

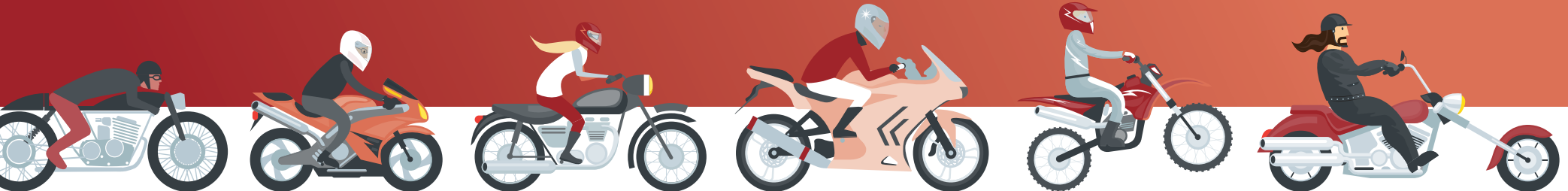
Motorcycle Safety

A Single Point of Truth



Motorcycle Safety Advisory Council
Making Motorcycling Safer

Bringing together motorcycle safety information
from the different data sources into one document



Data sources include ACC, Ministry of Transport, NZ Transport Agency, NZ Police and National Health Statistics
(Courtesy of the Transport Agency and Ministry of Transport)

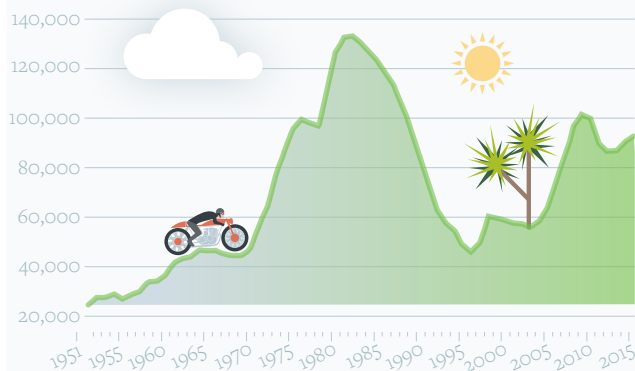
Not all percentages add up to 100% due to rounding error

© 2017

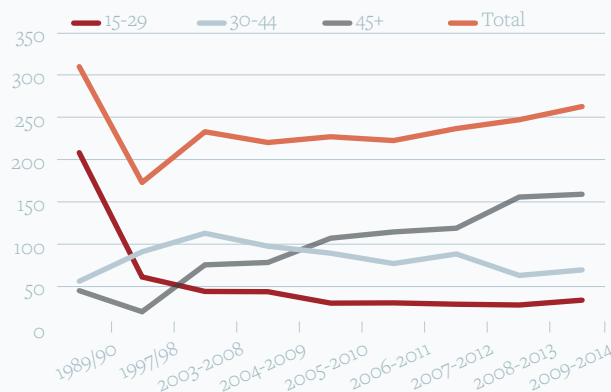
How Motorcycle use and safety has changed over time

- In 1933 – motorcycles were 16.5% of the private light vehicle fleet, three times the figure nowadays
- Motorcycling has always had practical transport related users, enthusiast users and users motivated to a lesser or greater extent in both directions
- Motorcycling has fluctuated over the years related to affordability and other factors
- In 1951 there were 454 motorcycle injury crashes per 10,000 registered motorcycle. In 2015 the figure was 135

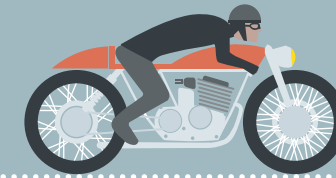
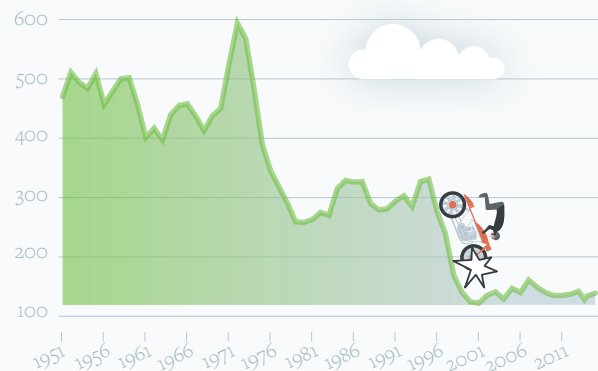
Registered motorcycles in New Zealand by year since 1951



Distance travelled per year on motorcycles by age group of rider



Annual crashes per 10,000 registered motorcycles



There's been a shift to
older riders
particularly those

45+

15-29 yr old travel
reduced by
84%↓
from 1989/90
to 2009-2014

45+ TRAVEL
more than trebled
Over the same period,
the **30-44** age
group increased
but not so
dramatically ↑

**Motorcycling is
now much safer**

per registered motorcycle than
in 1951 as is all vehicle travel



Overall, motorcycle travel has increased
markedly since 1997/98 but has not yet
regained the levels of 1989/90

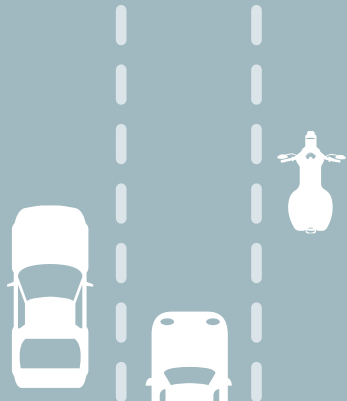
How Motorcycle use and safety has changed over time continued...



