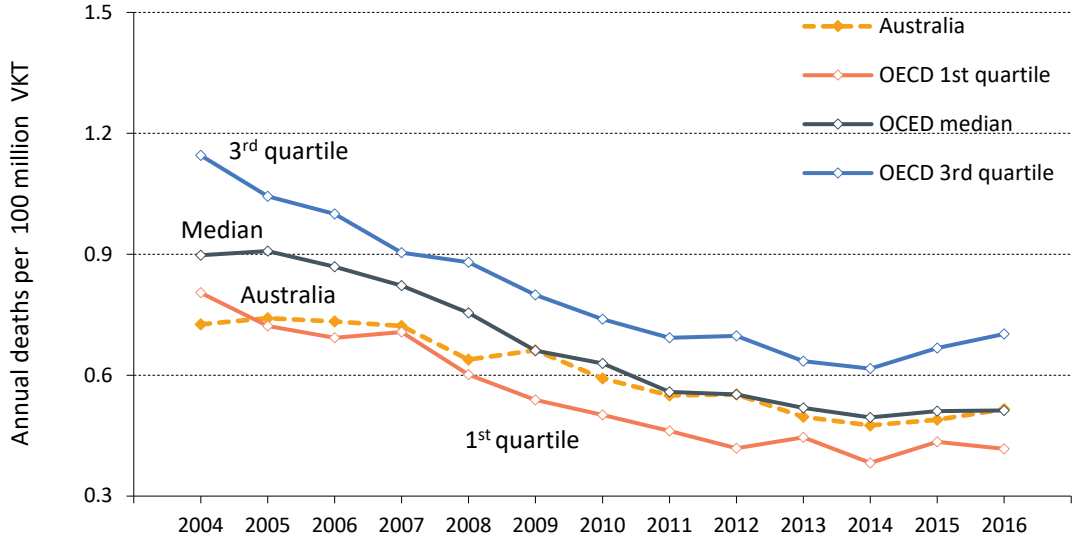
OECD countries, 1990, 2000 and 2004 to 2016

Table 3.2 **Annual road deaths per 100 million vehicle kilometres travelled – OECD countries and Australian states/territories, 1990, 2000 and 2004 to 2016**

Nation	*1990*	*2000*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*	*2010*	*2011*	*2012*	*2013*	*2014*	*2015*	*2016*
Norway	1.2	1.0	0.7	0.6	0.7	0.6	0.6	0.5	0.5	0.4	0.3	0.4	0.3	0.3	0.30
Ireland	1.9	1.2	0.9	0.9	0.8	0.7	0.6	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.38
Denmark	1.7	1.1	0.8	0.7	0.6	0.8	0.8	0.7	0.6	0.5	0.3	0.4	0.4	0.3	0.39
Netherlands	1.4	0.9	-	-	-	-	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.40
Germany	-	1.1	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.5	0.42
Iceland	1.5	1.4	0.9	0.7	1.0	0.5	0.4	0.5	0.3	0.4	0.3	0.5	0.1	0.5	0.49
Canada	-	0.9	0.9	0.9	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.51
Austria	3.2	1.5	1.3	1.1	1.0	0.9	0.9	0.8	0.7	0.7	0.7	0.6	0.5	0.6	0.51
Finland	1.6	0.8	0.7	0.7	0.6	0.7	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.51
Australia	1.4	0.9	0.7	0.7	0.7	0.7	0.6	0.7	0.6	0.6	0.6	0.5	0.5	0.5	0.52
France	2.6	1.6	1.0	1.0	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.58
Japan	2.3	1.3	1.1	1.0	1.0	0.9	0.8	0.8	0.8	0.8	0.7	0.7	0.6	0.7	0.64
Slovenia	6.5	2.7	1.8	1.7	1.6	1.7	1.2	1.0	0.8	-	-	0.7	0.6	0.7	0.70
New Zealand	-	1.4	1.1	1.0	1.0	1.0	0.9	1.0	0.9	0.7	0.8	0.6	0.7	0.7	0.72
United States	1.3	0.9	0.9	0.9	0.9	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.73
Czech Republic	4.8	3.7	2.9	2.6	2.1	2.3	1.9	1.6	1.6	1.6	1.6	1.4	1.4	1.4	1.15
Korea	-	4.9	2.3	1.8	1.9	1.9	1.8	2.0	1.9	2.0	1.9	1.8	1.6	1.5	1.38
Israel	-	1.2	1.2	1.0	0.9	0.8	0.9	0.6	0.7	0.7	0.5	0.5	0.5	0.6	-
Switzerland	1.9	1.1	0.9	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.6	0.4	0.4	0.4	-
United Kingdom	1.3	0.7	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.4	0.3	0.4	-	-
ACT	1.0	0.6	0.3	0.7	0.4	0.4	0.4	0.3	0.5	0.2	0.3	0.2	0.3	0.4	0.28
Vic	1.2	0.8	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.45
Qld	1.4	0.8	0.7	0.7	0.7	0.8	0.7	0.7	0.5	0.5	0.6	0.5	0.4	0.5	0.47
NSW	1.5	1.0	0.8	0.8	0.7	0.6	0.6	0.7	0.6	0.5	0.5	0.5	0.4	0.5	0.50
SA	1.7	1.1	0.9	0.9	0.7	0.8	0.6	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.50
WA	1.2	1.0	0.8	0.7	0.9	1.0	0.8	0.8	0.8	0.7	0.7	0.6	0.7	0.6	0.68
Tas	1.7	0.9	1.1	1.0	1.1	0.9	0.7	1.2	0.6	0.5	0.6	0.7	0.6	0.6	0.69
NT	4.7	2.8	1.9	3.0	2.4	3.0	3.8	1.5	2.4	2.2	2.4	1.8	1.8	2.3	2.10

