INJURY BULLETIN

Queensland Injury Surveillance Unit

No 94 November 2006

Young Adults on the Road

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Summary points:

- Young adults on the road are most at risk on weekend evenings and nights (34% of pedestrian injuries, 28% of seriously injured drivers).
- Alcohol is involved in at least 10% of young drivers' crashes
- Males are much more likely than females to be injured riding motorbikes (90%), riding bicycles (85%) and as pedestrians (60 to 70%).
- Males are less likely than females to use seatbelts in cars and helmets on motorbikes and bicycles.
- Young adults involved in fatal crashes were much less likely to be using a seatbelt or wearing a helmet.
- Graduated Licence Systems (GLS) for young adult motor vehicle drivers and motorbike riders are proven to save lives.
- The Queensland's new GLS begins in July 2007 and includes a requirement for more supervised experience, a night time passenger restriction and a hazard perception test.
- Queensland GLS should be strengthened to include greater restrictions on night driving, greater passenger restrictions and a longer learner phase.
- More emphasis must be placed on modifying our urban environment to improve safety for cyclists and pedestrians. This includes dedicated cycle paths, reduced speed limits in built up areas, improved street lighting and pedestrian barriers.

Introduction:

This bulletin describes the patterns of injury sustained by young adults (individuals between 16 and 21 years of age) using the roads in Queensland. The road users include pedestrians, cyclists, motorbike riders and pillion passengers and motor vehicle drivers and passengers.

Queensland's road injury fatality rate is approximately equal to the national average, 8.2 per 100,000 people, or 1.2 per 10,000 registered vehicles.[1] In Queensland in 2003, the road fatality rate for 17 - 20 year olds was two-and-a-half times the fatality rate for the entire Queensland population.[1] Young adults are likely to be at high risk of injury on the road for a number of reasons including; they are risk takers,[2] they are inexperienced road users and they have greater alcohol consumption.[3]

We have used the Queensland Transport database and the Queensland Injury Surveillance Unit (QISU) database to give more complete information on the characteristics of these crashes and the resultant injuries.

We will discuss the relevant prevention issues as they relate to young people and the various modalities of road use.

Method:

Data for this bulletin was gathered from 2 sources.

1. QISU data was gathered by searching the QISU database for injuries occurring on the road, to people aged 16 to 21 years of age, for the eight year period from January 1998 to December 2005. During this period QISU collected data from Queensland hospital Emergency Departments (ED) covering a quarter of the population with approximately 80% ascertainment. Only individuals with an injury severe enough to require ED treatment are captured by the QISU database.
2. Queensland Transport data was gathered by searching the Queensland Transport 'RoadCrash' database for injuries occurring on the road to people aged 16 to 21 years of age, for the eight year period from January 1998 to December 2005. Queensland Transport data is gathered at

QISU collects and analyses data from emergency department injury presentations on behalf of Queensland Health. Participating hospitals represent three distinct areas of Queensland.

QISU publications and data are available on request for research, prevention and education activities.

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the site of the crash by the Queensland Police.
Injury severity is usually estimated by police at the scene of the crash. Injuries are classified as;
"Minor Injury" – first aid treatment only;
"Medical treatment" – treatment administered by a medical officer such as a doctor, nurse, paramedic or ambulance officer;
"Hospitalised" – transferred to hospital and thought likely to be admitted;
and "Fatal".

Results:

QISU data

From 1998 to 2005, 3978 people aged 16 to 21 presented to a QISU participating ED following an injury on the road. The type of road user is shown in Table 1. We would estimate around 2500 young adults each year in Queensland require ED treatment following an injury on the road.

QLD Transport data

The Queensland Transport database records 28,420 cases of young adult road users injured on the road during 1998 to 2005, approximately 3500 per year. The type of road user is shown in Table 1.
Around one third of these individuals (9013) were recorded as needing "hospitalisation", around 1130 per year.

Table 1
Total number of injuries over the 8 year period

	QISU			Qld Transport	
	n	%		n	%
driver vehicle	1548	39		15130	53
passenger vehicle	1055	26		9290	33
motorcycle	666	17		1846	6
bicycle	592	15		1043	4
pedestrian	117	3		1111	4
Total	3978	100		28420	100

Drivers of vehicles

QISU data

There were 1548 young drivers presenting to QISU participating EDs over the 8 year period. We would estimate 970 young drivers present each year to Queensland Hospitals. The median age of drivers was 19 years and 55% of drivers were male. Nearly half (48%) were triaged as urgent or above (requiring medical review within 30 minutes of arrival). There were 7 deaths in the ED and 13% of all drivers presenting required admission to hospital.
The greatest number of presentations was on a Saturday, with the fewest on a Tuesday (around half as many).
Injuries most frequently occurred to the neck, head and face (Table 2).

