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REVIEW OF MOTORCYCLE LICENSING AND TRAINING

by

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Title and sub-title: Review of motorcycle licensing and training

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Abstract:

This report reviews current motorcycle licensing and training systems in Australia and compares these to best practice for motorcycle licensing and training. An optimal model for motorcycle licensing and training in Australia is proposed.

Motorcycle riding requires higher levels of both vehicle control and cognitive skills than car driving. In addition, the potential outcomes of any failure on the part of the rider, other road users or the road environment are severe. In order to achieve substantial improvements in the safety of motorcycling, the rider training and licensing systems may need to be quite different than those for cars. The research suggests that any safety benefits of motorcycle licensing and training probably result more from reductions in the total amount of riding than from reductions in crash risk per kilometre travelled.

The system proposed should lead to improved safety outcomes because of the increased minimum age, longer provisional period and the greater duration of training. The need for a restricted licence with the same conditions as the motorcycle provisional licence, to apply to riders who already have a full car licence, must be underlined.

In an optimal model, and following the principles of graduated licensing, granting a motorcycle licence should be seen as a higher step in licensing than granting a car licence, in the same way that a heavy vehicle licence is considered a more advanced form of licence than a car licence.

Training and licensing systems operate as a system and changing the mix of components can alter the effectiveness of individual components. Any potential interactive effects should be carefully examined before changing a proposed or current training and licensing system.

Key Words:
Motorcycles, motorcyclist training, motorcyclist testing and licensing

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Preface

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Contents

Figures

Tables

EXECUTIVE SUMMARY

This report reviews current motorcycle licensing and training systems in Australia and elsewhere and compares these to best practice for motorcycle licensing and training. An optimal model for motorcycle licensing and training in Australia is proposed.

Review of rider licensing, training and testing systems worldwide

A review of worldwide literature concluded that in most jurisdictions, the motorcycle licensing system is similar to that for car drivers, with similar stages (learner, provisional and full licence) and similar minimum ages and duration for these stages. The restrictions associated with these stages include those shared by car drivers (e.g. zero BAC and speed limit restrictions) but include additional restrictions such as engine capacity or power-to-weight restrictions and restrictions on carrying pillion passengers. Some licensing systems include compulsory training, while many others have high rates of voluntary uptake of training.

The literature review also found that crash rates are very high for young riders. Learner riders do not share the low crash rates found for learner car drivers. The increase in riding and crashes by older riders appears to be a worldwide phenomenon which the existing training and licensing systems are not coping well with. In many jurisdictions, the licensing system allows motorcycle licences to remain current at no additional cost to people who hold car licences. This makes it relatively easy for retired riders to take up riding again.

Review of effectiveness of licensing, training and testing measures

The research suggests that any safety benefits of motorcycle licensing and training probably result more from exposure reduction (a reduction in the total amount of riding) than from crash risk reduction. This is likely to be a consequence of the higher levels of both vehicle control and cognitive skills motorcycle riding requires than car driving. In addition, the potential outcomes of any failure on the part of the rider, other road users or the road environment are severe. In order to achieve substantial improvements in the safety of motorcycling, the rider training and licensing systems may need to be quite different than those for cars.

While there is little empirical evidence to demonstrate improvements in motorcycle safety as a result of training, training is encouraged and, in some jurisdictions, is compulsory and often subsidised. In terms of best practice in training:

- Compulsory training appears better than voluntary (possibly because of reductions in exposure rather than risk reduction)
- There is no real evidence of particular programs or components leading to reductions in crash risk
- An increased emphasis on roadcraft (without reducing the time spent on vehicle control skills) appears to be necessary at both the learner and licence levels

- Longer or more costly compulsory programs might also be expected to lead to larger reductions in riding

- Hazard perception training holds promise for the future.

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

Comparison of Australia with best practice

The current Australian motorcycle licensing and training systems were compared with best practice in terms of motorcycle licensing, training and testing.

In terms of licensing, Victoria is the only Australian State that has a higher minimum learner and provisional licensing age requirement for motorcycles than cars. There is no minimum period for which the learner licence must be held in Tasmania, while in other States, holding periods range from three months to 12 months. In Queensland, Western Australia and New South Wales, holding periods are waived for applicants of a certain age. All Australian licensing systems require a minimum holding period for the provisional/probationary licence and the duration of provisional licensure varies from one to three years. However, in most jurisdictions, the duration of provisional licensure is reduced considerably for those who already hold a full car driver's licence, or who are of a certain age.

The Australian Capital Territory has the longest maximum length of learner permit at two years, followed by Victoria at 15 months and Queensland and Tasmania, both at 12 months. New South Wales and the Northern Territory have the lowest at six and three months respectively, although the permit can be renewed up to three times in the Northern Territory. There are no maximum holding periods for learner permits in New Zealand.

Many of the other restrictions do not apply to those riders who have already held a provisional licence for a car. This practice limits the extent to which motorcycle licensing is graduated and limits the potential safety benefits of the licensing system.

In terms of training, Tasmania, New South Wales, Australian Capital Territory and South Australia are consistent with best practice in requiring satisfactory completion of compulsory training courses for the issue of learner motorcycle licences. However, only New South Wales requires compulsory training for the issue of a provisional motorcycle licence. In New Zealand, training is not compulsory to obtain either a learner permit or provisional licence.

The length of training currently required in all jurisdictions is less than that considered to be best practice. Thus, increasing the length of training by incorporation of additional roadcraft emphasis and practice of vehicle control skills could bring these jurisdictions closer to best practice, as would including off-road training for the provisional licence with on-road training.

For testing, the research evidence for establishing best practice is relatively weak but research and practice tend to favour off-road testing to obtain the learner licence and on-road testing for the provisional licence. With the exception of New Zealand, most jurisdictions do not have on-road testing for the provisional motorcycle licence. In New

Zealand, riders wishing to progress from the provisional to full licensure stage must pass the Full Licence Test (FLT) which is conducted on-road. The ability of off-road tests to measure even vehicle control skills at realistic speeds is limited.

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

Optimal model and adaptation for implementation

In an optimal model, and following the principles of graduated licensing, granting a motorcycle licence should be seen as a higher step in licensing than granting a car licence, in the same way that a heavy vehicle licence is considered a more advanced form of licence than a car licence. If this option is not possible, an alternative would be to increase the minimum age for solo riding to be equivalent to the minimum age for solo car driving. Thus, the minimum age for obtaining a learner motorcycle licence would become equivalent to the minimum age for obtaining a provisional car drivers licence.

The proposed system should lead to improved safety outcomes because of the increased minimum age, longer provisional period and the greater duration of training.

The need for a restricted licence with the same conditions as the motorcycle provisional licence, to apply to riders who already have a full car licence, must be underlined.

It is important to be aware that training and licensing systems operate as a system and changing the mix of components can alter the effectiveness of individual components. Any potential interactive effects should be carefully examined before making changes to any current or proposed training and licensing system.

1.0 INTRODUCTION

1.1 BACKGROUND

Motorcyclists are among the most vulnerable road users, in Australia and internationally. Motorcycle riding is much more likely to result in injury than car travel, and the resulting injuries are likely to be more severe for motorcyclists than for vehicle occupants. Fatality and serious injury rates have been found to be more than 20 times greater for motorcyclists than car drivers, with brain and orthopaedic injuries prevalent.

Motorcycle riders are over-represented in fatality and serious injury crashes in all Australian jurisdictions. While motorcycles comprised only 3 percent of all registered vehicles on Australian roads in 2002, motorcycle riders accounted for 13 percent of all fatal crashes.

Over the past five years, the number of deaths and serious injuries to motorcycle riders in Australia has increased. The number of motorcycle riders and pillions killed in Australia increased from 176 in 1999 to 196 in 2004. Between 1998 and 2000, for every 100 million kilometres travelled by motorcycle riders, there were 14.9 fatalities. This is 29 times the number recorded by operators of other vehicle types, who recorded 0.5 fatalities per 100 million kilometres travelled.

There appear to be two main rider groups of concern; younger riders aged 16-24 years who continue to be over-represented in casualty crash rates, and older riders aged 30-54 who are showing an increase in serious injury and fatality crash rates.

This report reviews current motorcycle licensing and training systems in Australia against best practice for motorcycle rider training, and suggests a preferred model.

1.2 AIM OF THE PROJECT

The aim of the project is to review current motorcycle licensing and training in Australia against best practice for motorcycle rider training and to suggest a better model for motorcycle licensing and training in Australia.

1.3 STRUCTURE OF THE REPORT

The report begins with a summary of motorcycle safety issues and trends in Australia and then reviews motorcycle licensing and training in those jurisdictions.

The second chapter provides an examination of what are the best practice components of the licensing and training systems reviewed in Chapter 1. The current and proposed Australian systems are then compared to these best practice components. An optimal motorcycle licensing and training model and curriculum for implementation in Australia is proposed.

In recognition that the best practice model may not be deliverable in the short term, the training requirements to support the licensing option are then described. As part of the analysis, advice as to appropriate testing and retesting requirements is provided.

2.0 CURRENT PRACTICES IN MOTORCYCLE LICENSING AND TRAINING

The chapter begins with a summary of motorcycle safety issues and trends in Australia and then reviews motorcycle licensing and training in Australian jurisdictions. The chapter also includes an examination of motorcycle licensing and training in some of the major international jurisdictions.

As defined in the Australian Design Rules, a motorcycle has an engine cylinder capacity exceeding 50ml or a speed exceeding 50 km/h. A moped has an engine cylinder capacity not exceeding 50 ml and a speed not exceeding 50 km/h. Both mopeds and motorcycles can have a scooter style of design, where feet are placed on a platform ('step through' style), or a motorcycle design, where the rider sits astride the moped/motorcycle with his/her feet placed on foot pegs. In Australia, most powered two-wheel vehicles are motorcycles of motorcycle design, with a smaller number of motorcycles of scooter design and relatively few mopeds (most of which are of scooter design). This differs from the pattern in Europe, where mopeds and scooter motorcycles are much more common.

In many countries, the involvement of "older" motorcyclists (variously defined) has increased in the last decade. The Australia-wide motorcyclist fatality data since 1989 has shown a decrease in the number of riders aged under 25 and an increase in the number of riders aged over 25 (ATSB, 2002). Thus, motorcycle licensing and training must concentrate not just upon young novices, but also older novices and older, licensed riders who are returning to riding. For those jurisdictions where it is available, the licensing and training requirements for older novice riders are described in the sections that follow.

The components of motorcycle learner and provisional licences in Australian jurisdictions are summarised in Tables 2.1 and 2.2, respectively.

2.1 VICTORIA

2.1.1 Rider licensing

Currently in Victoria a novice rider must be at least 18 years old (previously 17 years and 9 months) before obtaining a learner permit. This contrasts with the minimum age of 16 years for a learner permit to drive a car.

The rider is required to hold the learner permit for a minimum period of three months before attempting the licence test. Thus the minimum age for obtaining a motorcycle licence is 18 years and 3 months (18 years for car licence). If the test is passed, the rider is issued with a restricted licence for one year. During the learner and restricted periods, the rider is subject to an engine capacity restriction of under 260 cc and is prohibited from carrying a pillion passenger. During the learner period there is a zero blood alcohol restriction that continues for the first year of licensing if on a probationary licence (i.e. if the rider does not hold a full car licence). There is no exit test for the restricted licence.

Table 2.1 Summary of components of Australian motorcycle learner permits (at time of preparation of report).