Sources BITRE analysis of Australian Road Deaths Database; BITRE unpublished VKT estimates; IRTAD 2018

Figure 3.2 Annual road deaths per 100 million vehicle kilometres travelled – OECD quartiles and Australia, 2004 to 2016



Sources BITRE analysis of Australian Road Deaths Database; BITRE unpublished VKT estimates; IRTAD 2018

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SECTION 4

Trends in road deaths

Whilst standardised rates can assist with comparisons between jurisdictions, raw numbers of incidents (deaths or serious injuries) are a useful metric in themselves: comparisons can be made time within jurisdictions. The following analyses trends over time in annual fatality counts. Context is provided using annual changes in population, vehicle registrations and vehicle kilomtres travelled (VKT).

Trends in road deaths

Table 4.1 Annual road deaths since 1991 — 30 OECD countries and Australian states/territories

Nation	*1991*	*1996*	*2001*	*2006*	*2011*	*2016*	10 year trend to 2016 % p.a.	20 year trend to 2016 % p.a.
Lithuania	1,267	667	706	760	296	192	-11.9	-6.8
Spain	8,836	5,483	5,517	4,104	2,060	1,810	-9.0	-7.3
Slovenia	462	388	278	263	141	130	-8.6	-6.1
Greece	2,112	2,157	1,880	1,657	1,141	824	-8.3	-5.2
Denmark	606	514	431	306	220	211	-7.8	-5.8
Hungary	2,120	1,370	1,239	1,303	638	607	-7.6	-4.9
Ireland	445	453	411	365	186	186	-7.1	-5.6
Norway	323	255	275	242	168	135	-7.0	-4.5
Portugal	3,119	2,646	1,847	1,071	891	563	-6.9	-7.8
Poland	7,901	6,359	5,534	5,243	4,189	3,026	-6.7	-4.3
Czech Republic	1,331	1,568	1,334	1,063	773	611	-6.0	-4.9
United Kingdom	4,753	3,740	3,598	3,298	1,960	1,860	-5.9	-4.5
Sweden	745	537	554	445	319	270	-5.8	-4.6
Austria	1,551	1,027	958	730	523	432	-5.4	-5.0
Switzerland	834	616	544	370	320	216	-5.3	-5.1
Iceland	27	10	24	31	12	18	-5.2	-3.8
Italy	8,098	6,688	7,096	5,669	3,860	3,283	-5.2	-4.4
Belgium	1,873	1,356	1,486	1,069	861	637	-4.9	-4.2
Germany	11,300	8,758	6,977	5,091	4,009	3,206	-4.5	-5.4
Canada	3,691	3,129	2,758	2,871	2,023	1,898	-4.2	-2.8
Japan	14,437	11,675	10,071	7,336	5,535	4,698	-4.0	-5.0
Netherlands	1,281	1,180	993	730	546	533	-3.9	-4.9
Finland	632	404	433	336	292	258	-3.7	-3.1
Korea	15,443	14,551	8,097	6,327	5,229	4,292	-3.6	-5.2
France	10,483	8,541	8,160	4,709	3,963	3,477	-3.6	-5.6
New Zealand	650	514	455	393	284	327	-3.3	-3.1
Australia	2,113	1,970	1,737	1,598	1,277	1,293	-3.0	-2.4
Israel	435	507	531	405	341	335	-3.0	-3.3
Luxembourg	83	71	70	43	33	32	-2.2	-3.9
United States	41,508	42,065	42,196	42,708	32,479	37,461	-1.5	-1.4
Tas	77	64	61	55	24	37	-4.2	-2.3
Qld	395	385	324	335	269	251	-4.0	-1.7
NSW	663	581	524	496	364	380	-3.1	-3.2
ACT	17	23	16	13	6	11	-2.8	-3.3
Vic	503	417	444	337	287	290	-2.5	-2.6
SA	184	181	153	117	103	86	-2.4	-3.3
WA	207	247	165	200	179	193	-2.2	-0.9
NT	67	72	50	45	45	45	-2.1	-1.8