Table 2 Drivers - Body region injured

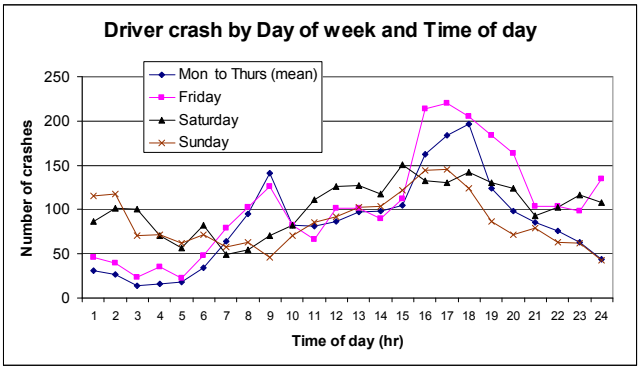
	%
neck	24
head and face	21
upper limb	14
multiple	14
lower limb	10
chest	9
lower back	5
abdomen	3

Of young adults who specified their activity while driving, 20% were involved in work related travel at the time of their crash.
Drivers who required admission to hospital (the more severe injuries) were more likely to be male (61%), were less likely to be involved in paid employment (13%) and were more likely to be injured on the weekend (28% of all admitted drivers).

QLD Transport data

There were 15130 young drivers recorded as being involved in crashes on Queensland roads over the 8 year period, approximately 2000 per year. There has been little change in this figure over the last 5 years but around 30% fewer young drivers per year were involved in crashes in the late 1990's. The median age was 19 years and 52% of drivers were male.
Around 550 young drivers a year require hospital treatment for an injury. An average of 25 young drivers die each year (see "Fatal crash" analysis below).
Most young drivers involved in crashes were driving a car (87%), 10% were driving a ute or van, 3% were driving a 4 wheel drive.
Whether a seatbelt was being used at the time of the crash was determined for approximately 85% of drivers (81% of males, 87% of females). Of these, 5% of males and 2% of females were not using a seatbelt at the time of the crash.
Most crashes occurred during commuter periods between 3pm and 6pm and 7am to 9am (Figure 1). An additional peak of crashes occurred on Friday and Saturday nights.

Figure 1



The most common contributing circumstances to the crash (as assessed by police at the scene of the crash) are young driver inexperience or lack of expertise (31.5%), lack of care and attention (18.5%) and excess blood alcohol concentration (BAC) (7.5%). Of note a further 3.3% of young driver crashes are assessed as being related to the influence of liquor or drugs, without having an excess BAC documented.

Fatal vehicle crashes

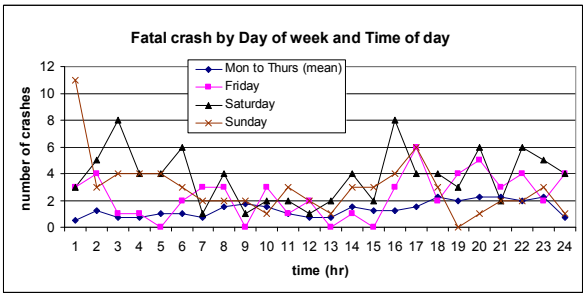
QLD Transport

Young adult drivers were involved in 348 crashes which resulted in a fatality over the eight year period, an average of 44 per year. It was the young adult driver who was fatally injured in 199 of these crashes (57%).

The median age of the young drivers involved in fatal crashes was 19 years, 74% were male. Seatbelt use was significantly lower – 24% were unrestrained.

The timing of fatal crashes is shown in Figure 2.

Figure 2



Passengers of vehicles

QISU data

Over the 8 year period, 1055 young adults presented to QISU participating EDs after being injured while a passenger in a vehicle that crashed. We would estimate 660 young adult vehicle passengers present each year to Queensland Hospitals after injury in a crash. The median age of these young adults was 18 years and 46% were male. Nearly half (46%) were triaged as urgent or above. There were 6 deaths in the ED and 16.5% of all passengers presenting required admission to hospital.