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
Minimum age	16 years	18 years	16 years and 9 months	16 years	16 years and 9 months	16 years	16 years and 3 months	16 years and 6 months
Road law knowledge test	Yes	Yes	Yes	Yes	No	Yes (but not if a full car licence is held)	Yes (but not if an L, P or full car licence is held)	Yes
Eyesight test	Yes	Yes	Yes	Yes	?	?	Yes	Yes
Practical test	Yes	No	Yes		No	Yes	Yes, or undertake training course	No
Minimum length of learner period	No	3 months	3 months but no minimum if over 30 years and held post provisional car licence for 5 consecutive years	No but must be 16 years and six months before applying for provisional licence	3 months	Recommended 4 months	12 months	Practical test option – must hold for 6 months Q-Ride – no minimum if aged 17 years
Maximum length of permit; Ability to renew	12 months	15 months	6 months	?	2 years		3 months but can be renewed up to 3 times	12 months
Mandatory education and	Yes	No	Yes	No	Yes	Yes	No	No

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
instruction								
Mandatory minimum driving hours	No	No	No	No	No	No	No	No
Supervisory driver minimum requirements		No supervision	No supervision	Yes. Must ride alongside the learner, or as a pillion passenger or in a sidecar	No	No supervision	No supervision	Yes. Must have held an open licence for the size of motorcycle the rider is learning to ride. If pillion or sidecar passenger, must have held the open licence for at least 2 years.
Display *L*-plates	Yes	Yes	Yes	Yes	?	?	Yes	
BAC limit (g/100ml)	Zero	zero restriction that continues for the first year of licensing if learner does not hold a full car licence.	.02	Must not be equal to or exceed 0.02	.02	?	Zero	

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
Maximum speed restriction	80km/h	No	80 km/h	100km/h	80km/h	?	80km/h	
Passenger restrictions	Passenger must have held motorcycle licence for at least 3 years and be instructing the learner.	No carriage of passenger permitted but a motorcycle with a sidecar and passenger is acceptable	No carriage of passenger permitted.	Must be accompanied by a professional driving instructor or a person who has held the relevant class of licence for at least four years (if a moped, a person who has held a class R-E or R licence for at least two years).	No carriage of passenger permitted.		No carriage of passenger permitted.	
Motorcycle size and power restrictions	Must not ride a motorcycle with an engine capacity exceeding 250cc.	Must not ride a motorcycle over 260cc.	Must not ride a motorcycle exceeding 260ml or 150kw per tonne.	Must ride a motorcycle within the same engine capacity range as the class for which they are applying	Must not ride a motorcycle exceeding 150kw per tonne.	?	Must not ride a motorcycle over 260cc.	Must ride motorcycle with an engine capacity less than 250cc (mL)

Table 2.2 Summary of components of Australian provisional motorcycle licences (at time of preparation of report).

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
Minimum age	17 years	18 years and 3 months	17 years	17 years for class R-E licence	17 years	16 years and 6 months	16 years and 6 months (16 years and 3 months if completed training courses)	17 years
Practical test	Yes	Yes	Yes	Yes	Yes	Yes	Yes, if haven't undertaken training courses	Yes if under the Practical Test option. No if under Q-Ride.
Hazard perception test	No	No	No	Yes	No		No	No
Knowledge test	No	Yes	No	No	?		No	No
Length of provisional licence period	Less than 22 years – 3 years Between 22 and 24 years – until person turns 25 24 years and over when licence is issued – 1 year	3 years but only 12 months for those with full car driver's licence.	12 months	2 years or until reaching 19 years of age, whichever is first	3 years but only 12 months for those with full car driver's licence.	Until the rider turns 19 years	1 year	Under Q-Ride a rider does not have to hold a provisional licence if held car licence for 3 years
Display *P*-plates	Yes	Yes but not for full car driver licence holders					Yes	

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
BAC limit (g/100ml)	Zero	Zero if in first 12 months rider does not hold a full car driver's licence		Not exceeding 0.02	.02 for first 12 months if does not hold a full car driver's licence		Zero	
Maximum speed		100 km/h					100km/h	
Motorcycle size and power restrictions	Engine capacity not exceeding 250cc An exemption based on rider height and weight may be approved	Engine capacity not exceeding 260cc in first 12 months of licensing	Engine capacity not exceeding 260 ml or pw ratio exceeding 150kw per tonne.	Engine capacity not exceeding 260cc	Power to weight not exceeding 150kw per tonne	Engine capacity not exceeding 250 ml	Engine capacity not exceeding 260cc	Engine capacity not exceeding 260cc
Passenger restrictions		No carriage of passenger permitted	No carriage of passenger permitted until held unrestricted licence for a minimum of 12 months		No carriage of passenger permitted in first 12 months		No carriage of passenger permitted	
Exit test	No	No	No		No	No	No	
Minimum age for full licence	20 years	21 years	18 years	18 years and 6 months	20 years	19 years	17 years and 3 months	

Under the current motorcycle licensing system, there is little real difference between the restrictions on learner permit holders and restricted licence holders. Learner permit holders are allowed to ride unsupervised. The original rationale for allowing learners to ride unsupervised on public roads was to allow them to gain on-road experience before attempting the (now discontinued) on-road test. However, there now exists the anomaly that a rider may fail the current licence skills test and continue to ride on the road as a learner permit holder.

In Victoria, a licence-holder has a single licence that indicates which classes of vehicle they are licensed to operate. The cost to renew the licence is the same no matter how many classes of vehicle the licence covers. Thus, a person who is licensed to operate cars and motorcycles has their "motorcycle licence" automatically renewed when they renew their licence. This means that many more people hold motorcycle licences than actually ride and also means that motorcycle licence holders who have not ridden for many years are able to return to riding without any formal training or licensing requirements.

2.1.2 Rider training

Training is not compulsory to obtain a learner permit or a restricted licence, but most riders attend one or more training courses. Since 1993, VicRoads has accredited external providers of motorcycle training to offer training and testing services in the state of Victoria. VicRoads, as the state licensing authority, is responsible for the administration of the contracts under which the providers operate. Each provider has its own curricula incorporating all the requirements of the contract with VicRoads. Some of the providers utilise the earlier VicRoads motorcycle training curricula while others have developed new curricula.

Accredited motorcycle training and testing providers undergo at least one scheduled compliance audit per year (maximum of two) by VicRoads staff who are trained quality system auditors to the ISO 9001:2000 standard. Field surveillance is conducted once every three months per provider site by the local VicRoads office. The process of auditing and field surveillance aims to ensure that training and testing is fairly and safely conducted. There is no process for evaluating the effectiveness of training in terms of producing safer riders in the longer term.

Learner permit courses

The learner course for a student with no experience takes nine or twelve hours, depending on the provider. This includes learner permit testing (less than 10 minutes) and (in some cases) break time. Riders with previous experience may not be required to complete the full course. Riders who can ride forward, maintain balance and change gears, are permitted to undertake a course which comprises the latter six hours of the twelve hour course. The shortened course for riders with previous experience spends less time on learning vehicle control skills but a similar amount of time on cognitive skills as in the full course.

The components of the learner permit training programs can be grouped under two general headings:

Practical Skills

- Identification/location of controls

- Mounting and dismounting techniques
- Manoeuvring the motorcycle by hand
- Friction zone - getting under way
- Gear changing
- Turning corners
- Slow riding techniques
- Riding curves
- Braking – normal stop/quick stop

Knowledge Training

- Protective clothing
- Visibility/conspicuity of riders
- Braking and steering techniques
- Traffic riding situations/strategies - lane positioning, communication, speed regulation, following distance

Some instructors may include a cognitive skills component in the practical skills. The extent of cognitive skills components in the knowledge training is dependent on the instructor.

Licence courses

The licence courses are of six or eight hours (one provider only) duration, including the administration of the test. The courses vary in the range of skills covered. Some newer courses cover a wider variety of material than that simply required to pass the test. All riders are required to complete the entire course, regardless of level of experience or skill.

The components of the licence training programs can be grouped under two general headings:

Practical Skills

- Counter-steering techniques

  application to U turns

  application to swerving around obstacles

- Riding curves

  progressively tightening curve (gentle to sharp curvature)

- Braking

  quick stops on the straight

  quick stops in a curve

Knowledge Training

- Setting up motorcycle controls
- Principles of Counter steering techniques
- Principles of emergency braking

  straight

  in a curve
- Traffic riding situations/strategies

Some instructors may include a cognitive skills component in the practical skills. The extent of cognitive skills components in the knowledge training is dependent on the instructor.

Direct to licence course

In Victoria, there exists the option in legislation to obtain a restricted licence without first obtaining a learner permit by completing a combined learner-licence course. The combined, four-day course has been developed but is not currently offered by any of the providers.

Evaluation of rider training in Victoria

Haworth, Smith and Kowadlo (2000) evaluated the learner and probationary rider training courses from the different providers. The evaluation assessed the balance between attitudinal and vehicle skill based components and provided recommendations.

The review found that vehicle control skills receive about two to three times as much course time as attitudinal skills. This is true for both the learner permit and licence courses. Yet all the providers felt that the students, particularly at learner level, had insufficient skill and inadequate attitudinal training to ensure their safety while learning on the road. Commercial considerations severely constrained the time available to teach both attitudinal and vehicle control skills.

Some possible solutions appeared to be increasing the efficiency of delivery of courses by improved time management and improving the effectiveness and consistency of presentation of the attitudinal components. Even if these improvements are implemented, it is still likely that trainees may continue to have insufficient skill and inadequate attitudinal training to ensure their safety while learning on the road. The review also identified a need to develop a hazard perception program and test that can be introduced by all training providers.

2.1.3 Characteristics of motorcycling in Victoria

While applicants for a motorcycle learner permit in Victoria must be a minimum of 18 years of age, most learners are older than 18 (Haworth, Mulvihill & Symmons, 2002). In June 2001, there were 1,096 18-year olds who held a motorcycle permit or licence, compared to 1,670 20-year olds, 2,649 22-year olds and 4,012 25-year olds. In contrast, most people obtain their car licence at close to the minimum age.

Among motorcyclists aged over 30, only four percent are newly licensed (as indicated by holding a learner permit or restricted licence). However, newly licensed riders make up a

much larger proportion of the total amount of riding by over 30s because the newly licensed riders they ride more often and further than fully-licensed motorcyclists (Haworth et al., 2002)

Most applicants for a motorcycle permit or licence already have a car licence. In 1995/96 to 1998/99, less than three percent of applicants for a motorcycle learner permit did not have a car driver learner permit. Only three percent of applicants for a motorcycle licence did not have a car driver licence (L or P). These data come from before the minimum age for obtaining a motorcycle learner permit was raised from 17 years 9 months to 18 years. Since that change, it is expected that even fewer applicants for a motorcycle learner permit would not hold a car learner permit. In June 2001, the number of riders aged 18-25 who held a motorcycle licence or permit only was about three percent of the number who held both a motorcycle licence or permit and a car licence or permit.

Most newly licensed motorcyclists have car licences. In 1998, 84 percent of riders obtaining a motorcycle licence in Victoria had a full car licence. This means that they had at least three years solo driving experience in addition to up to two years driving with a supervisor.

For car drivers, there is a reasonably reliable relationship between how long a licence has been held and the level of experience gained (in terms of distance driven). The relationship is not as clear for motorcyclists. Many riders have held a licence for an extended period but have little riding experience. For many who currently hold a licence, their riding experience occurred many years ago.

In Victoria, the number of motorcyclists killed increased from 38 in 1999 to 64 in 2001 before stabilising at 56 in 2002 (ATSB, 2003). In Victoria, as in other jurisdictions, the involvement of "older" motorcyclists (variously defined) has increased in the last decade. The number of riders in crashes aged 30 and over increased from 501 in 1991 to 1,062 in 2000. In contrast, the number of riders in crashes aged under 30 fell from 1,353 in 1991 to 863 in 2000. Riders aged 30 and over comprised 27 percent of riders in crashes in 1991 and this increased to 55 percent in 2000 (Haworth et al., 2002). At the same time, the number of licences held by older riders also increased.

Many in the motorcycling community have expressed concern about the safety of older, inexperienced riders but little objective data has been available to quantify these concerns. Haworth et al. (2002) analysed Victorian Police-reported crash data and VicRoads licensing data and found that the crash rate per 10,000 licences held of learner and probationary licence holders aged over 30 (effectively the "new riders" above) was higher than for fully licensed riders of the same group, but was lower than for fully licensed riders aged under 30.

However, in Victoria (at least), returned and continuing riders cannot be separated in the mass crash data or the licensing data. The survey data from Haworth et al. (2002) provide one of the few means to compare the crash involvement of these groups. In the survey, riders were asked how far they rode in an average week and how many road crashes they had been involved in while riding their motorcycles on the road in the last five years. The reported numbers of road crashes in the past five years did not differ significantly among continuing, returned and new riders, although many new riders had not ridden for the whole five years. However, returned riders did not ride as far as continuing or returned riders. An indicative crash rate estimated from this data suggests that returned riders were involved in 4.9 crashes per million kms travelled, compared to only 2.6 for continuing and

3.0 for new riders. This confirms the concern in the motorcycle safety community about the dangers associated with returning to riding.

2.2 NEW SOUTH WALES

2.2.1 Rider Licensing

The following information about motorcycle licensing in NSW is taken from the Roads and Traffic Association (RTA) website (http://www.rta.nsw.gov.au/).