- Motorcycling increased by around 60% from 2005 to 2015
- Motorcycle / moped Police reported crashes increased by around 40% from 2005 to 2015
- ACC claims serious enough to involve ongoing entitlements increased 14% from 2005 to 2015
- 54 motorcyclists died on our roads in 2015, up from a low of 28 in 2003

“Motorcycling has increased particularly in the older age groups”

Motorcycle safety has decreased since 2002



The per vehicle motorcycle crash rate has been on the increase since 2002

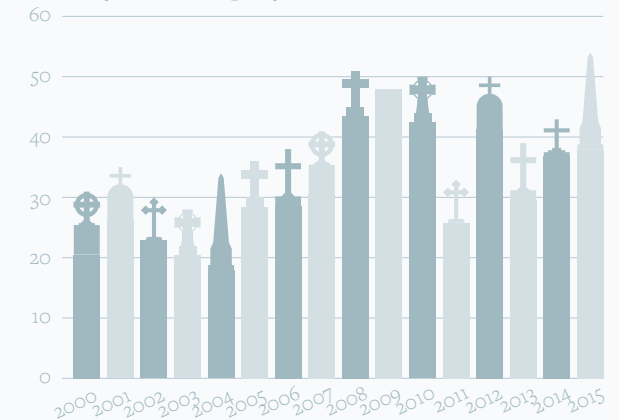


The increase in **serious ACC claims** is much less than the increase in motorcycling

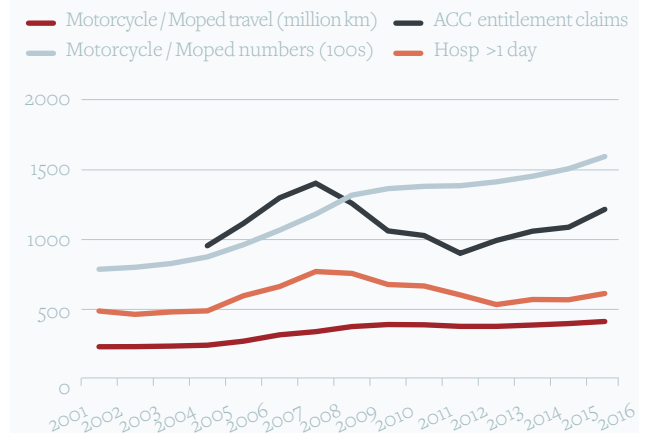


There is plenty left to be achieved

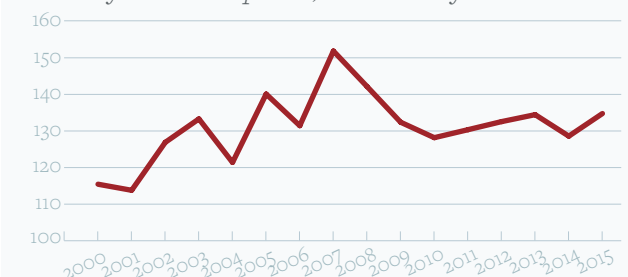
Motorcycle deaths per year



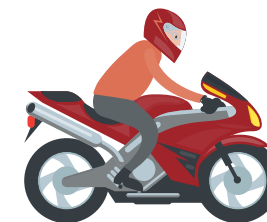
Indicators of motorcycle travel and safety by year



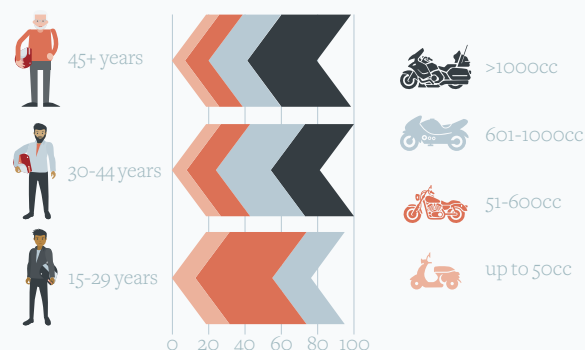
Motorcycle crashes per 10,000 motorcycles



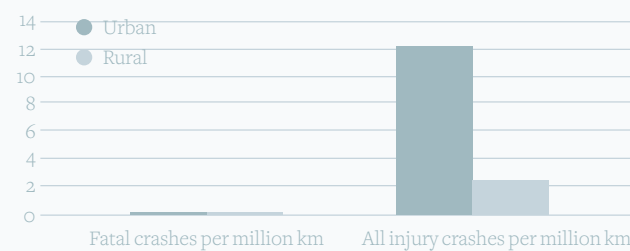
Motorcycle travel & safety information from travel surveys



Percentage of age-group travel on motorcycles in different cc rating groups



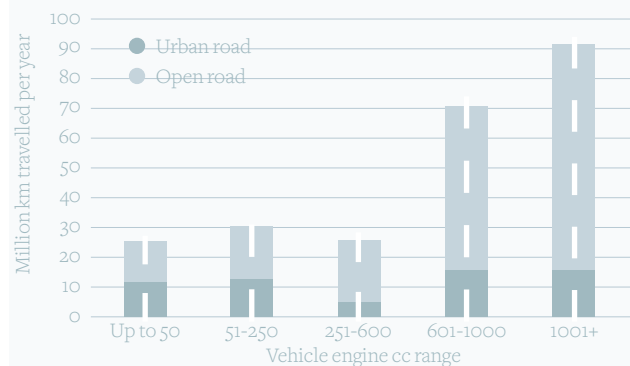
Fatal crashes and injury crashes per million km by urban and rural



“Rural crashes are more severe”

- Ministry of Transport travel survey analyses provide information on motorcycle travel by cc rating by urban road and rural road for 2011-2014
- These can be matched with crash statistics to provide estimates of crash rates per million kilometres ridden by urban and rural
- For travel survey analyses urban means speed limit 50km/hr and under and rural means speed limit greater than 50km/hr

Urban and open road motorcycle travel by engine size



“Older riders tend to own larger bikes and ride for recreation”

Older people predominantly use **larger motorcycles**

Similarly people under 30 are the main users of motorcycles lower than **cc 251**

In urban areas, there is on average around **1 injury crash** per 80,000 km of riding and in rural areas **1 injury crash** per 400,000 km of riding

1/4 of all riding is in **urban** areas and **3/4** on the **open road**

Rural crashes are biased towards more **severe crashes**

-related to the amount of riding done in rural areas

In urban & open road areas, on average motorcyclists have around one fatal crash per 5.5 million kilometres of riding

Motorcyclist age and gender related to risk



Since 2000...

