

Fatigue as a crash factor: Applying the ATSB definition for a fatigue-involved crash to Victoria's crash data

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Outline

- Fatigue-involved crash: ATSB definition
- Crash data
- Fatigue-involved crashes
- Crash severity
- As a function of vehicle type
- Victoria
- Refining the definition

ATSB definition

- *Derived*
- Single vehicle crash midnight-6am or 2pm-4pm
- Head-on, neither vehicle overtaking
- Exclusion criteria:
 - Crashes involving unlicensed drivers/ riders
 - Crashes in which driver BAC > 0.05
 - Crashes involving a pedestrian
 - Crashes in speed zones < 80 km/h

Crash data

- Victoria's crash database 2001-2004

Exclusion criterion	Average annual crashes	Total crashes	% crashes
BAC>0.05	711	2,844	4%
Unlicensed	140	560	1%
Pedestrian involved	1,560	6,239	9%
Speed limit <80	11,461	45,842	67%

ATSB-defined fatigue crashes

Fatigue type	Average crashes	Total crashes	% of all crashes
Head-on no overtaking	269	1,076	2%
Single-vehicle, hours	613	2,451	4%
No fatigue	16,117	64,467	95%
Total crashes	16,999	67,994	100%

- 3,527 fatigue-related crashes:
 - 6% of total
 - 31% head-on
 - 69% hours

Crash severity

Crash Severity	Non fatigue	Fatigue-involved	Head-on	Hours
Fatal	1.8%	6.6%	14.8%	3.1%
Serious	31.2%	44.4%	45.1%	44.1%
Other	67.0%	48.9%	40.1%	52.8%

Vehicle type

Vehicle type	Non fatigue	Fatigue-involved
Car	94.9%	5.1%
Truck	91.1%	8.9%
Motorcycle	87.7%	12.3%

Vehicle type	Fatigue head-on	Fatigue hours
Car	1.7%	3.4%
Truck	2.7%	6.2%
Motorcycle	2.1%	10.2%

Equating the speed zone

- Restrict non-fatigue crashes to speed zones greater than 80km/h
 - Fatigue crashes now 16% of all (up from 5.2%)
 - Fatigue head-on now 4.9% (up from 1.6%)
 - Fatigue hours now 11.1% (up from 3.6%)
- 3 times the previous estimate

- Severity with equivalent speed zone

Crash Severity	Non fatigue	Head-on	Hours
Fatal	3.5%	14.8%	3.1%
Serious	35%	45%	44%
Other	62%	40%	53%
Total	100%	100%	100%

Victoria

- Fatal fatigue crashes in Victoria
 - 1998: 15.6% (Dobie, 2002)
 - '01-'04: Now avg 17.1%
 - 26.9% with consistent speed zone
 - Consistent with 20-30% given in literature

Refining the definition

- Speed zone exclusion: literature says fatigue-related crashes more likely on rural highways
- Then why not limit to 100 km/h?
- Limit head-ons by speed zone but not time of day crashes?
- Make comparisons with crash databases with “crash factor”