In NSW, applicants for a learner rider licence must be at least 16 years and 9 months. Applicants are not required to hold a car driver licence to obtain a motorcycle licence.

To be eligible for a learner licence, applicants must successfully complete a pre-learner course (valid for three months) after which they are issued a Pre-learner Certificate of Competence. Successful completion of an eyesight test and a rider knowledge test is also required. The learner licence is valid for six months.

During the learner licence period, riders must observe several restrictions. Riders are restricted to Learner Approved Motorcycles (see below). Riders must not exceed 80km/h and must not carry a pillion passenger during the learner period. A blood alcohol concentration of less than 0.02 must also be observed.

In September 2002 NSW introduced a Learner Approved Motorcycle Scheme for novice riders (both learner and provisional). The scheme, which is being run on a trial basis, allows novice riders to ride moderately powered motorcycles with an engine capacity up to and including 660ml and which do not exceed a power to weight ratio of 150 kilowatts per tonne. An "Approved Motorcycles for Novice Riders" list provides guidance as to the types of motorcycles novices are allowed to ride (www.rta.nsw.gov.au).

Applicants for a provisional licence must have held a learner licence for a minimum of three months (i.e. must be at least 17 years which is the same minimum age as for car provisional licence). After successful completion of a pre-provisional course and a Motorcycle Operator's Skills Test (MOST), applicants are issued with a Pre-provisional Certificate of Competence. The certificate is valid for three months and enables applicants to upgrade to a provisional licence. If the upgrade to a provisional licence does not occur within three months of obtaining the certificate, the pre-provisional course must be taken again.

Riders who have held a provisional licence for 12 months can upgrade to an unrestricted rider's licence. There is no test required to upgrade to an unrestricted licence. Riders are not permitted to carry a pillion passenger until they have held an unrestricted licence for a minimum of 12 months.

Riders aged 30 years and over who hold, or are eligible to hold, an unrestricted (gold) driver licence may proceed directly from a learner rider licence to an unrestricted licence (i.e they are not required to wait three months between gaining their learner rider licence and attending the pre-provisional course). Successful completion of the pre-learner and pre-provisional courses is compulsory and riders must also observe all of the normal restrictions.

2.2.2 Rider training

The following information about motorcycle training in NSW is taken from the Roads and Traffic Association (RTA) website (http://www.rta.nsw.gov.au/).

The compulsory pre-learner and pre-provisional training courses are designed to teach basic riding skills *before* riding on the road.

Rider training and testing for learner and provisional motorcycle licences is conducted at training centres located in various metropolitan suburbs and country towns. Those areas with training centres are called 'declared areas'; not all areas have training centres. Riders who do not live in a 'declared area' are not required to undertake training but they must satisfactorily complete all tests before being issued with the relevant licence.

The pre-learner course is designed for those with no motorcycle riding experience. The training is competency based and is conducted off-road. Participants must pass all of the competencies, in order, before obtaining a pre-learner Certificate of Competence. The course is held over two days (3.5 hours each day).

The pre-provisional course takes six hours to complete and is conducted both on and off-road in two stages. During the first stage training is conducted off-road for a period of three hours. During the second stage, training is conducted on-road in small groups for a period of one and a half hours. Once the on-road component is complete, riders undertake the MOST off-road. The MOST consists of seven tests designed to measure the rider's ability to handle a motorcycle, including starting, accelerating, turning and braking.

2.2.3 Characteristics of motorcycling in New South Wales

As at 30 June 2002, there were 404,924 motorcycle licences (Class R) held in NSW (RTA, 2003). Only about 1 percent of these were held by 16-19 year olds. Only 1.7 percent of licence holders aged 16-19 held a Class R licence. The age group holding most motorcycle licences was 40-49 years (127,000 licences).

The number of motorcyclist fatalities fell from over 200 per year in the early 1980s to 44 in 1997, with an increasing trend since then. The average number of motorcyclist fatalities for 1996-2001 was 57 per year, comprising somewhat more than 10 percent of all road user fatalities.

In NSW, the number of motorcycles registered to people aged 40 and over increased by 57 percent between 1995 and 2000, while the number of motorcycles registered to people under 25 years decreased by 33 percent (de Rome, Stanford and Wood, 2002). The number of motorcyclists involved in crashes in NSW aged under 25 has decreased since 1991 while the number aged 25 and over has increased (RTA data cited in Christie and Harrison, 2001, Figure 12).

2.3 QUEENSLAND

2.3.1 Rider licensing and training

The following information about rider licensing and training in Queensland is taken from Queensland Transport's Q-RIDE Information Guide (2001).

In Queensland, there are two classes of motorcycle licence (R and RE) and three types of licence (Learner, Provisional/Probationary/Restricted and Open) (Q-RIDE Information Guide, 2001).

The Learner Licence (RE) permits the holder to ride a motorcycle with an engine capacity less than 250cc (mL). The licence candidate must ride under direction or be accompanied by a passenger or another rider who holds an open licence and who has held that licence for at least one year.

The Class RE Licence permits the holder to ride a motorcycle or a moped with an engine capacity less than 250cc (mL) with or without a trailer.

The Class R Licence permits the holder to ride a motorcycle of any engine capacity.

In addition, any holder of an Open car licence is allowed to ride a moped. A moped is defined as a light motorcycle with an engine capacity less than 50cc that must not exceed 50 km/h.

Motorcycle licence applicants in Queensland must be aged at least 16 years and 6 months to obtain a learner licence and at least 17 years to be granted a provisional or open motorcycle licence.

Since August 2001, applicants have the choice of passing a practical test administered by Queensland Transport Driving Examiners (with no compulsory training) or participating in Q-RIDE as methods to obtain a motorcycle licence (class RE or R).

Q-RIDE also provides an alternative method for holders of a restricted motorcycle licence (RE) to obtain an unrestricted licence (R). Prior to the introduction of Q-RIDE in August 2001, all motorcycle licence applicants were required to hold a learner licence for at least six months prior to obtaining a class RE licence. In addition, a class R licence was not issued unless the applicant had held a class RE licence for at least 12 months.

Q-RIDE was introduced as an alternative method of obtaining a motorcycle licence through competency-based training and assessment delivered by a Q-RIDE Service Provider. Q-RIDE requires licence applicants to demonstrate the knowledge, skills and attitude needed for the safe operation of a motorcycle. Q-RIDE is a system of competency-based training and assessment. 'A competency refers to an individual's demonstrated knowledge, skills or abilities (KSAs) performed to a specific standard. Competencies are observable, behavioural acts that require a combination of KSAs to execute' (Q-RIDE Information Guide, 2001).

Accredited rider trainers use a set of performance standards (Competency Standards) to deliver Q-RIDE training and assessment through an approved Q-RIDE Service Provider. Riders are required to achieve a range of competencies that meet these Standards before a Q-RIDE Certificate of Competency can be issued.

The number of Service Providers has increased since the introduction of Q-RIDE to cater for the increasing numbers of applicants choosing it over the practical test. As at May 2003, there were 25 registered Service Providers that provided Q-RIDE training. Most Service Providers provide training in more than one location - there are 50 different training centres, most of which are in the Brisbane area.

Although all Service Providers are required to deliver training according to a set of Competency Standards, the large number of providers available makes it likely that there are variations in the delivery and implementation of training. Locations that attract relatively smaller numbers of applicants might have time to provide more intense training compared to those that attract larger numbers. There are also likely to be variations in the experience levels of training providers that might influence the extent to which training is effective.

Procedure for obtaining a motorcycle licence under Q-RIDE

A Q-RIDE participant must:

- Either obtain a learner licence (class RE) from Queensland Transport or hold a class RE licence or have held a car licence for three years (excluding periods of suspension)
- Choose an approved Q-RIDE Service Provider;
- Enrol in Q-RIDE training and assessment;
- Meet the competencies for a class RE or R licence and be issued with a Q-RIDE certificate of competency (class RE or R);
- Present the Q-RIDE certificate of competency to a Queensland Transport Customer Service Centre and pay a fee to receive the appropriate licence.

Q-RIDE aims to encourage pre-licence training among licence applicants by providing incentives for applicants to choose it over the practical test. This is important given that under the practical test option, training is not compulsory and therefore some riders may have had little or no training. The incentives are as follows:

- There is no minimum period for holding an RE learner licence before obtaining an RE licence. The exception to this is if applicants are aged under 17 years in which case they must wait until they turn 17 to obtain a class RE provisional licence.
- Provided that a car driver licence has been held for three years (excluding periods of suspension), there is no need to hold a class RE licence before obtaining a class R licence.
- Riders who have already obtained a class RE provisional or open licence through Q-RIDE can re-enrol immediately afterwards to undertake further training and assessment to obtain a class R licence.

There are no measures specific to mature riders.

2.3.2 Characteristics of motorcycling in Queensland

The number of motorcycles registered in Queensland increased from 72,207 at 30 June 1996 to 85,781 at 30 June 2003, an overall increase of 19 percent (Queensland Transport, 2001). Australia-wide data from the Australian Bureau of Statistics Motor Vehicle Census 2002 (ABS, 2003) shows that the number of motorcycles registered increased from 31 October 1997 to 31 March 2002 in all jurisdictions except South Australia and the

Northern Territory. The increase in motorcycle registrations in Queensland (18%) was similar to that in New South Wales (19%) and Western Australia (18%) but less than that in Victoria (28%). Therefore, the increase in motorcycle registrations in Queensland appears to reflect a wider trend, rather than the introduction of Q-RIDE.

The number of new R licences increased dramatically after the introduction of Q-RIDE, while the number of new RE licences fell. Q-RIDE so far accounts for a very small percentage of licences on issue (although probably a larger percentage of riding, given that recently licensed riders are more likely to be active riders than those who have held a licence for many years).

The total number of riders injured was fairly constant at about 1,400 per year from 1992 to 1996, fell to about 1,200 in 1997 to 2000 and has increased to about 1,500 per year in 2001 and 2002. The largest increases appeared to be from 2001 to 2002.

2.4 SOUTH AUSTRALIA

2.4.1 Rider licensing

The following information about rider licensing in South Australia is taken from Transport South Australia's website (http://www.transport.sa.gov.au/index.asp).

Applicants for a motorcycle learner permit in SA must be at least 16 years old. Those who do not hold a current driver's licence must pass a theory test. All applicants must complete a Rider Safe training course consisting of two levels; basic and advanced.

Successful completion of the basic course enables a rider to obtain a learner's permit. Successful completion of the advanced course enables a rider to obtain an 'R date' motorcycle class'.

Riders who do not hold a driver's licence, but are at least 16 years and 6 months old and have held a learner's permit for a minimum period of 6 calendar months can apply for a provisional licence.

Provisional rider conditions for riders under the age of 19 are retained until the rider turns 19. A rider who obtains a provisional licence at 19 years of age may move straight to a full licence.

There are no measures specific to mature riders.

2.4.2 Rider training

The following information about rider training in South Australia is taken from Transport South Australia's website (http://www.transport.sa.gov.au/index.asp).

Training involves participation in Rider Safe; a pre-licence motorcycle rider training course that all new motorcyclists must complete. It consists of basic and advanced training courses.

Basic training course that basic training course teaches straight riding, turning and gear changing in a safe, off-road environment. The course consists of two sessions, each of two hours duration. It is recommended that riders hold their learners permit for a minimum of

four months before undertaking the Advanced course. Advanced training includes a four-hour training session and a practical test.

2.5 WESTERN AUSTRALIA

The current licensing system in WA enables a rider to gain a licence with minimal riding experience on public roads. Furthermore, there is no provisional period for those people who already hold another class of licence if the person is more than 19 years of age.

To get a class R-N (Moped), R-E (Motorcycle >250cc) or R (Motorcycle) licence a learner's permit must first be obtained. This involves sitting a test on the road rules and answering some specific questions relating to motorcycles. This test may not be taken before the applicant is 16 years old. Persons wishing to obtain a learner's permit for a class R-N, R-E or R licence must also pass an eyesight test.

Once the learner's permit has been obtained, on-road experience must be accrued. The learner must ride a motorcycle within the same engine capacity range as the class for which they are applying and, as with all learner's permits, are not permitted to ride on the road unless accompanied by a professional driving instructor or a person who has held the relevant class of licence for at least four years (or in the case of a moped, a person who has held a class R-E or R licence for at least two years). The tutor may ride alongside the learner, may ride as a pillion passenger or in a sidecar. Learner riders must display 'L' plates at the front and rear of the motorcycle at all times, are not allowed to travel at speeds above 100km/h and must not ride if their blood alcohol content is equal to or more than 0.02gm%.