Motorcyclists have become an older group

The average age of both killed & injured riders has moved from around under 35 to close to 40yrs



40yrs+

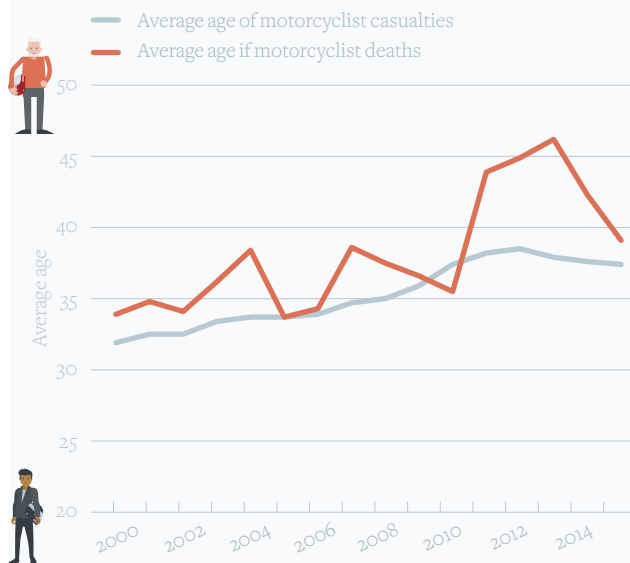


The % of injured riders 40+ has risen from 26% - 45%

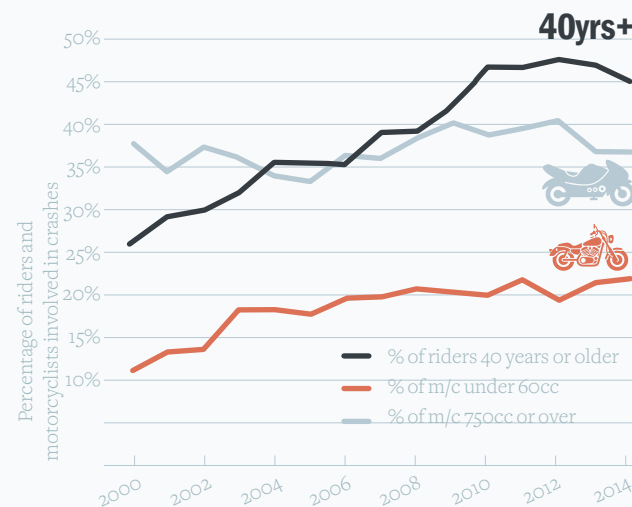
♂ The vast majority of motorcycle casualties are men

“Motorcyclists who are under 30 and over 40 are most at risk”

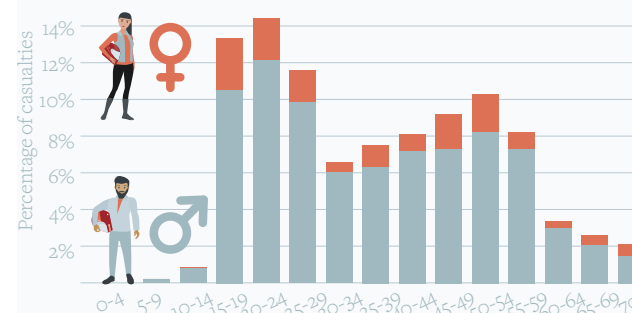
Average age of motorcyclists killed and injured by year



Percentage of riders 40 years and over, percentage of motorcycles under 60cc and percentage of motorcycles 750 cc and over involved in crashes by year



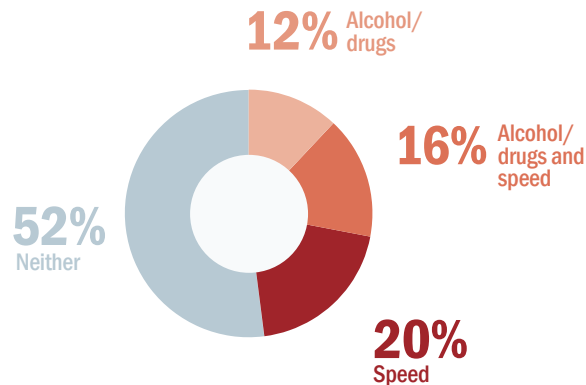
Motorcycle casualties by age and gender



- The average age of both deaths and injuries has increased from the low 30s in 2000 to the high 30s in 2014
- As this has happened the percentages of crashes involving 40years plus riders has increased considerably
- The percentage of small machines under 60cc has also increased from around 11% to over 20%

Alcohol, drugs & speed in motorcycle crashes

Motorcyclist alcohol/drugs and speed involvement in fatal crashes % fatal



The pie chart describes motorcyclist alcohol/drugs and speed involvement in fatal crashes. It shows that alcohol/drugs and or speed are involved in 48% of motorcycle fatal crashes with alcohol/drugs involved in 28%, speed alone in 20% and alcohol/drugs alone in 12%.