The greatest number of presentations was on a Saturday, with the fewest on a Tuesday (around one third as many).

Injuries most frequently occurred to the neck, head and face (Table 3).

Table 3 Passengers – Body region injured

	%
neck	20
head and face	19
lower limb	16
upper limb	13
multiple	11
chest	10
lower back	6
abdomen	5

QLD transport data

This data base recorded 9290 young adults injured in crashes as a vehicle passenger on Queensland roads over the 8 year period, approximately 1160 per year. There has been little change in this figure over the last 8 years. The median age was 18 years and 47% were male.

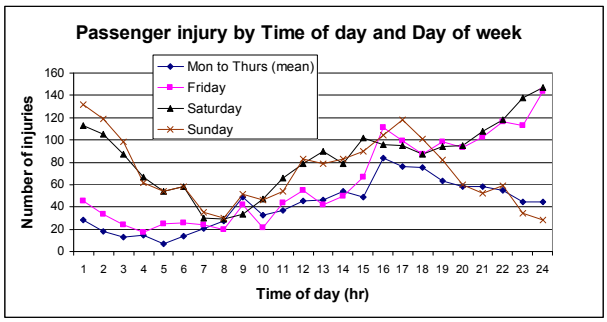
Around 400 young adults a year injured in crashes as a vehicle passenger require hospital treatment, with an average of 23 deaths each year.

Most passengers involved in crashes were in a car (82%), 11% were in a ute or van, 4.5% were in a 4 wheel drive.

Whether a seatbelt was being used at the time of the crash was determined for 84% of passengers. Of these passengers, 10% (13% of males and 8% of females) were not using a seatbelt at the time of the crash. Seatbelt use was significantly lower among those sustaining fatal injuries – 37% were unrestrained.

The timing of these passenger injuries is detailed in Figure 3.

Figure 3



Motorbikes

QISU data

A total of 666 young adults presented to QISU participating EDs over the 8 year period following an injury on a motorbike on the road. There were 618 riders and 48 pillion passengers (7%) injured. We would estimate 416 young adults present each year to Queensland Hospitals after being injured on a motorbike on the road.

The median age was 19 years, 90% of riders and 50% of pillion passengers were male. Nearly half (44%) were triaged as urgent or above. There was 1 death in the ED and 19% of all those injured on motorbikes presenting to ED required admission to hospital.

The greatest number of presentations was on a Saturday, with the fewest on a Tuesday. Sixty percent of pillion passengers were injured on the weekend.

Injuries most frequently occurred to the upper and lower limbs (Table 4).

Table 4 Motorbike injury - Body region injured

	%
lower limb	36
upper limb	30
multiple	17
head and face	8
chest and abdomen	4
neck	3
lower back	2

Of young adults who specified their activity while riding their motorbike, 9% were involved in work related travel at the time of their crash.

QLD Transport data

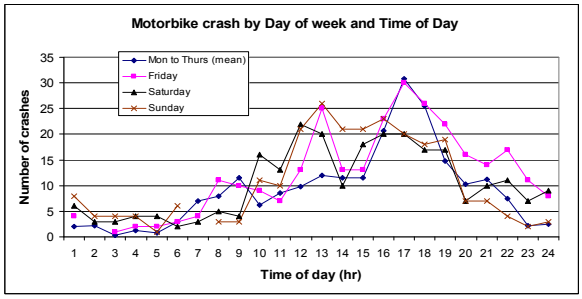
There were 1846 young adults recorded as being involved in crashes on a motorbike on Queensland roads over the 8 year period, approximately 230 per year. There has been a twenty-five percent increase over the last 8 years.

There were 1665 riders and 181 pillion passengers (10%).

Around 100 young adults a year involved in crashes on a motorbike required hospital treatment for an injury, with an average of 6 deaths each year. These fatal

crashes did not differ significantly from all motorbike injuries.
The median age of motorbike riders was 20 years, 92% of riders and 40% of pillion passengers were male.
Helmet use was recorded for 93% of riders. Of these 6% of male and 4% of female riders were not wearing a helmet at the time of their crash.
Pillion passengers were not wearing their helmets in 14% of crashes (24% of male pillion passengers and 7% of female pillion passengers).
The timing of these motorbike injuries is detailed in Figure 4.