Once the learner is ready they must take a practical riding assessment. Once the practical assessment has been passed, the learner moves on to phase II of the licensing system, the log book phase. Once the learner has completed the compulsory number of supervised riding hours (currently 25 hours) in the specified driving conditions the log book will be assessed and the applicant may sit the Hazard Perception Test (HPT). Passing the HPT enables the applicant to be issued with a provisional licence (class R-N or R-E) if the motorcycle licence is the first class of licence to be held by the person. Or, if the person has previously held a valid Australian licence for a total period of two years or more, they will be issued with a full licence for the class for which they applied.

Therefore, a person, after only 25 hours of supervised riding experience, may ride a motorcycle on the road unaccompanied. A class R-E (Motorcycle >250cc) licence can be obtained at 17; in the case of a class R-N (Moped) licence, the licence can be obtained at age 16. This means that at 16, a person can ride unsupervised on the road on a vehicle having a piston displacement of not more than 50ml and which is designed so as not to be capable of travelling at speeds of more than 60km/h.

2.6 AUSTRALIAN CAPITAL TERRITORY

2.6.1 Rider licensing

The following information about rider licensing in the ACT was provided by StayUpright in Canberra (Gibson, personal communication, 2004).

In the ACT, applicants for a learner rider licence must be at least 16 years and 9 months. Applicants are not required to hold a driver's licence to obtain a motorcycle licence.

To be eligible for a learner licence, applicants must successfully complete a pre-learner course. The learner licence must be held for a minimum of three months and is valid for two years. Riders who do not apply for their provisional licence within two years of obtaining their learner licence must take the pre-learner course again.

During the learner and provisional licence periods, riders must observe several restrictions. Riders are subject to a power to weight ratio restriction of not greater than 150 kw/tonne. The restriction does not apply for two years from the commencement date of the legislation to those riders who hold a learner licence or have held a provisional licence for less than 12 months and obtained a motorcycle that does not comply with these restrictions *before* the date on which the restrictions were implemented.

Riders must not exceed 80km/h and must not carry a pillion passenger. A blood alcohol concentration of less than 0.02 must also be observed. These restrictions are lifted after a provisional licence has been held for 12 months.

Once the learner licence has been held for three months, riders can apply for their provisional licence. This requires successful completion of the MOST.

The minimum holding period for a provisional licence is three years if the rider does not hold an unrestricted driver's licence. Riders who hold an unrestricted driver's licence need only hold their provisional licence for 12 months before upgrading to an unrestricted licence. There is no test required to upgrade to an unrestricted licence.

2.6.2 Rider training

The following information about rider training in the ACT is taken from StayUpright (in Canberra (Gibson, personal communication, 2004).

In the ACT, applicants for a learner licence must undertake a nine-hour off-road training course. Training is not compulsory to obtain a provisional licence, however those applicants who fail the MOST must undertake this course in order to obtain their provisional licence.

2.7 NORTHERN TERRITORY

The following information about rider licensing and training in the Northern Territory was obtained from the Department of Infrastructure, Planning and Environment website (http://www.ipe.nt.gov.au/whatwedo/mvr/licensing) and from telephone discussions with Department staff.

2.7.1 Rider licensing

There are three types of motorcycle licence issued in the Northern Territory. The 'R' licence permits the holder to ride a motorcycle of any engine capacity (with or without a sidecar), ride a motortrike of any engine capacity or ride a moped. An 'R(e)' licence permits the rider to ride a motorcycle with an engine capacity not greater than 260ml (with or without a sidecar), ride a motortrike with an engine capacity not greater than 260ml or ride a moped. An 'R(m)' licence holder can only ride a motorcycle defined as a moped on its compliance plate.

The Traffic Code states that "motorcycle licences can be obtained or upgraded by undertaking Licence Tests or by attending METAL courses. The Road Safety Council recommends that you attend a METAL course to obtain a motorcycle licence" (p.17).

In the Northern Territory, applicants for a learner rider licence must be at least 16 years and 3 months and have parental consent. They must pass a theory test and an eyesight test. A Balance and Stability Test (MOST Practical Test) or the METAL Basic Riding Course (see Section 3.7.2) must be passed.

The learner licence is valid for 3 months, but may be renewed up to 3 times. Learners must display an L-plate on the rear of the motorcycle and are subject to zero BAC and no carriage of pillions and are not to exceed 80km/h unless undertaking an approved training program.

Applicants for a provisional licence must be at least 16 years and 6 months old and pass a practical test (unless they have passed the Basic and Intermediate Riding Course). The provisional (R(e)) licence is valid for one year. The restrictions include an engine capacity of not greater than 260ml, no pillion and display of P plates. Zero BAC applies for the first three years.

If the motorcycle licence applicant already holds a full car licence, there is no provisional period, they move directly to a full licence.

2.7.2 Rider training

The Motorcyclist Education Training and Licensing (METAL) program is funded by the Territory Insurance Office through its Motor Accident Compensation Scheme. The program offers four courses: the Basic, Intermediate, Skills Plus and Advanced Riding Courses. The training courses are available in Darwin, Alice Springs and Katherine (on a limited basis).

The Basic Riding Course is designed to provide the necessary knowledge and skills for the issue of a motorcycle learner licence. It comprises 3 hours of theory and 12 hours of practical training.

The Intermediate Riding Course follows on from the Basic course and is designed to enhance motorcycle control and roadcraft skills. It comprises 2 hours of theory and 8 hours of practical training. Upon successful completion of this course, the rider is eligible for the issue of an R(e) licence.

The Skills Plus Course is designed to offer structured training to riders who hold a current full licence (R or R(e)). It targets riders who wish to enhance their motorcycle control skills, roadcraft techniques and motorcycle knowledge.

The Advanced Riding Course is designed to provide the rider with an advanced standard of motorcycle control skills and roadcraft knowledge, consistent with the requirements for the issue of an open class motorcycle licence (with a restriction of 100km/h, no pillion and zero BAC in the first year). It comprises 2 hours of theory and 8 hours of practical training. To be eligible to undertake the Advanced Riding Course, riders must have successfully completed the Basic and Intermediate Courses or the Skills Plus Course.

2.8 TASMANIA

2.8.1 Rider licensing

Currently in Tasmania, a rider must be at least 16 years old to obtain a learner licence. Riders must complete a pre-learner training course (see below for description) in addition to a knowledge test (consisting of 35 multiple choice questions) and a vision test before being issued with a learner licence.

A learner licence is subject to several restrictions. Riders must not ride a motorcycle with an engine capacity exceeding 250cc (unless an exemption is sought and granted on the basis of weight and height) and they must not ride faster than the speed limit or faster than 80 km/h at any time. A zero BAC applies at all times and learners may only carry a pillion passenger if that person has held a motorcycle licence for at least three years and is instructing the learner rider.

The learner licence is valid for 12 months. The course certificate is only valid for 1 month from the date of completion of the course. There is no minimum learner licence holding period.

To obtain a provisional motorcycle licence, a learner must be at least 17 years old and must complete a pre-provisional licence course (see below for description). The length of the provisional period depends on the age of the rider at the time the licence is issued:

- less than 22 years – 3 years
- between 22 and 24 years – until the person turns 25
- 24 years and over when licence is issued – 1 year

Several restrictions apply during the provisional licensing period; the motorcycle engine capacity must not exceed 250cc ad riders must observe a zero BAC at all times.

A learner licence cannot be renewed. Riders may have another learner licence issued but only after successful completion of the Level 1 course again.

Applicants who already have a full licence for another class of vehicle are not required to have a provisional licence and therefore do not have the restrictions associated.

An individual holds only a single licence that specifies which classes of vehicle it covers. Thus many individuals are licensed to ride a motorcycle (because they at some stage obtained a motorcycle licence) but do not. This is reflected in the contrast between the numbers of licences and registered motorcycles. At 31 December 2003, there were 36,547 riders licensed to ride a motorcycle but only 9,243 registered motorcycles.

2.8.2 Rider training

The current training provider delivers both the Level 1 course (pre-learner) and the Level 2 course (pre-provisional) in an eight hour, one-day format. In 2002-03, 1,475 riders completed the pre-learner course and 891 completed the pre-provisional course.

Pre-learner course

The pre-learner course is delivered off-road. Thus, manoeuvres are learnt and practised at lower speeds than will be encountered in real riding and there is little ability to experience scenarios relevant to riding in traffic.

The pre-learner course is competency based. All competencies must be satisfactorily completed before the courses can be passed. The competencies are summarised in Table 2.3. Possible grades for each learning outcome are "competent" or "not yet competent".

If a participant is unable to achieve competency, the instructor will suggest either private tuition at a later date and additional cost or private practice and re-booking into a later course (or repeating a course free of charge).

The statistics for 2002-03 provided to DIER by the current training provider indicated that 59 participants failed (4%).

Earlier, the Tasmanian Department of Transport had commissioned Australian Professional Driver Consultants to design the Level 1 and Level 2 motorcycle rider training courses. Their recommended Level 1 course comprised three 3-hour modules (as compared with the 8-hour course currently offered) and incorporated slalom riding, hill starts and lane changing and merging/giving way which do not appear to be included in the current course.

Table 2.3 Summary of modules in the current Pre-Learner Motorcycle Course.

Module
Stands, dismounting and pilot position
Operate controls of a motorcycle
Walking a motorcycle
Riding posture
Ride a non-powered motorcycle
Engine start and stop systems
Operate clutch
Rectangle ride – stopping at markers
Changing gears
Slow speed riding
Low speed cornering
Riding curves
Braking (explanation)
Braking: Set-up
Braking: Emergency stops
Roadcraft theory and "Two Wheel Tactics" video
Simulated road ride

Pre-provisional course

The pre-provisional course is delivered mainly off-road with a 75-minute road ride near the end of the day.

The pre-provisional course is entitled the "Level II Motorcycle Rider Training Course - Competency Based Course Curriculum" in documentation provided to DIER by the current training provider. While there are clear competencies identified in the Level 1 course syllabus (termed "learning outcomes" in that document), there is no evidence of such competencies being assessed throughout the course in the Level 2 course. Instead, participants are assessed using the Alternate MOST (Motorcycle Operator Skill Test) test near the end of the course. This is referred to as "the Test" in the documentation. Thus it appears that the Level 2 course is a training course with a licence test administered at the end, rather than competency-based training.

The statistics for 2002-03 provided to DIER by the current training provider indicated that 133 participants failed the pre-provisional course (15%).

2.8.3 Characteristics of motorcycling in Tasmania

The crash rate per motorcycles licensed for the under 17-year age group during the period 1998-2002 was 771; up to 70 times higher than for any other age group. Crash rates are about three times higher for the 16-year-old riders than those aged 18-24 (see Figure 2.1).

Figures 2.2 and 2.3 (below) show that there are many more Tasmanians who hold a licence that allows them to drive a car and ride a motorcycle than Tasmanians who hold a licence to ride a motorcycle only. Figure 2.2 shows that the number of Tasmanians holding car licences plateaus by about age 19, but there is no plateauing in the combined car and motorcycle licence.

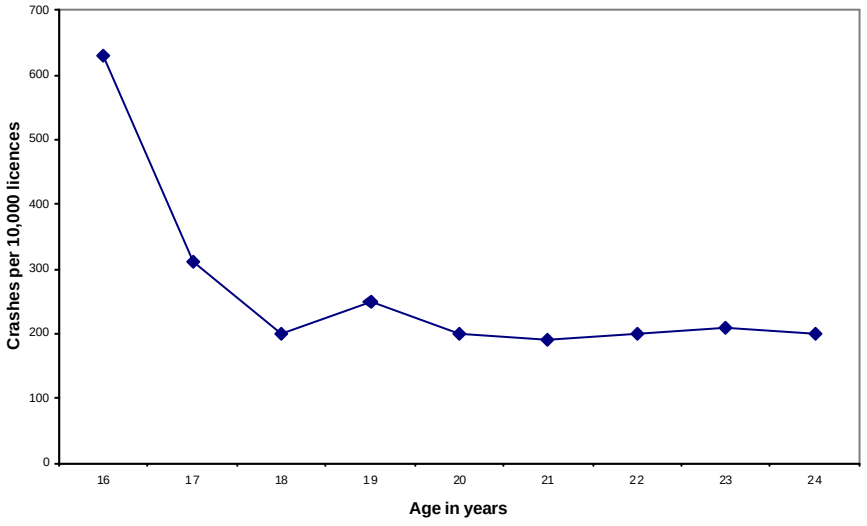

Figure 2.1 Casualty crash rates (crashes per 10,000 licensed riders) for 16 to 24 year old riders in Tasmania 1998-2002.