“More than half of fatal motorcycle crashes do not involve alcohol, speed or drugs”



Alcohol, drugs or speed impacted on almost **1/2** of **fatal** crashes



Speed

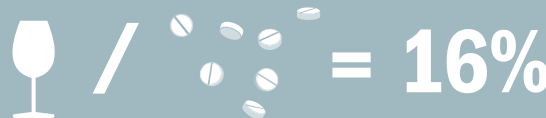
without alcohol or drugs was present in **20%** of fatal crashes



Alcohol or drugs

without speed were present in **12%** of fatal crashes

Alcohol or drugs were present with speed in a further 16% of crashes



Responsibility in crashes

The pie chart looks at the primary responsibility for single vehicle and multi-vehicle motorcycle crashes.

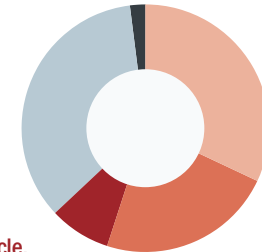
2% Single vehicle, no motorcyclist fault identified

33% Single vehicle, motorcyclist at fault

35% Multi vehicle, no motorcyclist fault identified

7% Multi vehicle, motorcyclist some responsibility

23% Multi vehicle, motorcyclist primary responsibility



56% Motorcyclists are **primarily responsible** for 56% of the crashes

In crashes with other road users, the **other road user** is more likely to be **primarily responsible**

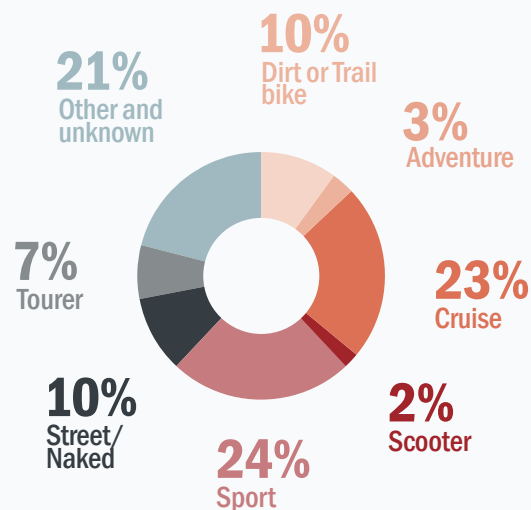


Type and cc rating of crashed motorcycles

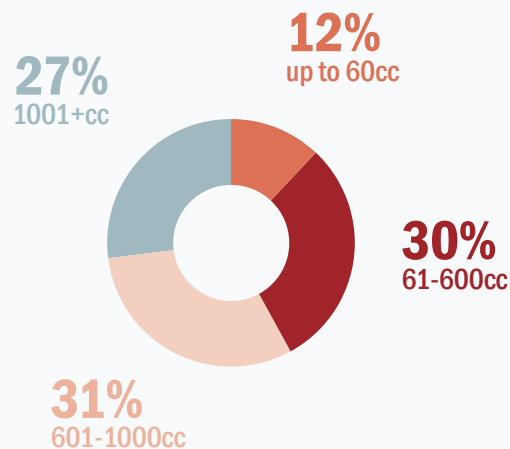
- We looked at the 100 most recent fatal motorcycle crashes on sealed roads
- The motorcycles were classified by type by a motorcycle expert

“Higher powered bikes 600cc and over are more likely to be involved in a fatal crash”

Percentage of sample of motorcycles in fatal crashes by type

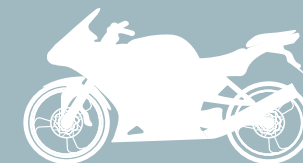


Fatally or seriously injured – annual average July 2009-June 2014



The bike types most in fatal crashes were
CRUISER BIKES
&
SPORTS BIKES

Scooters were in **2%** of fatal crashes

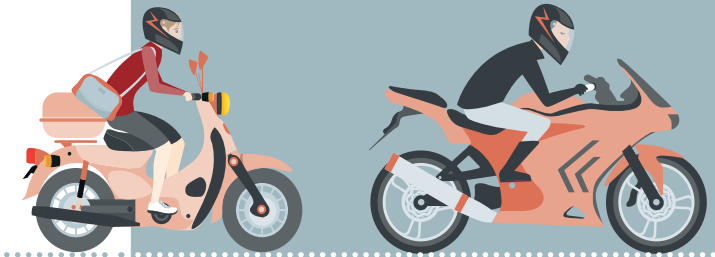


bikes over 600cc+ are involved in **58%** of fatal & serious injuries

Motorcycle size related to risk

- Most rural fatal crashes (60%) are on bikes known to be >749cc
- 40% of urban fatal crashes are on bikes >749 cc
- 79% of fatal crashes on 1000+ cc engines are on the open road

“Motorcyclists on big bikes tend to be injured more severely than those on smaller bikes – more rural high speed riding.”



On average riders on bikes  **>1000cc have around:**

13x

the risk of
**dying in
a year**
than those on
bikes up to

 **60cc**

6x

the risk of
**60-
250cc**
bike riders



2x

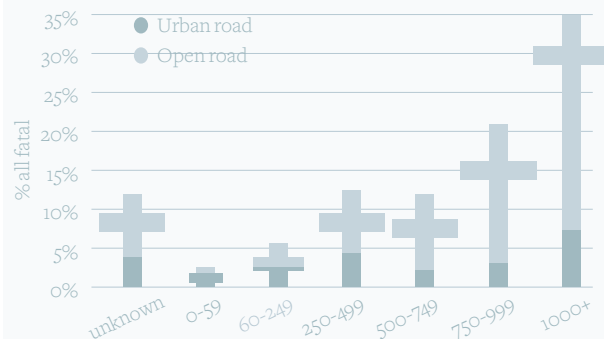
the risk
of those
between
**250-
1000cc**