Figure 4



Pedestrian

QISU data

Over the 8 year period, 117 young adults presenting to QISU participating EDs following an injury as a pedestrian. We would estimate approximately 70 young adults present each year to Queensland Hospitals after a pedestrian injury on the road.
The median age of those injured was 19 years, 69% were male. Nearly half (44%) were triaged as urgent or above. There were 3 deaths in the ED and 20% of all injured pedestrians presenting to ED required admission to hospital.

Table 5-Pedestrian injury – Body region injured

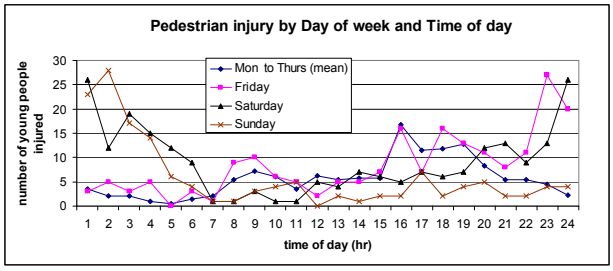
	%
lower limb	39
head and face	24
upper limb	23
multiple	5
abdomen	3
chest	2
lower back	2
neck	2

The greatest number of presentations was on a Friday, with the fewest on a Monday (less than half as many pedestrian injuries).
Injuries most frequently occurred to the lower limb (Table 5).

QLD Transport

There were 1112 young adults recorded as having sustained a pedestrian injury on Queensland roads over the 8 year period, approximately 140 per year. There has been no significant change in this figure over the last 8 years. Around 60 young adults a year required hospital treatment following a pedestrian injury. There was an average of 6 deaths each year. The median age of the injured pedestrians was 19 years, 59% of the pedestrians injured were male.
The highest rate of injury was on Saturday and Friday night (34% of all injuries) (Figure 5). The timing of pedestrian fatalities did not differ significantly from all pedestrian injuries. Of note, 63% of these fatalities occurred on the weekend.

Figure 5



Bicycle

QISU data

A total of 592 young adults presented to QISU participating EDs over the 8 year period following an injury while riding a bicycle on the road. We would estimate approximately 370 young adults present each year to Queensland Hospitals after such an injury.
The median age of those injured was 17 years, 85% were male. Approximately one third (30%) were triaged as urgent or above. There were no deaths in the ED recorded and 8% of those presenting to ED required admission to hospital.
Injuries most frequently occurred to the upper limb (Table 6).
Of young adults who specified their activity while riding their bicycle, 4% were involved in work related travel at the time of their crash.

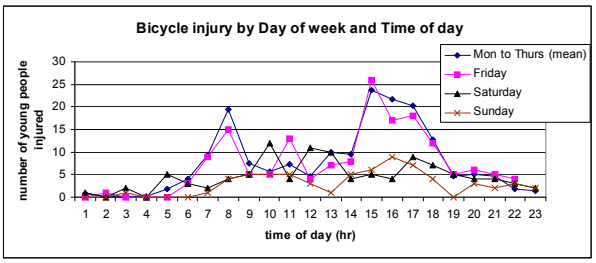
Table 6-Bicycle injury – Body region injured

	%
upper limb	42
lower limb	30
head and face	16
multiple	8
thorax	2
abdomen	1
neck	1

QLD Transport data

Over the 8 year period, 1044 young adults involved crashes while on a bicycle on Queensland roads over the 8 year period, approximately 130 per year. There has not been a significant change in this figure over the last 8 years. Around 40 young adults a year involved in crashes on a bicycle required hospital treatment for an injury, with an average of 1 death each year.
The median age of injured cyclists was 18 years, 81% of cyclists were male.
Helmet use was recorded for 83% of cyclists. Of these, 25% of cyclists (27% of male and 15% of female cyclists) were not wearing a helmet at the time of their crash. The timing of the bicycle injuries is detailed in Figure 6.
The 8 fatal bicycle crashes only differed significantly from all the bicycle injuries with regard to helmet use. One cyclist did not have helmet use recorded, but 4 of the other 7 were not wearing a helmet (57%).

Figure 6



Discussion:

The two databases produced similar results with regard to young adults involved in motor vehicle crashes and pedestrians. The QISU database suggests a higher rate of motorbike and bicycle crash on the road. This is likely to reflect a lack of police involvement in many of these crashes, particularly if a motor vehicle is not involved in the crash. The differences in numbers of hospitalisations between the two databases reflects the difficulty of the severity estimate the police are required to make at the scene of a crash.

Young drivers were the largest group of young road users injured, nearly 40% of ED presentations and around half of police reported injuries.