Among the older population, the proportion of serious injury crashes involving riders over 40 years doubled from 16.9 percent in 1998 to 34.5 percent in 2002. Crash data do not provide overt explanations for the increase in crashes involving older motorcyclists. However, factors are likely to include a lack of riding experience, a lack of recent riding

experience among riders who have returned to riding after a break, as well as an aging population trend.

Unlicensed riding is a greater problem in the motorcycling population than the car driving population with the proportion of unlicensed motorcycle riders killed or injured in crashes between 1998 and 2002 almost double that of car drivers (4.2% compared to 2.2%, figures from Draft Tasmanian Motorcycle Safety Strategy 2002-2006).

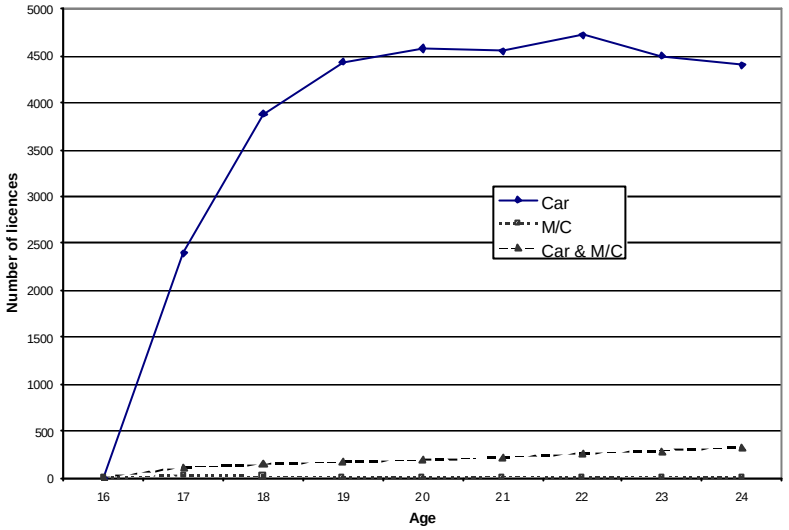

Figure 2.2 Number of car, motorcycle and combined motorcycle and car licences held by 16 to 24 year olds in Tasmania as at 31 December 2003. Does not include learner licences.

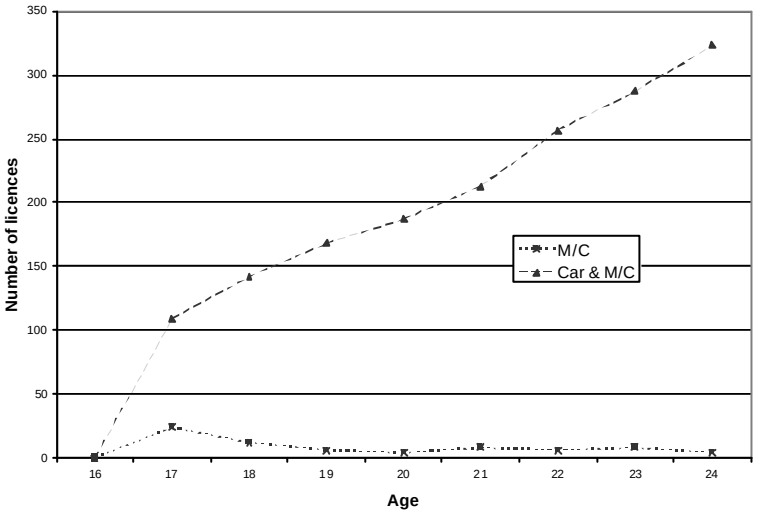

Figure 2.3 Number of motorcycle and combined motorcycle and car licences held by 16 to 24 year olds in Tasmania as at 31 December 2003. Does not include learner licences.

2.9 NEW ZEALAND

2.9.1 Rider licensing

The following information about rider licensing in New Zealand is taken from the Land Transport Safety Administration (LTSA) website (www.ltsa.govt.nz).

To obtain a full motorcycle licence in New Zealand riders must progress through a graduated licensing system. The graduated licensing system is designed to help riders build riding and road safety skills progressively as they move through each stage. There are three stages of the system; Stage 1 – learner licence, Stage 2 – restricted licence and Stage 3 – full licence.

A person may apply for a motorcycle learner licence at age 15 (the same age as for a car learner permit).

A 'Basic Handling Skills Test' must be passed before a rider can apply for a learner licence. Riders must also pass a written theory test by correctly answering 32 out of 35 questions in addition to an eyesight-screening test.

Several restrictions apply during the learner licence phase. Riders must not:

- Ride a motorcycle with an engine capacity greater than 250cc
- Ride faster than 70km/h on the open road
- Ride between 10pm and 5am
- Carry a pillion passenger.

Riders must display an 'L' plate on the motorcycle's rear registration plate.

Riders under the age of 20 must not exceed a blood alcohol limit of 30mg/100ml and 150mcg/litre for breath alcohol. Riders over 20 years must observe a blood alcohol limit of not more than 80mg/100ml and 400mcg/litre for breath alcohol.

Riders who have held their learner licence for at least six months can apply for their restricted licence. To obtain a restricted licence, riders must pass the restricted licence practical riding test in addition to an eyesight test.

Several restrictions apply during the restricted licence phase. Riders must not:

- Ride between 10pm and 5am
- Carry a pillion passenger
- Ride a motorcycle with an engine capacity greater than 250cc

Riders aged under 20 must observe the same alcohol restrictions as during the learner phase.

Riders can apply for a full licence after 18 months on their restricted licence (i.e. at age 17) if they are under 25 years, or after six months on their restricted licence if they are 25 or

older. Completion of an approved course reduces the restricted licence phase to 12 months (i.e. minimum age 16 years 6 months) for those aged under 25 years, and to three months for those aged 25 or older. Those aged under 25 can only complete an approved course once their restricted licence has been held for at least six months.

Riders must also pass a full licence practical test and an eyesight screening check before a full licence is granted.

The LTSA has proposed to trial competency-based training and assessment as a future option for novice drivers, and possibly novice motorcyclists. As part of this trial, the LTSA also proposes to examine how best to implement a proposal to require drivers to log their supervised driving experience.

Christie, Cummins, Fabre, Harrison, Hill, Johnston, Newland and Robertson (1998) describe the design and testing of a new full licence test (FLT), introduced in May 1999 as part of New Zealand's graduated licensing scheme. The FLT is the riding test that holders of a restricted motorcycle licence must pass before graduating to a full licence.

The test was designed based on the crash profile of novice New Zealand drivers and a search of international practice. The crash profile was similar between novice car drivers and novice motorcycle riders in that there were greater problems with left/right turns, U-turns and loss of control (perhaps due to speed control) than for more experienced drivers. The FLT was designed to assess cognitive factors such as hazard perception, gap selection, and higher speed zone driving on both straight and curved roads.

The FLT is carried out in real traffic conditions and consists of three parts. The first part is a basic drive to ensure that the candidate has very basic driving skills. Part 2 is "detecting and responding to hazards in built up areas", and is 15 minutes in duration. Part 3 lasts for 20 minutes and is in higher speed zones. In Part 2, as the candidate approaches a particular driving situation the tester asks them to note and remember all of the hazards they see as they perform a particular driving manoeuvre. They then pull over and describe the hazards and how they responded to them – this must match the tester's assessment of the situation. Part 3 is similar except that the speed zones are higher (70-100 km/h) and they must describe the hazards and how they are responding at the same time as they negotiate the situations. The FLT motorcycle test is also split into three parts, where the only major difference between it and the car test is that the rider is followed by the tester in another vehicle.

The test was trialled with car drivers and motorcycle riders, but not analysed separately (only 5 riders participated in the testing). The FLT received a positive response from the testers and candidates and seemed to have a good degree of reliability and validity.

One of the issues that has arisen in the implementation of the FLT for motorcyclists is that many testers cannot ride a motorcycle and therefore follow in a car. It is possible that the tester may not be aware of the hazards seen by the motorcyclist or vice versa. While the developers of the test suggested the use of voice-activated communications between the candidate rider and the assessor, this does not appear to have been implemented.

Reeder and his colleagues (year) investigated New Zealand's graduated licensing scheme for motorcyclists and in so doing have provided the only formal evaluation in this area currently available. Time series analyses were used to show that the introduction of the new licensing scheme in 1987 was associated with a statistically significant 22 percent

reduction in hospitalisations amongst 15-19 year-old motorcyclists. In explaining the reduction, the authors postulated two possible factors:

- reduced riding in high-risk situations;
- reduced riding generally.

Given the observed decline in the uptake of motorcycling amongst young people at the time (as reflected in decreased licences issued and vehicles registered), the authors considered the latter factor as primarily responsible for the crash savings. The extent to which this decline was due directly to the new licensing scheme or to other factors (for example the increased importation of second-hand Japanese cars from early 1988 onwards) was not resolved.

2.9.2 Rider training

Most novice motorcyclists in New Zealand do not undertake training. It is not compulsory, does not currently have any associated incentives and there is often lack of availability of training. There is a lack of motorcycle training instructors in NZ. While training providers can administer the Basic Handling Skills Test needed to obtain a learner permit, the licence testing is undertaken by companies under contract to LTSA and most testers are not motorcyclists.

The Accident Compensation Corporation (the compulsory injury insurer) is working with the LTSA to develop incentives to encourage motorcyclists to access training by the reinstatement of licence time reduction credits for completion of rider training, also supporting the strengthening of the instructor market and considering subsidising training.

2.9.3 Characteristics of motorcycling in New Zealand

In 2001, motorcycle riders comprised 7.5 percent of road users killed and 5.0 percent of road users injured (LTSA, 2002). Overall, 38 percent of motorcycle riders killed or injured in 2001 were involved in crashes in 100 km/h zones (this is lower than the 50% of all drivers).

In recent years, the number of motorcycle riders and pillion passengers killed and injured has decreased from 1,721 in 1994 to 669 in 2001. However, the number of new motorcycles registered has tended to rise since 1992 (2,830) and rose from 4,381 in 2000 to 4,549 in 2001.

The Accident Compensation Corporation experienced an increase in the number of motorcyclist claims for all age groups in 2000/01, with the largest increase for riders aged 35 and over. Claims can be more costly for the same degree of injury outcome because these riders have higher earnings and more dependents. If New Zealand follows the trend shown in other jurisdictions, injuries of older riders are likely to become an increasing problem.

2.10 AN OVERVIEW OF MOTORCYCLE LICENSING IN EUROPE

Schoon (2003) provides an overview of motorcycle licensing systems in Europe. Powered two-wheelers form four general classes:

- Light mopeds (maximum speed generally less than 25 km/h)

- Mopeds (max. speed generally less than 45 km/h)
- Light motorcycles (engine capacity <125cc, power less than 11kW)
- Motorcycles.

There are very large numbers of light mopeds and mopeds. The licensing age for light mopeds or mopeds is generally lower than that for light motorcycles or motorcycles. The minimum age is 14 years for a light moped in Switzerland and 14 for a moped in France. In most other countries the minimum age for riding a light moped or moped is 15 or 16 years. The countries vary in whether they have a compulsory theoretical test and/or a practical test to ride a light moped or moped.

A European guideline of 1991 (91/439/EEG) identified a number of classes of driving licence relevant to motorcycles and mopeds. The Category A1 (light motorcycle) licence allows the use of a motorcycle of engine capacity of up to 125cc and power not exceeding 11kW (14.6 bhp). Member states of the European Union are able to specify the requirements for obtaining such a licence, provided that the minimum age is not less than 16 years old (Schoon, 2003). Denmark and the Netherlands do not use the Category A1 licence. The European Commission is planning to harmonise the law which will mean that every member state will be obliged to include this category in their laws.

In a number of European countries, holders of full car licences are allowed to ride lightweight motorcycles and/or mopeds. In Switzerland and Austria, completion of a motorcycle training course allows a car driver to ride a lightweight motorcycle.