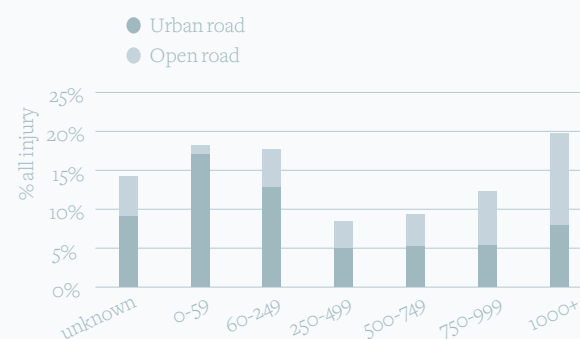
**Larger cc motorcycles
dominate in open road
injuries & fatalities**



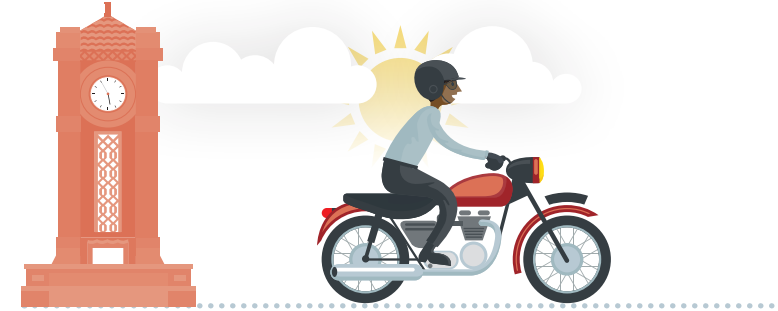
Percentage of fatal crashes by CC range by urban/ rural



Percentage of injury crashes by CC range by urban/ rural



What time & day do crashes and injuries occur?



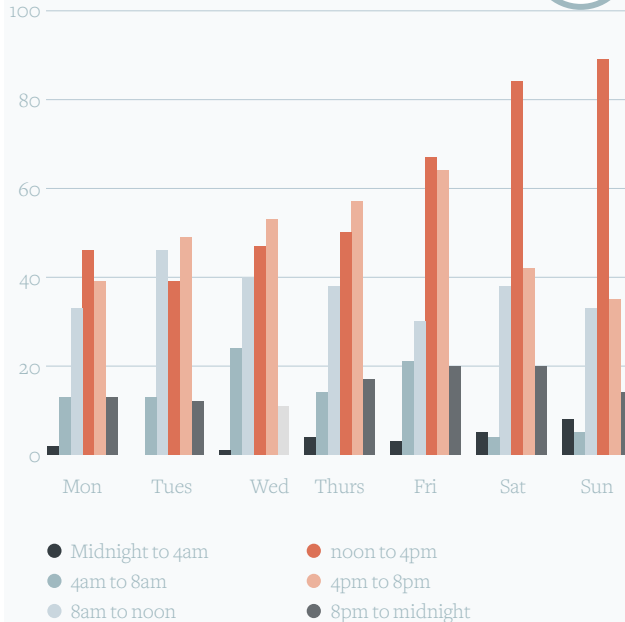
“Most motorcycle crashes occur between noon and 8pm with a large weekend peak between noon and 4pm ”

- The two charts on crashes show that most motorcycle crashes occur during the day

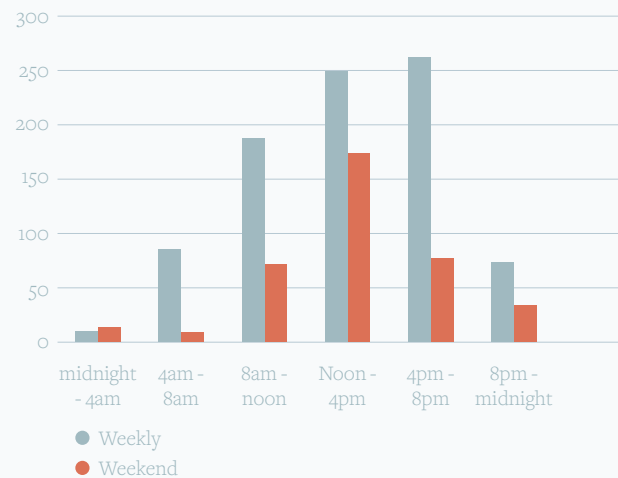
- This is particularly so at weekends when there is a large peak from noon to 4pm

- The chart on claims shows a similar pattern over the day

Motorcycle crashes in 2015 by day of week and time of day

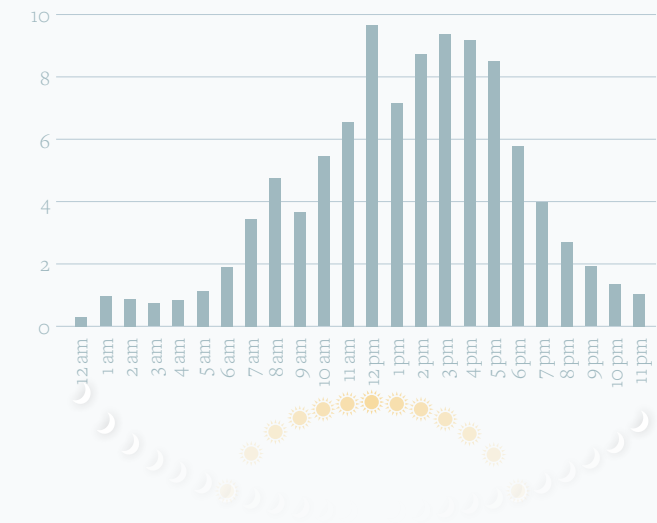


Motorcycle crashes by weekday/weekend



Average motorcycle claims by crash time in proportion from CY2007 to CY2016.