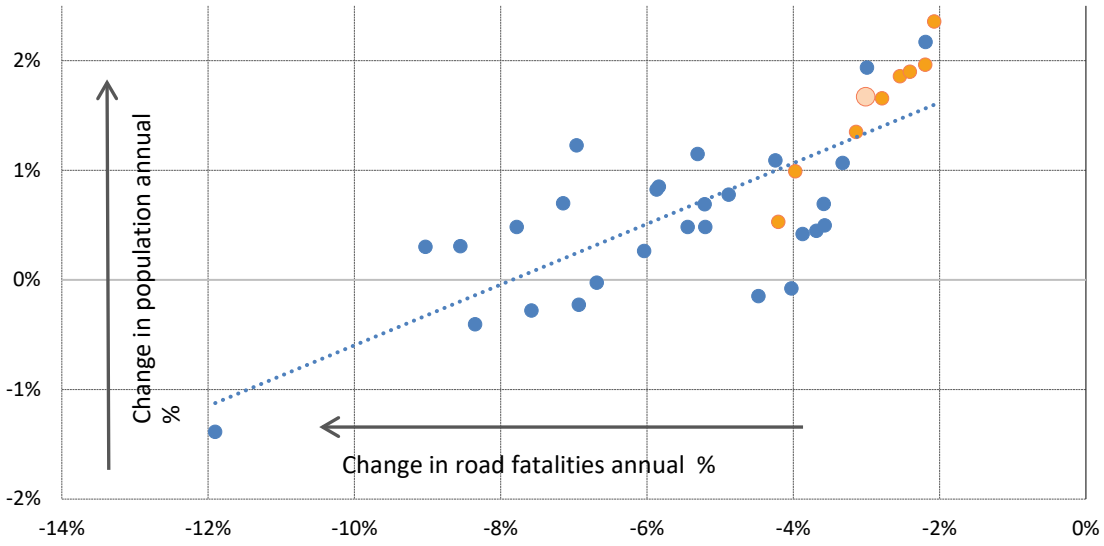
Sources BITRE analysis of Australian Road Deaths Database; IRTAD 2018

Trends in road deaths

Over the last 10 years, counts of fatalities in every jurisdiction showed a declining trend. The sizes of the trends vary substantially however. The following three charts provide context for these trends by plotting them against growth in population, vehicle registration, and estimated vehicle kilometres travelled.

In all charts, Australia's state and territories are marked in orange, and the OECD nations are shown in blue.