Schoon (2003) notes that since 1996, many EU countries have implemented a form graduated licensing for mopeds and motorcycles in which

- Candidates younger than 21 years have to pass a test on a light motorcycle
- Candidates 21 or older can have a choice. It they choose to sit the test for a light motorcycle licence, they cannot ride a heavier motorcycle for two years. Then they are able to ride a heavier motorcycle without sitting the test.

2.11 UNITED KINGDOM

Much of the material in this section is taken from a recent report from TRL Limited (Elliot et al., 2003) and http://home.clara.net/survivalskills/law.htm#thebasics.

It should be noted that in the United Kingdom, the term "provisional licence" is used to describe what would be referred to as a learner permit or licence in Australia.

2.11.1 Rider licensing

To ride a motorcycle on the road in the UK, riders must be at least 17 years old (16 years old for moped riders) and hold one of the following 'Category A' driving licences that allow motorcycle riding;

- A provisional driving licence with motorcycle entitlement
- A full car licence which automatically provides provisional motorcycle entitlement
- A full motorcycle licence

- A full moped licence – this automatically provides provisional motorcycle entitlement for those aged 17 or over.

Riders who hold provisional motorcycle licences must observe several restrictions. They must not ride a motorcycle exceeding 125cc and 11kw engine power. Learners are permitted to ride with a sidecar so long as the power to weight ration does not exceed 0.16kW/kg. Riding on motorways and carrying a pillion passenger is also prohibited during the provisional licensing stage.

The maximum duration of the provisional licensing stage is two years – riders who fail to pass the theory and the practical test before the two-year period expires must wait one year before they can obtain this entitlement again. This restriction was designed to phase out the 'permanent learner' by providing riders with an incentive to train and pass the test.

There are two types of full motorcycle licence that allow riding without L plates, carriage of a pillion passenger and use of motorways:

1 Light motorcycle licence (Category A1):

Category A1 licence allows the use of a motorcycle not exceeding 11kW (14.6 bhp). The requirement for this type of licence is successful completion of the practical test on a motorcycle of between 75 and 125cc.

2 Standard motorcycle licence (Category A):

Category A involves a two-stage graduated licence scheme. Stage 1 entitlements are awarded after the practical test has been successfully completed. At this stage, riders have a limited motorcycle licence that permits them to ride motorcycles up to 25kW (33 bhp) and a power to weight ratio of not more than 0.16kW/kg.

Stage 2 entitlements are awarded once a rider has gained two years motorcycling experience. There are no power restrictions imposed and riders are permitted to ride motorcycles of all types. The motorcyclist must have passed his/her practical test on a motorcycle of over 120 but not larger than 125cc and capable of at least 100kph to obtain this type of licence.

A rider who holds a restricted motorcycle licence and reaches the age of 21 before the two-year qualifying period ceases is permitted to take an additional test to provide unrestricted category A entitlements. The additional test must be taken on a motorcycle with a power output of at least 35kW (46.6 bhp). Practice for the test is allowed on motorcycles more powerful than those permitted by a limited motorcycle licence providing the motorcyclist is accompanied at all times by an approved instructor on another motorcycle and in radio contact; wears fluorescent or reflective clothing, has L plates fitted to the motorcycle, and follows provisional licence restrictions.

Riders aged at least 21 years are permitted to take one test which allows direct access to the unrestricted category A entitlements. The test must be taken on a motorcycle of at least 35kW (46.6 bhp) and the applicant is allowed to practice on a motorcycle of any size. However, riders who practice on motorcycles that exceed UK learner specifications must follow the same restrictions as for accelerated access (above).

Motorcyclists are not permitted to book a practical test until they have passed the theory test. The theory test, for licence categories A and A1, consists of 35 questions with a pass

mark set at 30 correct responses. Upon successful completion of this test riders are awarded with a certificate that is valid for two years. Those who have already passed a theory test for driving a car are exempt from the motorcycle theory test, with about 90 percent of riders falling into this category (DSA, 1999).

Hazard Perception Test

In late 2002, the United Kingdom introduced a HPT as a requirement for candidates applying for car, motorcycle, lorry and bus licences. Applicants for non-car licences must pass the HPT even if they already hold a full car drivers licence. The test is taken by candidates who already possess a Provisional (i.e. learner) UK or Northern Ireland (NI) Driving Licence. The HPT is part of, and taken subsequent to, the current touch screen knowledge test and takes about 25 minutes to complete. Car drivers and motorcyclists must score at least 38 out of 75 marks to pass the hazard perception element. It is planned to increase the pass score to 44 in increments of 2 by 1 September 2003 (http://members.aol.com/sjelz/theory.htm).

The test items involve dynamic hazards where there is an interaction between two or more road users and where there are clues that an experienced driver might detect that indicate that a risky situation might develop. There are 14 video clips featuring road scenes and potential hazards of various types, such as vehicles, pedestrians and road conditions. Examples include looking for events occurring in front of the car such as a stray dog by the kerb, looking for something joining the car's path such as a car emerging from the left, and looking for an event occurring in the opposite traffic such as a car stopping in the road to collect a passenger. Little information was available regarding the extent to which road-based hazards, which are more relevant for motorcycle riders, are included.

Horswill and Helman (2001) claim that the current UK licensing system that requires learners applying for their motorcycle licence to pass the HPT designed for car drivers may disadvantage riders. Their simulator study found that motorcyclists (who were older and held full car licences) performed better on McKenna's hazard perception test when they were asked to respond as if they were driving their normal cars than when they were asked to respond as if they were riding their normal motorcycles. Given that McKenna's test was intended for car drivers, the researchers argue that some of the hazards might have been less relevant for motorcyclists and that this might explain why this group did not perform as well on motorcycles as they did in cars. For example, squeezing through a narrow gap in traffic would be less of a problem for motorcyclists than for drivers of cars. Horswill and Helman consider that similar results could occur with the UK HPT and recommend that a separate HPT for motorcyclists with associated training should be introduced into licensing systems. Helman (personal communication, 2003) has advised that he intends to develop a motorcyclist hazard perception test.

Moped riders

Riding a moped on UK public roads requires that a rider be at least 16 years of age and hold a valid driving licence which entitles him/her to ride mopeds (category P).

Category P entitlements are permitted for riders aged 16-17 years if the rider holds a full moped licence or a provisional moped licence. Riders aged 17 years and over who hold a full car or motorcycle licence and provisional driving licence will also permit Category P entitlement.

The provisional moped entitlement allows the rider to ride a vehicle up to 250kg in weight, up to 50cc with a maximum design that does not exceed 30mph, and can be moved by pedals if the moped was registered before 1977.

The full moped entitlement also allows the rider to ride without L plates and to carry a pillion passenger. However, moped riders are not able to obtain accelerated and direct access or the two-year qualifying period which applies to motorcycle riders.

2.11.2 Rider training

Compulsory basic training (CBT) was introduced in 1990 and became compulsory in 1997 for all learner motorcyclists, including those who were previously exempt due to their holding a pre-1990 full car licence with provisional motorcycle entitlement or provisional moped licence. CBT must be completed before learner riders are permitted to ride on the public road. Successful completion of CBT permits a rider to ride on the road with L-plates for a maximum of three years before being required to take and pass the final DSA motorcycle test in order to gain a full motorcycle licence.

The CBT is a one-day course provided by Approved Training Bodies. It has five components covering basic skills and knowledge in relation to safe riding. The five components which must be taken in order are; 1) an initial introduction which makes the rider aware of the safety issues involved in motorcycling in addition to an eye sight test; 2) practical on-site training; 3) practical on-site riding; 4) practical on-road training; and 5) practical on-road riding.

The aims of the CBT are to

- "Make the rider familiar with the motorcycle and its controls
- Train the rider to control the motorcycle, operate its controls and perform the Observation – Signal – Manoeuvre (OSM) routine and the Position – Speed – Look (PSL) routine.
- Train the rider to ride defensively and to anticipate the actions of other road users.
- Train the rider to use rear observation at appropriate times, to assume the correct road position when riding, to avoid tail-gating, and to be aware of, and ride with respect to, varying weather conditions and types of road surfaces.
- Train the rider how to cope with a range of hazards including traffic lights, roundabouts, junctions, pedestrian crossings, gradients, bends and obstructions."

At the completion of the course the rider must undertake a brief theory lesson that includes:

- "The effect on riding behaviour of drink, fatigue, illness, drugs and so on.
- How to reduce the risk of a crash.
- Courtesy and consideration towards other road users."

When learner riders have completed this course they are awarded with a DL 196 form, which is required before they are allowed to undertake the practical test.

CBT was introduced to assist in reducing the high crash rate among inexperienced motorcyclists in the UK. While there has been no scientific evaluation of the effects of CBT on casualty reductions, the DETR Road Safety Strategy (1997, cited in Elliot et al., 2003) argue that it is likely to have contributed to the reduction of motorcycle casualties in the 1990s. As CBT is now compulsory, it is not possible to compare the crash involvement of trained and untrained riders. Thompson has (1994, cited in Elliot et al., 2003) provided the only published evaluation of CBT. Thompson investigated the attitudes and opinions of trainers and trainees to the course and found mostly positive responses, though riders tended to consider it easy and expensive. However a major limitation of Thompson's study was that almost two-thirds of respondents admitted to riding on the road before completing a course of CBT. However, if most riders now undertake CBT, these responses may not be a valid representation of the population of current learner riders.

A study by Brookes and Arthur (1997) using qualitative interviews found that riders of all age groups described existing training as 'not relevant enough'. Some components were seen as 'a good start', although CBT was described as 'falling short of the mark'. This was largely due to its failure to address risk-taking behaviour.

2.11.3 Characteristics of motorcycling in the UK

At the end of 1999, there were about 760,000 motorcycles licensed compared to the 1960 peak of over 1.5 million. In 1960, motorcycles accounted for 19 percent of all registered vehicles, but this had fallen to only 3 percent by 1999 (http://home.clara.net/survivalskills/law.htm#thebasics).

However, the number and characteristics of motorcycles has been changing in the last decade. The numbers of newly registered motorcycles doubled between 1993 and 1997 (Elliott et al., 2003).

The size of motorcycles has increased over the last 10 years. Nearly half of all motorcycles licensed at the end of 1999 were 500cc and over compared with only 15 percent 10 years before. This increase has occurred mainly in the last 5 years, with a corresponding decline in the numbers of smaller motorcycles (under 125cc) from 67 percent to 35 percent of all motorcycles. The increase in larger motorcycles can be accounted for by the numbers of larger motorcycles that were registered for the first time. In 1999, motorcycles over 500cc accounted for 51 percent of new registrations compared with 29 percent in 1989 (Elliott et al., 2003).

Total mileage travelled by motorcyclists halved between 1982 and 1993, and has been steady since then. Mileage on non-built up roads has been increasing since 1994. Annual mileage increases with engine size.

Motorcyclist casualties and mileage had been falling up until 1993 but from this time they have been stable and in the case of fatalities, have been increasing. In 1999, there were 26,192 reported two-wheeled motor-vehicle user casualties, of which 547 people were killed, 6,361 were seriously injured and 19,284 were slightly injured. Despite a reduction in kilometres travelled per year, the fatality rate for motorcyclists was about the same in 1999 as in 1981-1985, just under 120 per billion vehicle kilometres. The killed and seriously injured rate has fallen 39 percent from about 2460 per billion vehicle km to about 1500 per billion vehicle km.

Over the period 1980 to 1997, the age distribution of motorcyclist casualties changed dramatically (Elliott et al., 2003). In 1980, over 50 percent of casualties were under 20 years old, and less than 20 percent were aged over 30. In 1997, however, the trend reversed with less than 20 percent of casualties aged under 20 and over 50 percent aged over 30. These trends are the result of large reductions in the numbers of casualties to young motorcyclists. The riders of motorcycles with an engine capacity greater than 500cc (which require a full licence) dominate the casualty statistics with high proportions of fatalities occurring on non-built-up roads during the summer months (indicating recreational riding).

2.12 GERMANY

In Germany the European licensing for the 125 cc (lightweight) motorcycle was introduced in 1996 (Schoon, 2003). Young people are permitted to ride a lightweight motorcycle from 16 years old after obtaining a driving certificate. Drivers with a car licence obtained prior to 1 April 1980 are also allowed to ride a lightweight motorcycle. This led to a very large increase in ownership of lightweight motorcycles by riders aged 35 and over.