(CY means claims year)

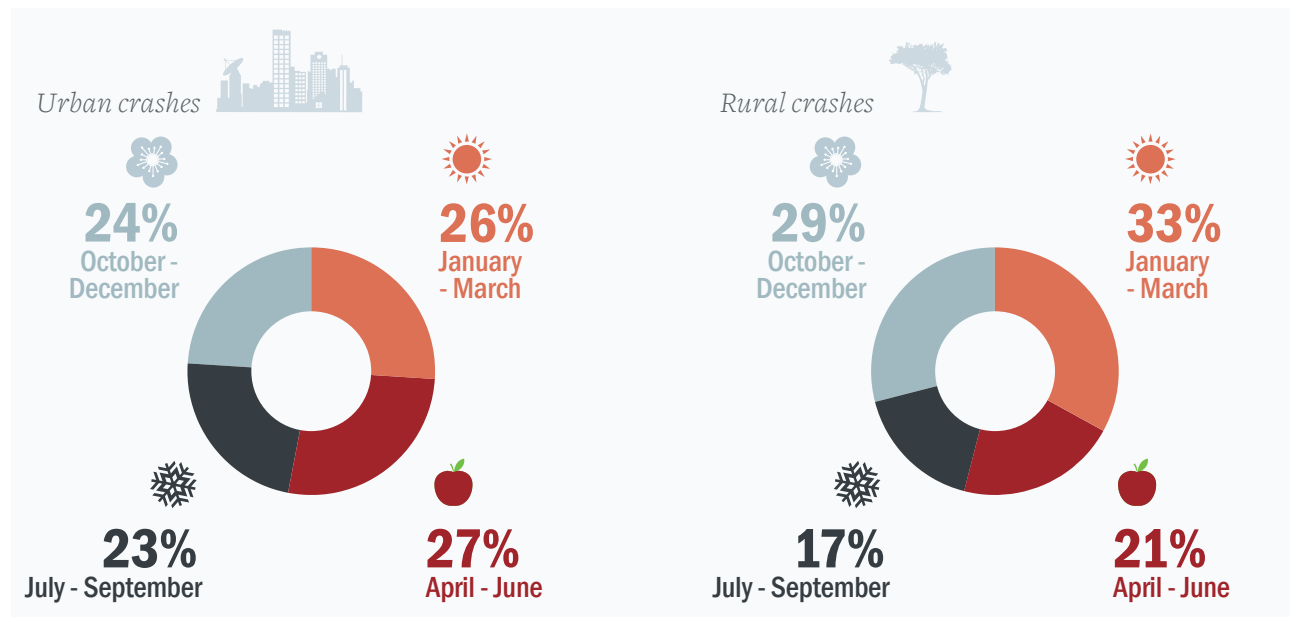


Time of year & where on the road network are motorcyclists crashing & getting injured?

- The percentage of fatal crashes which are rural varies by quarter between 72 and 85% and is highest in the months October to March-when conditions are more conducive to rural riding. This reflects the greater severity of higher speed rural crashes
- The percentage of injury crashes which are rural is much lower varying from 36 to 48% between quarters. The higher percentages are again in the better weather months as with the fatal crashes

- Rural crashes vary between quarters much more from 33% in January –March to 17% in July- September, a quarter unconducive to rural riding due to weather conditions

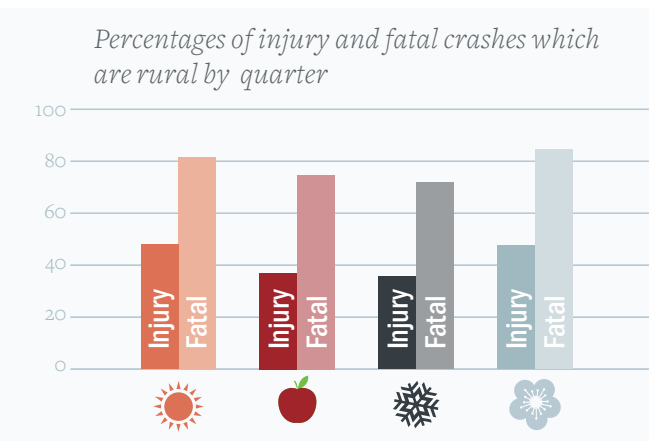
“Rural crashes peak during warmer weather with improved conditions for rural riding”



Motorcyclists tend to **ride, crash, and get injured** in the **warmer dryer months** of the year

Urban crashes are spread more evenly throughout the year than rural crashes

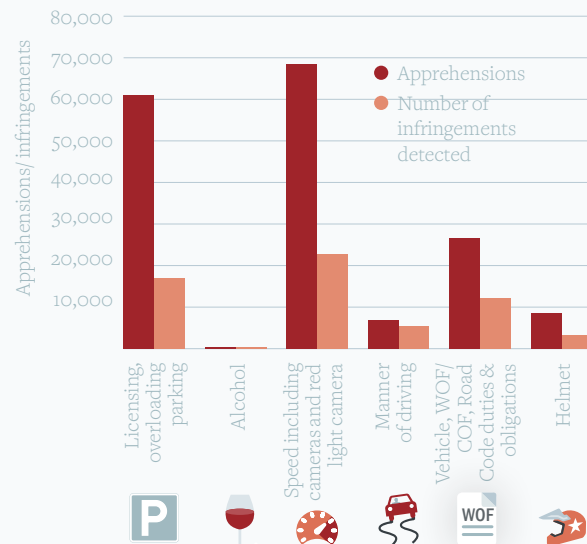
With the quarters differing from **27%** in April - June to **23%** in July - September