There was not a significant gender difference for young drivers and passengers injured. However males were much more likely to be injured on motorbikes (around 90%), on bicycles (around 85%) and as pedestrians (60 to 70%).

The median age of those injured was 19 years for most road user categories, bicyclists (median age 17 years) and vehicle passengers were younger (median age 18 years).

Young adults were infrequently injured travelling to and from work or while working.

Injuries were assessed as needing urgent assessment and treatment (triage category ≤3) in around 45% of cases. This was fairly even across road user groups, except for being significantly lower (30%) for bicycle injuries.

Admission rates were lowest among bicycle injuries (8%), with highest rates among pedestrians (20%) and motorbike riders (19%).

The neck was the most common body region injured in motor vehicle crashes (20 to 24%). Limb injuries were more frequent in other road user crashes, lower limb most commonly injured in motorbike riders and pillion pedestrians and the upper limb in bicyclists.

Males were consistently less likely to use 'safety equipment' (Table 7).

Table 7

Percentage **not** using 'safety equipment'		
	Male	Female
Driver Vehicle	5%	2%
Passenger vehicle	13%	8%
Fatal vehicle	32%	25%
Motorbike rider	6%	4%
Motorbike pillion	24%	7%
Bicycle	27%	15%

Weekend evenings and weekend nights are high risk times for motor vehicle crash injuries (particularly fatal injuries and passenger injuries) and pedestrian injuries.

Crashes involving motor vehicles, motorbikes and bicycles are more frequent on weekday evenings than weekday mornings, probably as a result of driver and rider fatigue.

Prevention:

Drivers of vehicles

Licensing and training

Graduated Licence Systems (GLS) are programs for phasing in on-road driving, allowing beginners to get their initial experience under conditions that involve lower risk and introducing them in stages to more complex driving situations. Various forms of GLS (also known as Graduated Drivers Licensing—GDL) have been in use around the world since the early 1990's.

According to the recent Cochrane Review,[4] GLS must have a minimum of three stages that allow the new driver to progress from lower to higher risk driving conditions:

1) An initial period limited to supervised driving,
2) An intermediate stage allowing for unsupervised driving under one or more conditions that involve lower risk, and
3) Unrestricted licensure.

Lower-risk conditions during the intermediate stage include: night curfews, limited number of passengers, lower BAC, roadway restrictions, or limitations on the number of violations, convictions, crashes, or demerit points.[4]

Although each GLS has some distinct features, the main provisions in the various GLS generally fall into 7 categories: minimum age for a learner permit, mandatory waiting period before applying for intermediate license, minimum hours of supervised driving, minimum age for intermediate license, night time restriction, passenger restriction, and minimum age for full licensing.[5]

The existing evidence shows that GLS is effective in reducing the crash rates of young drivers.[4] A recent review of GLS in the US estimated the reduction in fatal crashes to be around 20% in states with GLS compared with states with none.[6] They also found that the greatest benefit appears to be in programs that include age requirements plus: 3 or more months of waiting before the intermediate stage, night-time driving restriction, and either supervised driving of at least 30 hours or a passenger restriction.[6]

The components of GLS that are associated with the greatest reduction in crashes amongst novice drivers are; restrictions on night driving, passenger restrictions and a longer learner phase [6]. The evidence for the effectiveness of the other components is less certain. Most programs of GLS call for a minimum number of supervised practice hours in the learner phase, further research is required to determine the efficacy of this.[7,8]

Driver training is sometimes included in novice driver programs, however this has not been found to be of benefit in reducing crashes and may in fact be detrimental if linked to a time discount allowing earlier licensure.[9,10]

At this time in Australia, only Western Australia has a

GLS program in place which incorporates all the components listed above.

Queensland's proposed licensing changes are due to commence from July 2007[11] and include:

- lowering the minimum learner age to 16 and extending the licence period to 12 months
- gaining 100 hours of certified supervised on-road driving experience for learners under 25s
- restricting all mobile phone use, including hands-free, blue-tooth accessories, and loud-speaker functions, for learner and P1 provisional licence holders under 25
- restricting mobile loud-speaker functions for supervisors and passengers of learner and P1 provisional licence holders under 25 while under instruction
- motorbike learners will be required to hold a car provisional licence for 12 months prior to gaining a motorbike learner licence
- introduction of a two-phased P1 and P2 provisional licence system
- compulsory L plates (a black L on a yellow background) and P plates (a red plate for P1 and green plate for P2)
- peer passenger restrictions (only carrying one passenger aged under 21) from 11pm to 5am for P1 under 25
- high-powered vehicle restrictions for provisional drivers under 25
- after 12 months on P1, licence holders must pass a hazard perception test to progress to P2
- late night driving and other restrictions for disqualified and suspended young drivers