A new entrant to motorcycling must gain a minimum of 24 hours of theory and 30 hours of practical training with a driving school before being allowed on a road. The practical training must include at least 4 hours motorway riding and 3 hours night riding (Dooley, 2003).

2.13 UNITED STATES

2.13.1 Rider licensing

As in Australia, the rider licensing systems vary among the different states in the United States. A number of US states, namely California, Maryland and South Dakota have developed a graduated licensing system for motorcyclists (Mayhew and Simpson, 2001).

There is some debate about the merits of graduated licensing for motorcyclists. Several other US states apply restrictions to novice motorcycle riders during the learner permit stage and some restrict drivers in some or all age groups to operating on specific size motorcycles. These restrictions are conceptually similar to graduated licensing.

McKnight (personal communication, 2001, cited in Mayhew) comments that

> "In most states, the motorcycle licence is just an endorsement on the driver licence and a great majority of riders get a drivers licence first. Superimposing a graduated process on the endorsement would be a complication most states would not like. Moreover, applicants are over age 18, the age at which GL does not apply in many states. Many states requires a full driver's licence before issuing a learner permit for a motorcycle."

As summarised by Mayhew and Simpson (2001), California, South Dakota and Maryland include a learner or instruction permit and an intermediate stage.

Level 1: Learner Stage

Entry requirements apply to all learner stages including tests, and compulsory education and training and minimum licence holding periods; 6 months in California, 4 months in

Maryland, and 180 days in South Dakota. The minimum entry age ranges from 14 years in South Dakota to 15 years, nine months in Maryland. Rider education and training are required in all three states but only South Dakota reduces the minimum holding period for successful completion of courses. Maryland also requires 40 hours of certified driving practice. Restrictions during the learner stage generally include no passengers, no night driving and supervision.

Level 2: Intermediate Stage

Minimum holding periods in the three states also apply during the intermediate stage – including on-road skills tests and rider training, and minimum holding periods – 12 months in California, 18 months in Maryland, and until the age of 18 in South Dakota. In California, during the first six months of the 12-month minimum holding period, no passengers under 20 are allowed on the motorcycle. All states have some form of night restriction during this stage. In Maryland and South Dakota, exit requirements are age-based. There is no requirement to pass an on-road exit test to obtain full licence entitlements in any of the three states.

Licensing systems in other US states

The website of the US National Agenda for Motorcycle Safety (NAMS) (http://www.ahainc.com/nams/PDFs/NAMS_0.3.pdf) provides a summary table of the licensing requirements in other US states.

A learner's permit is required to ride a motorcycle in most US states (48) except Louisiana, Arkansas, and Alabama. Knowledge and skills tests are mandatory in all jurisdictions except New Hampshire and Washington. In Wisconsin, beginners aged under 18 must been enrolled in a rider course before obtaining a learner permit. In Pennsylvania, beginners must pass vision and knowledge tests if they do not hold a driver's licence.

The following is a summary of restrictions as set out by Mayhew and Simpson (2001) that apply during the learner stage:

- Supervision (23 states)
- Helmet usage (35 states)
- Restrict learners to certain roadways (14 states)
- Restrict time of day for operation (28 states)
- Zero BAC (4 states – California, Illinois, West Virginia, and Wisconsin)
- No passengers (33 states)
- Restrict learners to riding within the state or shorter distances (3 states – Connecticut, Vermont, Missouri)
- Restrict cycle size of learner's motorcycles (8 states)
- Eye protection (10 states).

Learner motorcyclists in Pennsylvania must hold the learner permit for six months and complete 50 hours of adult-supervised on-road practice.

The minimum licensing age for beginners without rider education varies from 14 years in there states – Alabama, Oklahoma, South Dakota – to 21 years in three states – California,

Florida and Idaho. The minimum licensing age for applicants who have taken education varies from 13 years in New Mexico to 17 years in New Jersey. Rider training is required for all applicants in Rhode Island and Maine, and for certain age groups (ranging from under 16 to under 21) in 15 other states.

Successful completion of state-approved rider education allows knowledge and/or skill tests to be waived for novices in almost all states (43).

Nine states also have 'tiered' licensing programs that restrict some or all age groups to operating on specific size motorcycles ranging from 100cc to 125cc for beginners aged under 15, 150cc to 650cc for beginners aged under 16 and 150cc to those aged under 18 who have not completed rider training.

Model licensing system

Three US agencies, the Motorcycle Safety Foundation (MSF), the National Highway Traffic Safety Administration (NHTSA) and the American Association of Motor Vehicle Administrators (AAMVA) have developed a model "Motorcycle Operator Licensing System", that contains features of graduated licensing. The model is designed to guide state motor vehicle administrators who are interested in improving their motorcycle licensing program. The description of the model licensing system that follows is taken from the NAMS website (http://www.ahainc.com/nams/PDFs/NAMS_0.3.pdf).

Stage 1 - Learner's permit

General applicants who satisfy application prerequisites are screened for vision and tested on rules of the road and subjects specific to motorcycling. Upon successful completion of the tests, applicants are granted a learner's permit authorizing restricted, on-street riding privileges.

Conditions of permit include:

- 90-day permit period
- Supervision by older rider/driver
- Parental participation
- No passengers
- Mandatory helmet and eye protection use
- Zero BAC tolerance
- High-visibility clothing
- No interstate-highway riding
- Daylight hours only

Stage 2 - Intermediate, provisional or restricted license

General applicants who have satisfied application requirements are given a motorcycle knowledge and performance test. Applicants may take the test as many as three times. Where required, proof of rider education must be presented before taking the test a second time. Upon successful completion of testing, applicants are granted an intermediate license.

License conditions include:

- Restricted hours
- No passengers
- Mandatory helmet and protective clothing
- Zero tolerance BAC for riders under 21
- License revocation for alcohol-related offence
- Parental participation for riders under age 18
- Special limitation of speed or road types (freeways, etc.)
- Early intervention for violations or at-fault crashes

Stage 3 - Full or unrestricted licence

General applicants who successfully complete the intermediate license stage and meet any minimum age (and/or time) requirements are given a second-level knowledge and on-road driving skills test. Upon successful completion of the test, applicants are granted a full unrestricted license. If it is not feasible to have second-level knowledge and on-highway driving skill tests because of the costs, jurisdictions should require a clean driving record as a condition for obtaining a full or unrestricted license.

Licence conditions include:

- Successfully complete intermediate license stage
- Meet any minimum age requirement
- Successfully complete advanced rider education
- Pass on-highway skills test

2.13.2 Rider training

Most US states that offer training for motorcyclists use the Motorcycle Safety Foundation's Motorcycle RiderCourse: Riding and Street Skills' (MCR:RSS) for beginners and the Experienced 'RiderCourse' (ERC) for advanced skills training. These courses are conducted exclusively off-road.

2.13.3 Characteristics of motorcycling in the US

Like Australia, there are very few mopeds as part of the powered two-wheeler population and riding is largely for recreation.

The median age of owners of registered motorcycles in the USA increased from 24 years in 1980 to 38 years in 1998 (Shankar, 2001, cited in Christie and Harrison, 2001). The number of motorcyclist fatalities in the US fell from 3,244 in 1990 to 2,116 in 1997 but increased to 2,483 in 1999 (National Center for Statistics and Analysis Research and Development, 2001). The increase in motorcyclists killed was only observed in the 40 years old and over age group. The number of motorcyclists killed aged under 30 declined considerably from 1990 to 1999. However, there are still proportionally more riders killed in the under 30 age group.

2.14 CANADA

The summary of motorcycle training and licensing that follows is taken mostly from Mayhew and Simpson (2001).

In Canada six jurisdictions have implemented graduated licensing schemes for motorcyclists and three have proposed schemes. As an overview:

- all jurisdictions require a test to be passed before a learner's permit is granted. This is generally a knowledge test, although a few jurisdictions include an off-road test of motorcycle handling and manoeuvring skills;
- the duration of the learner permit varies, from a minimum of 60 days to one year (with some jurisdictions allowing for a shortened period for graduates of approved training courses);
- six of the nine jurisdictions require supervision at all times during the learner period by a supervised rider who is usually required to follow closely on another motorcycle. Other options are permissible in some jurisdictions;
- in all jurisdictions, learners are not allowed to carry passengers and have a zero blood-alcohol limit;
- in all jurisdictions but one, learners are allowed to drive only during daylight hours;
- several jurisdictions restrict learners from riding on freeways where the speed limit is above 80 km/h, with one jurisdiction restricting speed to under 60 km/h;
- the duration of the next, intermediate, licensing phase varies from twelve to twenty-four months;
- in all jurisdictions, entry to the intermediate phase requires passing an on-road test;
- during the intermediate phase, most of the restrictions (including the prohibition against carrying passengers) are dropped. However:
    - all jurisdictions maintain a zero blood-alcohol limit;
    - four jurisdictions maintain a night-time ban;
- in addition, both learners and intermediate licence-holders are usually subject to a more stringent penalty point system, whereby fewer points are required for a loss of permit or licence;
- the requirement for graduation to full licensing varies. In some jurisdictions, it is simply a matter of serving time, in other jurisdictions, it means completion of an approved training course, in others it means passing an advanced on-road test.

In evaluating the effectiveness of the North American graduated licensing schemes for motorcyclists, Mayhew and Simpson (2001) recognised the absence of any formal evaluations. As a default, they were forced to examine 'before' and 'after' motorcycle crash levels in the three jurisdictions with long-standing schemes (Ontario, Nova Scotia and Quebec).

All three jurisdictions introduced the new licensing schemes during a period when motorcycle crashes, and particularly those involving young riders, were falling dramatically. The authors failed to find evidence of any benefits of the licensing schemes in Ontario and Nova Scotia and postulated that the strong pre-existent downwards crash trends may have had a masking role. In the case of Quebec however, the decline in

motorcycle crash rates was significantly greater for the youngest riders following the introduction of the scheme, thereby providing some indicative support for graduated licensing.

Mayhew and Simpson (2001) noted that the Quebec, Ontario and Nova Scotia schemes differed in two main regards:

- only Quebec required supervision during the learner period;
- the minimum learner period in Quebec was considerably longer (twelve months compared to either sixty days or six months).

2.15 JAPAN

In Japan, learning to drive or learning to ride must occur off-road. The licensing system is graduated in that a particular licence is needed to ride a motorcycle with an engine capacity of over 400cc.

The use of simulators in motorcycle training began in Japan in 1996 with the use of simulation exercises for training prior to obtaining a licence to ride a large-sized motorcycle (over 400 cc). Training sessions with simulators were made a compulsory part of training for a motorcycle licence prior to 1998. There is very little description of these programs and evaluations available in English.

An early paper (Yuhara, Oguchi and Ochiai, 1993) stated that a variety of riding simulators were being developed ranging from a fixed-base simulator for basic riding training to a simulator equipped with a visual system to allow different traffic environments to be presented. A partly translated Japanese document supplied by the Honda Australia Roadcraft Training complex in Sydney shows that the death rate per 10,000 motorcycle riders has decreased substantially since the introduction of simulator training in September 1996. It states that "understanding of other traffic's characteristics and the ability of hazard prediction are the factors believed to have contributed to this, and these were mainly done by using the driving simulators".

2.16 SUMMARY

In most jurisdictions, the motorcycle licensing system is similar to that for car drivers, with similar stages (learner, provisional and full licence) and similar minimum ages and duration for these stages. The restrictions associated with these stages include those shared by car drivers (e.g. zero BAC and speed limit restrictions) but include additional restrictions such as engine capacity or power-to-weight restrictions and restrictions on carrying pillion passengers. Some licensing systems include compulsory training, while many others have high rates of voluntary uptake of training.

Crash rates are very high for young riders. Learner riders do not share the low crash rates found for learner car drivers.

The increase in riding and crashes by older riders appears to be a worldwide phenomenon with which the existing training and licensing systems are not coping well. In many jurisdictions), the licensing system allows motorcycle licences to remain current at no additional cost to people who hold car licences. This makes it relatively easy for retired riders to take up riding again.

3.0 BEST PRACTICE IN MOTORCYCLE LICENSING AND TRAINING

3.1 WHAT IS BEST PRACTICE?

The main goal of any licensing and training system should be to increase the safety of road users by reducing the number and severity of crashes. This is achieved through the implementation and enforcement of road safety measures. Special measures (such as riding age restrictions and training requirements) may apply to particular subgroups known to be at the greatest risk such as young, novice riders with little or no experience whilst other measures are targeted towards the general population (such as maximum blood alcohol levels). The extent to which licensing and training measures are effective in maximising road safety is assessed by evaluation studies that examine their impact on crash rates and injury severity. A best practice system is a cost-effective one that utilises those measures shown to be most effective in reducing road trauma without unduly compromising the mobility and independence of the community.