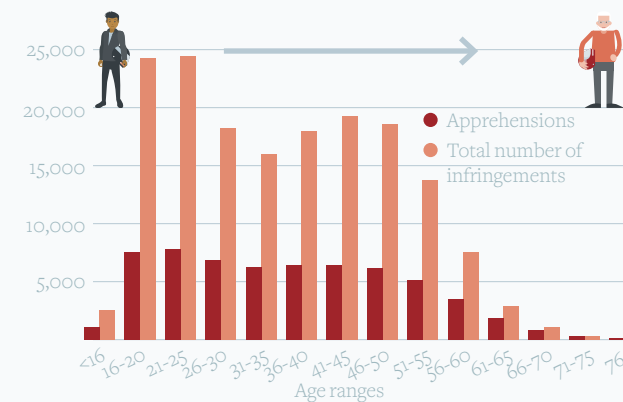
Motorcyclists' interactions with Road Policing

- When people are stopped by Police more than one infringement may be detected
- The infringement associated with the main reason they were stopped is the primary infringement type
- The charts include infringements from automatic enforcement (speed and red light cameras) under speed

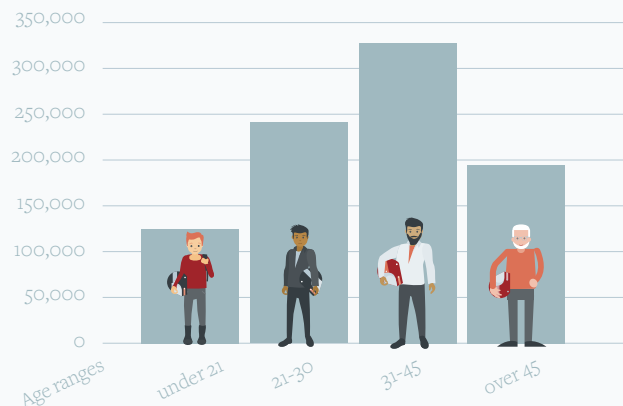
Apprehensions/Infringements vs primary infringement type



Apprehensions/Infringements vs rider age



Demerit points accrued by riders by age range

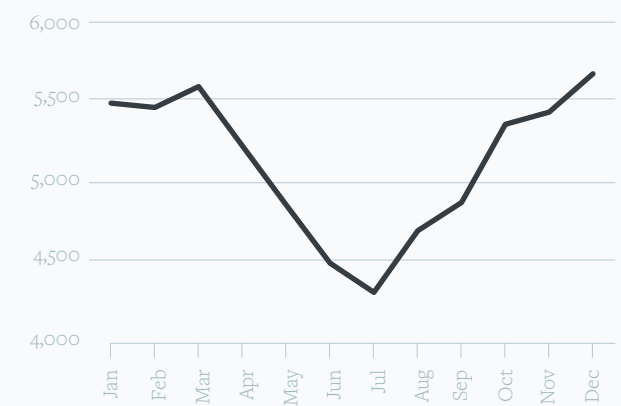


Motorcyclists are mainly caught for **SPEEDING & LICENSING/WOF INFRINGEMENTS**

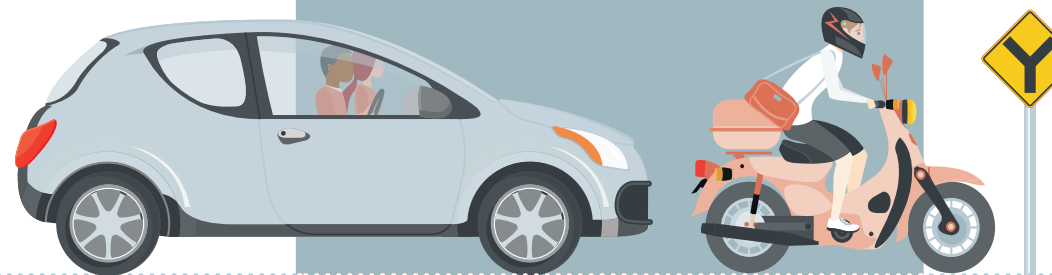


Teens & early 20 year olds are the main offenders, although demerit points accrued do not drop off until age ranges 50+ are reached

Police apprehensions of motorcyclists-2007-2016



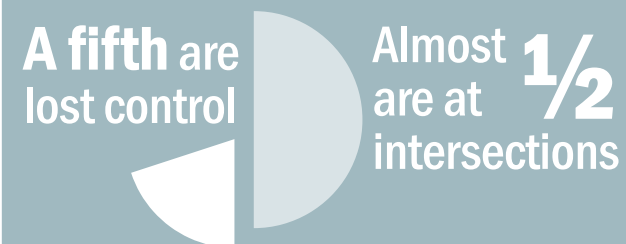
Vehicle movements in motorcycle crashes



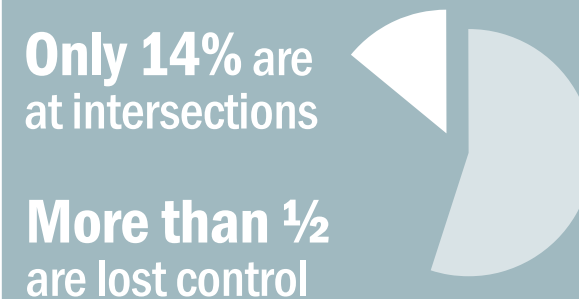
- These charts look at vehicle movements in motorcycle crashes involving injury or death
- Most urban crashes occur at intersections and most rural crashes involve losing control

“Be cautious at intersections & keep your bike under control when out on the highway”