Alcohol and Drugs

- There is strong evidence that blood alcohol concentration (BAC) legislation and lower allowable BAC for younger or inexperienced drivers reduce the number of crashes.[12,13] (Queensland has a zero BAC limit for young and inexperienced drivers)

- Evidence shows that raising the minimum legal drinking age reduces the number of crashes.[13]
- It has been demonstrated that random blood alcohol level checkpoints reduce the number of crashes.[13,14]
- It is likely that price increases will reduce alcohol consumption among young adults, and in turn will reduce many of the negative consequences of alcohol consumption.[15]

Restraint use

- There is strong evidence suggesting that legislation mandating seatbelt use and effective enforcement of this legislation increases seatbelt use and reduces fatality and injury rates.[16]
- Vehicle reminder systems may improve seatbelt use[17] and may be an effective strategy for the future.[18]

There is limited published evidence evaluating education or publicity campaigns directed toward increasing young adults' use of seatbelts.

Passengers of vehicles

Restraint use

Similar prevention strategies to those described for drivers are effective for passengers.

Licensing

Restrictions on passengers travelling in inexperienced drivers' vehicles is proven to reduce the numbers of young adult drivers and young adult passengers involved in crashes.[7]

Alternative transport

It is likely that the provision of alternative, cost effective modes of transport for young adults, particularly over the weekend, would reduce the numbers of young adult passengers involved in crashes. There are no published studies investigating this option.

Motorbike

Licensing and Training

GLS for novice motorbike riders is less widely used around the world than for novice car drivers. There is limited published evaluation of GLS for motorbikes but a New Zealand study suggests it is effective at reducing crashes and hospitalisations.[19]

The optimal components of a motorbike GLS program remain uncertain. Suggested measures include supervision, zero BAC limit, passenger restriction, night driving restrictions and advanced exit testing.[20]

Measures that have been partially evaluated and have not demonstrated a reduced crash rate include engine size or power limits and education and training programs.[20,21]

Improved visibility

Increased use of reflective or fluorescent clothing, white or light coloured helmets, and daytime headlights are simple, cheap interventions that could considerably reduce motorbike crash related injury and death.[22]

Helmets

Motorbike helmets reduce the risk of mortality and head injury in motorbike riders who crash.[23] Helmet use is greatly increased among all motorbike riders when helmet use legislation is combined with enforcement.[24] There is no published evidence evaluating education programs designed to improve helmet use.

Alcohol and Drugs

See "Drivers of vehicles"

The effects of alcohol consumption on the ability to ride a motorbike are more significant than its effects on the ability to drive a car, leading to some suggestions that motorbike riders should be required to have a zero BAC limit.[21]

Pedestrian

We have demonstrated that most pedestrian injuries to young adults occur in the evening or at night, particularly on the weekend. This finding is consistent with previously published data,[25] and is related to consumption of alcohol.[25]

Pedestrian education is a possible prevention strategy. However there are no published evaluations of trials of pedestrian safety education in this age group, or even in healthy adults generally.[26]

Measures which have been proven to reduce pedestrian injury and are applicable to young adults include;

- Motor vehicle modification – this has been extensively investigated and appears likely to be

successful at reducing the severity of pedestrian and cyclist injuries. This intervention is yet to be implemented widely by motor vehicle manufacturers despite its low cost.[27]

- Traffic speed reduction – using road engineering, traffic calming and reduced speed limits.[28]
- Separating pedestrians from vehicles – using barriers and fences to channel pedestrians to safe crossing areas.[28]
- Increasing pedestrian visibility – the most useful intervention is likely to be improved roadway lighting.[28]

Interventions to reduce alcohol and drug use among young adults (as discussed above) is also likely to have a role in reducing pedestrian injury.

Bicycle

The prevention of injuries to cyclists, including young adults on bicycles is likely to require a multi-faceted approach.