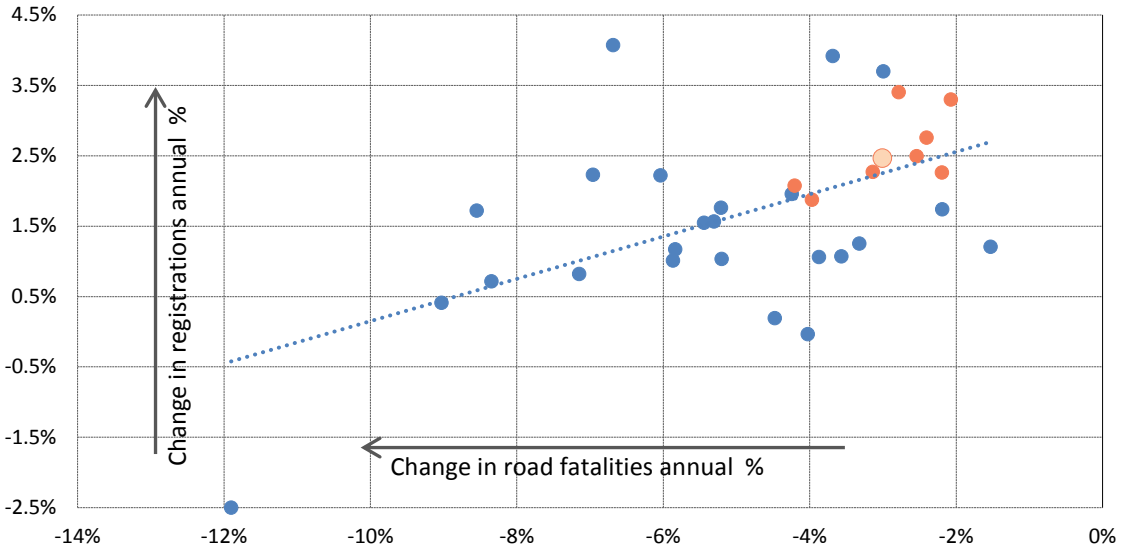
Figure 4.1 **Change in population against change in road fatalities — 10 years to 2016**



Sources ABS 2018a; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

The upward slope shows that stronger population growth is associated with smaller reductions in annual road fatalities. The correlation between these two variables is 0.74.

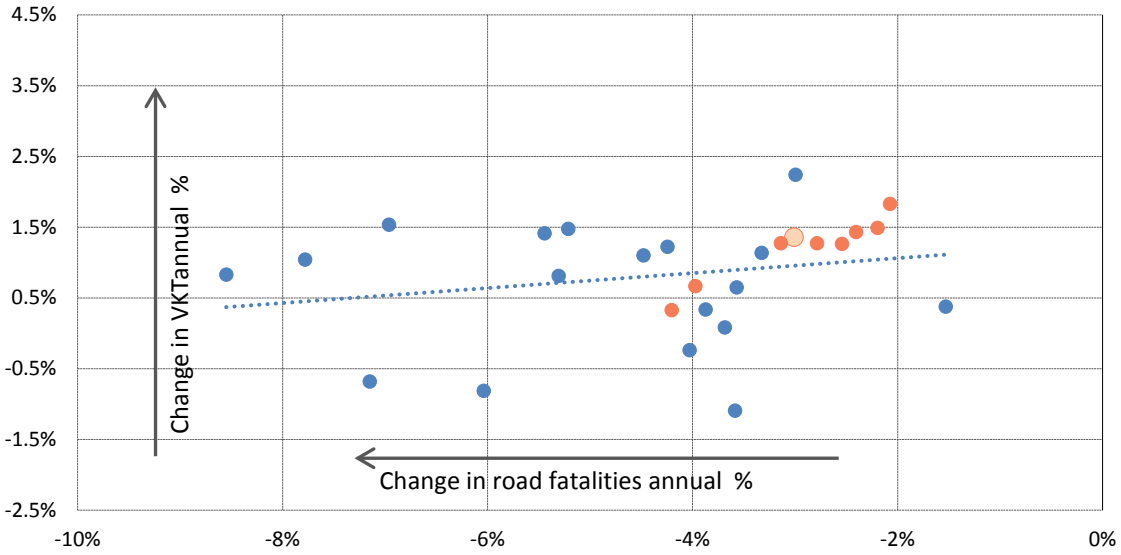
Figure 4.2 Change in vehicle registrations against change in road fatalities — 10 years to 2016



Sources ABS 2018c; BITRE analysis of Australian Road Deaths Database; IRTAD 2018

The upward slope shows that stronger growth in vehicle registrations is associated with smaller reductions in annual road fatalities. The correlation between these two variables is 0.55.

Figure 4.3 Change in vehicle kilometres travelled against change in road fatalities — 10 years to 2016



Sources BITRE analysis of Australian Road Deaths Database; BITRE unpublished VKT estimates; IRTAD 2018

There is a marginal association between growth in VKT and smaller reductions in road fatalities. The correlation between these two variables is 0.23.

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