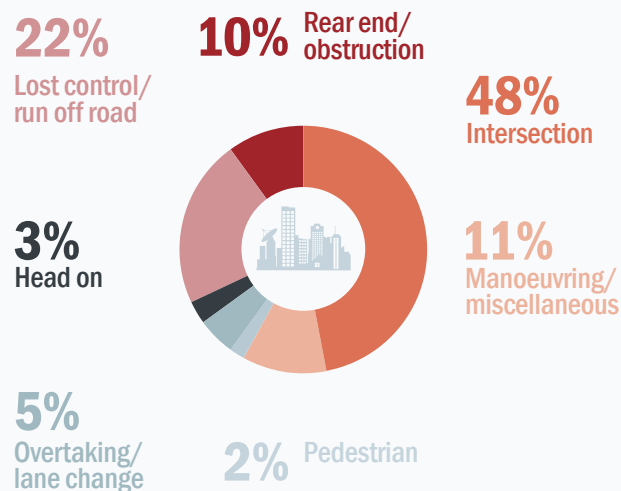
For urban crashes



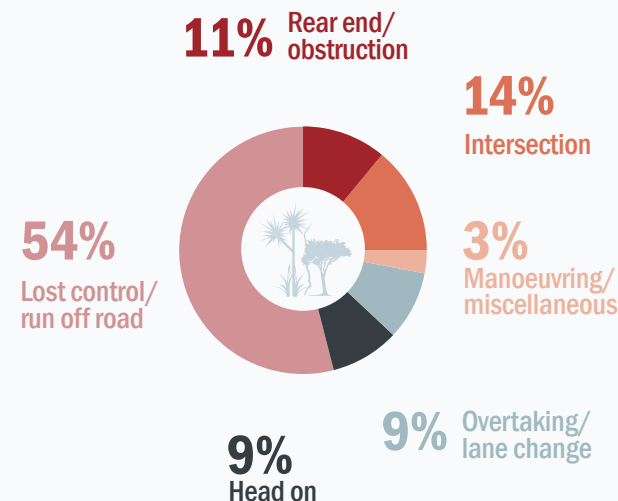
For rural crashes



Movements in urban injury or fatal crashes



Movements in rural injury or fatal crashes



The consequences of crashes – injuries



“Safety gear works – Wear it!”

- A quarter of ACC injuries are entitlement claims, serious enough for the claimant to have ongoing entitlements
- The average entitlement claim length is around 6 months
- Most injuries are fractures/dislocations and soft tissue injuries which include injury to internal organs
- The relatively small number of concussions and other brain injuries may relate to helmet use
- Most common injury sites are the knee and shoulder joints, other joints and other parts of limbs



Most injuries are at body places least protected
Indicates that safety gear is effective

Head injuries are relatively rare –
indicating helmets work

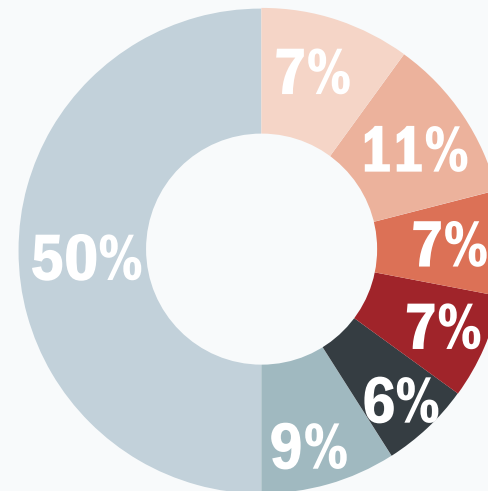
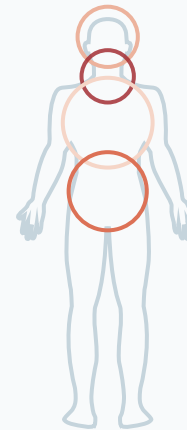


Low rate of face injury when it is a major impact site indicates **full face helmets work**

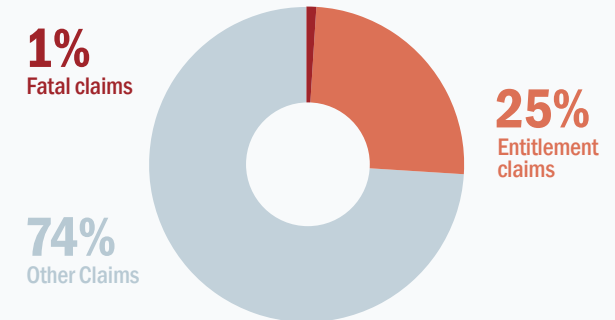


Site of ACC injuries

Chest
Head and face
Lower back/spine
Neck, back of head vertebrae
Unobtainable
Other
Limbs and extremities



ACC Motorcycle Claims 2007-2016



The result of crashes injury



Concussion/
Brain injury



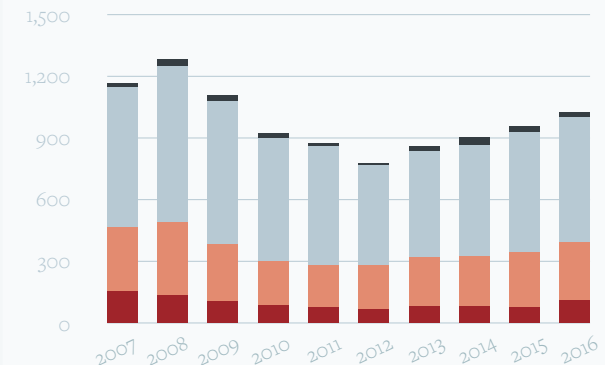
Soft tissue injury
(contusion, internal organ, strain)



Fracture/
Dislocation



Infected/ Non-infected laceration, puncture wound, sting



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Motorcycling has increased particularly in the older age groups



Motorcyclists who are under 30 and over 40 are most at risk



Safety gear works – wear it!



Rural crashes peak during warmer weather with improved conditions for rural riding



Rural crashes are more severe and urban crashes are more frequent



Higher powered bikes with engines over 600cc are involved in most fatal and serious injuries



Most motorcycle crashes occur between noon & 8pm with a large weekend peak between noon & 4pm



Older riders tend to own larger bikes and ride for recreation



Over half of fatal crashes do not involve alcohol, drugs or speed



Be cautious at intersections & keep your bike under control on the highway