Bicycle helmets

Bicycle helmets are proven to significantly reduce the severity of injury to the head and upper face of injured cyclists and reduce the incidence of fatal bicycle injury.[29,30] In 1991/92, the Queensland Government introduced legislation to make the wearing of bicycle helmets compulsory for all cyclists and a penalty was introduced in January 1993 for failure to wear a helmet. Despite this, in our study only 75% of cyclists were wearing a helmet. This finding is similar to other published Australian studies.[31]

Helmet use is even lower among cyclists killed on the road, 57% were unhelmeted young adults in this study. An Australia wide review found 40% of all cyclists killed were unhelmeted and 76% of 15 to 19 year olds killed were unhelmeted.[32]

There are no published data on the efficacy of programs to encourage helmet use among young adults. School based programs using peer leaders have shown some ability to improve helmet use in 10 to 12 year olds.[33] Best published results have come using interventions that combine legislation, education and subsidised helmets.[34,35]

Environment

Built environment changes are proven to reduce injury to cyclists. This includes bike paths (unidirectional and completely separated from other users), reducing vehicle speeds and intersection design to assist cyclists.[36]

Education

There are no published reports of the efficacy of educating young adults about safe cycling behaviour.

Motor vehicle modification

As noted above motor vehicle modifications reduce the severity of injuries cyclists sustain.

It has been demonstrated that American pedestrians and cyclists are much more likely to be killed or injured than their European counterparts, when measured by a per-trip or a per-kilometre basis.[36] It is likely that the coordinated use of a wide range of strategies by European countries is responsible for this difference. This includes better facilities for walking and cycling, lower vehicle speeds (traffic calming), better urban design, disincentive to motor vehicle use, greater traffic education (for drivers and children), stricter legislation and enforcement.[36]

Currently In Queensland

The Queensland Road Safety Strategy 2004-2011[37] identifies 4 key outcomes

1. Safe attitudes and behaviours, and optimal health outcomes in the event of a crash
2. Safe roads, safe road environments and safe management of traffic
3. Safe vehicles that reduce injury severity and maximise the chance of avoiding a crash
4. A community that values road safety as a priority

Priorities within this framework include;

- Improving the safety of young drivers, motorbike riders
- Reducing alcohol use while walking and driving
- Safer roads for pedestrians and bicycles

The new Queensland GLS described above is to be introduced on 1 July 2007.

A form of GLS for motorbike riders is already operating for young and inexperienced riders which includes a zero BAC limit and a motorbike power restriction. The new GLS will require learner motorbike riders to have held a provisional car licence for at least one year before applying for a learner motorbike licence.

NightLink is an all night public transport services that runs on Fridays and Saturdays. It includes buses, trains and flat fare taxis and secure taxi ranks with marshals.

Recommendations

- This data and other research support the strengthening of the GLS for cars and motorbikes to include restrictions on night driving, greater passenger restrictions and a longer learner phase.
- Late night public transport programs (like the 'Nightlink' program) should be expanded.
- Motor vehicle manufacturers should be given greater encouragement to include restraint reminder devices, and to modify motor vehicles to reduce pedestrian and cyclist injury
- Motorbike rider visibility should be targeted as a low cost, effective intervention that will reduce crash rates.
- Greater resources dedicated to built environment changes for cyclists and pedestrians including dedicated cycle paths, reduced speed limits in built up areas, improved street lighting and pedestrian barriers.
- Compulsory bicycle helmet legislation should be rigorously enforced.
- Local issues should be addressed at a community level through Safe Communities and programs like 'TravelSmart' including information gathering, education and environmental modification

Acknowledgements

Queensland Transport - for access to their database and Renae Moore for reviewing the bulletin.

Resources/Links

Flowchart of Proposed Queensland GLS
http://www.transport.qld.gov.au/qt/LTASinfo.nsf/ReferenceLookup/young_drivers_diagram.pdf/$file/young_drivers_diagram.pdf

Learn to drive – Queensland Transport
http://www.transport.qld.gov.au/qt/LTASinfo.nsf/index/learningtodrive_home

Young Driver Initiatives (Queensland)
http://www.transport.qld.gov.au/youngdrivers

Q-Ride
http://www.transport.qld.gov.au/qt/LTASinfo.nsf/index/learningtodrive_qride

Motorbike safety advice
http://www.rideforever.co.nz/index.html

10 steps to bicycle safety
http://www.nhtsa.dot.gov/people/injury/pedbimot/bike/10Smartroutesbicycle/pages/smartroutes.htm#1

Qld Safe Communities Support Centre
www.safecommunitiesqld.org

Travelsmart
http://www.travelsmart.gov.au/

References

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