The licensing and training system can bring about reductions in the number and severity of crashes by reducing the amount of the activity being undertaken (often termed exposure reduction) or by ensuring that the activity is undertaken more safely (often termed risk reduction). It is not always possible to neatly separate these effects. One of the underlying principles of graduated licensing is to reduce exposure in high-risk situations.

3.2 THE EFFECTIVENESS OF VARIOUS COMPONENTS OF LICENSING SYSTEMS

3.2.1 Graduated Licensing Systems

Most recent evaluations of licensing systems have focussed on graduated licensing schemes (GLS) for young novice drivers, with less attention to schemes for motorcycle riders. Few jurisdictions have implemented GLS specifically for motorcyclists and only the one introduced in New Zealand in 1987 has been formally evaluated (Mayhew & Simpson, 2001). However, many licensing systems are conceptually similar to graduated licensing systems and some of the components apply to both drivers and riders. It is recognised that motorcyclists are a special group of road user and that many of the systems that work for car drivers may not work for motorcyclists. This chapter examines the effectiveness of licensing and training measures, including graduated licensing for riders. For those measures where there has been little research on safety outcomes for riders, the literature on car drivers has been assessed for its applicability to riders.

The implementation of restrictions for beginning drivers, in addition to other general road safety measures that apply to all age groups, has proven successful in reducing crashes in many jurisdictions. Hedlund, Shults and Compton (2003) clearly state that no additional research is needed to justify the need for GLS (for car drivers). Given the success of these restrictions, it is important to determine which components are most likely to maximise safety benefits.

However, as Senserrick and Whelan (2003) point out in their evaluation of GLS for drivers, the effectiveness of any individual component is dependent on other components that comprise the model. Also, the effectiveness of introducing a new component into an

existing model will largely depend on the combination of components already inherent in that model.

In their evaluation of graduated licensing for motorcyclists, Mayhew and Simpson (2001) note that the effectiveness on safety of applying limits on the engine size or power of the motorcycle driven by novices and of taking rider education and training have received the most research attention. Less well researched are the safety benefits of other restrictions for motorcycle riders, applied alone, or in combination – eg zero BAC, night curfews, supervision, and no passengers. Much of this research has been conducted on car drivers.

To the extent possible, each component of a graduated licensing system has been examined for its impact on crash risk and the amount of riding in the sections that follow.

3.2.2 Minimum age restrictions

Research has shown that increasing the minimum age for full licensing among car drivers reduces crash risk. In South Australia, crash reductions occurred after the minimum full licensing age was raised from 17 years to 19 years and the intermediate licensing age was raised from 16 years to 16.5 years (Senserrick & Whelan, 2003). In contrast, reducing the minimum age has been associated with increased crash risk. Gaudry (1987, cited in Gregersen & Bjurulf, 1996) found a 24 percent increase in fatalities among new drivers in Canada after the intermediate licensing age there was reduced from 18 years to 16 years. Other methods for delaying licensing include making it more difficult or costly to apply for a licence (Ulmer, Preusser, Ferguson & Williams, 1999).

As outlined by Senserrick and Whelan (2003), a number of factors have been associated with increased crash risks due to a low licensing age, including:

- Immaturity – Less well developed perceptual systems and behaviour
- An increase in the total number of novices on the road; and
- A reduction in the amount of time available to gain experience in the learner licence phase

While the minimum ages for obtaining a motorcycle learner permit or licence differs across jurisdictions, and some jurisdictions have changed their minimum ages for motorcycle licences, there is little in the way of published evaluations of the effect of minimum age for motorcycle licensing.

In New South Wales and Victoria, the minimum age to obtain a motorcycle learner permit is higher than for a car learner permit. In NSW, the minimum ages are 16 years for a car learner permit and 16 years and 9 months for a motorcycle learner permit. The minimum age for obtaining a provisional licence is 17 years for both types of vehicles. In Victoria, the minimum age for obtaining a car learner permit is 16 years, while the minimum age for a motorcycle learner licence is 18 years. The minimum age for obtaining a provisional licence is 18 years for a car licence and 18 years and 3 months for a motorcycle licence. This encourages novices, who wish to gain independence from a young age, to start driving before they start riding. This may accelerate the development of driving skills that could benefit their riding ability and thereby contribute to a reduction in motorcycle road trauma. Incidentally, it may act to divert potential novice riders into becoming car drivers instead.

It is likely that minimum age restrictions can play a valuable role in a training and licensing system by both reducing the amount of riding and by reducing the level of risk associated with riding. The reductions in riding result from:

- Preventing legal riding by riders younger than the minimum age
- Encouraging potential novice riders to become novice car drivers (if the minimum licensing age for motorcycling is higher than that for car driving)

The reductions in risk result from:

- Having novice riders with a greater level of maturity (associated with less risk taking)
- Having novice riders with skills learnt from car driving (if the minimum licensing age for motorcycling is higher than that for car driving)

Age-based exemptions from restrictions

In some jurisdictions, licensing restrictions that apply to novice riders are waived if the rider is above a certain age or already holds a full car licence. A large case-control study of motorcyclists in New Zealand (Mullin, Jackson, Langley & Norton, 2000) found that age, but not experience, was associated with lower risk of involvement in a casualty crash. Riders aged 25 or over had less than half the risk of those aged 15 to 19. After taking age into account, there was no evidence to support the benefits of experience as a rider or as a car driver. Mullin et al. conclude that licensing policies should continue to emphasise the age of the rider and that there is little support for exemptions based on holding a car licence. The research provides some support for waiving licensing restrictions for older novice riders.

However, given the difficulties associated with separating the combined effects of age and experience on crash risk, licensing systems should apply age-based exemptions with caution. As outlined in Staysafe 37 (1997), permitting restrictions to be exempted on the basis of age weakens the message that all novices need a long enough period to gain essential experience.

3.2.3 Minimum time periods for holding a learner or restricted licence

The requirement to hold a learner or restricted licence for a minimum time period is designed to enable practice and experience to be gained under lower-risk conditions when skills are still developing. The learner period for drivers of cars is the safest time to gain driving experience and evidence suggests that that increasing the length of the learner period and the amount of supervised experience can reduce subsequent crash risk for car drivers (see Senserrick & Whelan, 2003 for a review).

The effects on rider safety of minimum time periods for holding a learner or restricted motorcycle licence have not been examined. However, the large differences in crash risk between the learner and restricted licence phases observed for car drivers are unlikely to occur for motorcyclists. This is because there is little difference in the restrictions imposed on riders in the learner and restricted licence phases. In both phases, a rider is (generally or effectively) unsupervised. Motorcycling is also a much higher risk activity than driving, because of the more complex skills required for riding compared to driving and the lack of

protection afforded by the motorcycle compared to that afforded by a car. As previously noted, supervision is problematic for motorcyclists given, among other factors, the increased crash risk associated with carriage of a pillion passenger. However, at a minimum, increasing the time required for holding learner and restricted licences would allow practice and experience to be gained under conditions that are less risky than those during the full licence stage.

The problem with this approach is that motorcyclists who ride only for recreation might hardly ride at all during the learner and restricted licence phases (unlike car drivers for whom the car is the main form of transport). Therefore mandating minimum periods for which the learner and restricted licences are held may do little to increase the amount of experience gained. A more direct approach to ensuring sufficient practice is to mandate logging of hours of practice (see Section 4.2.7).

3.2.4 Maximum time periods for holding a learner licence

A rider who fails the licence test may continue to ride on the road as a learner permit holder. In an effort to eliminate the 'permanent learner', maximum holding periods for learner licences have been introduced in some jurisdictions such as the United Kingdom (Elliot et al., 2003). Those who fail to take their test within the required time must wait an additional period of time before regaining motorcycle licence entitlement. This requirement acts as an incentive for learners to obtain practice in order to pass the on-road test and therefore intends to make them safer riders.

3.2.5 Restrictions on carriage of pillion passengers

There is evidence that the carriage of pillion passengers not only increases the total number of persons at risk but that the severity of injury to the rider is greater when a pillion passenger is carried (Social Development Committee, 1992). Balancing the motorcycle is also more difficult with a passenger. Therefore, many jurisdictions impose passenger restrictions on novice riders whose riding skills are likely to be less well developed than those of more experienced riders.

Carrying young passengers has been shown to increase crash risk for young car drivers by causing distractions to the driver and encouraging risk-taking behaviour (see Regan & Mitsopoulos, 2000 for a review). Therefore, many jurisdictions impose restrictions on peer-passengers for young novice drivers during the early stages of their driving career. The potentially distracting effects of peer-passengers are also likely to apply to young novice riders. These findings also support the pillion restrictions imposed on young novice riders in most jurisdictions.

3.2.6 Supervised riding

The very low crash risk among supervised learner drivers is due, in large part, to the presence and influence of a supervisor who is a fully licensed driver. This is presumably the logic behind licensing systems that permit learner riders to carry a pillion passenger if the role of the pillion is a supervisory one (and the pillion is more experienced and is not subject to riding restrictions). However, supervision for motorcyclists is problematic given the increased crash risk associated with carrying a pillion passenger.

Since balance and coordination is more difficult with a passenger on a motorcycle, some of the benefits of supervision for novice riders could be achieved by having the supervisor

follow the learner on another motorcycle, or closely behind in a car (Mayhew and Simpson, 2001). While it is not expected that the benefits of supervised riding will reduce crash risk per distance travelled as much as it does for learner car drivers, a requirement for supervision could reduce the amount of riding by learner riders because of difficulties in obtaining supervision. Thus, it would be expected to have some road safety benefits.

3.2.7 Logged hours of learner riding

Some jurisdictions require supervisors of learner car drivers to certify that they have gained a certain number of hours practice whilst under supervision. This requirement aims to ensure that learners have gained some practice prior to taking their practical test to gain a licence and therefore do not have to gain all of their experience once licensed. Logbooks can be used to help learners ensure they are receiving sufficient practice (Senserrick & Whelan, 2003). The safety benefits of logged hours have not been evaluated for learner car drivers or learner riders (Mayhew and Simpson, 2001).

The benefit of increasing the number of hours of car driving experience as a learner lies in the low crash rate of supervised car driving (compared to the period just after the provisional drivers licence is issued). For motorcyclists, learners have a very high crash rate that is certainly not lower than in the first few months of the provisional licence. Therefore, introducing a requirement for logging hours to increase the number of hours of motorcycle riding experience as an unsupervised learner rider will not have the same benefits as for car drivers. However, a requirement for logged hours of learner riding might discourage some potential motorcycle learner permit applicants.

3.2.8 Engine capacity restrictions

Elliot et al. (2003) note that

> motorcycle size can be quantified in several ways, but the concept relates essentially to a motorcycle's performance. Thus, the key measures include engine capacity, power, power-to-weight ratio and *laden* power-to-weight ratio. Of these four, engine capacity is the most generally available for accident-involved motorcycles: however *laden* power-to-weight ratio (based on an average loading) is directly related to maximum acceleration and so is probably the most relevant. (p.12).

Engine capacity restrictions have been a common component of motorcycle training and licensing schemes and the published evaluation studies are summarised in this section. Evaluations of power to weight restrictions are presented in Section 4.2.9.

An early study by Mayhew and Simpson (1989) examined the relation between motorcycle engine size and safety. They concluded that the relationship between motorcycle engine size and collision involvement remains inconclusive, largely due to difficulties in obtaining adequate measures of amount of riding. However, the evidence overall showed that size was not a risk factor for accident involvement.

Langley, Mullin, Jackson and Norton (2000) examined whether the risk of an injury increases with increasing engine capacity of the motorcycle. This New Zealand study was better than many earlier studies because it controlled for amount of riding and other potentially confounding factors such as age, socio-economic status, absence of a licence

and car driving experience. Langley et al did not find a strong relationship between increased engine capacity and increased risk of crashing.

A recent review commissioned by the Swedish National Road Administration (TOI, 2003) concluded that it appears that there are no safety benefits of combining power restrictions with age limitations (graduated licensing). While the number of crashes with powerful motorcycles decreases after power restrictions are introduced, this positive effect is outnumbered by an increase in crashes involving light motorcycles.

3.2.9 Power-to-weight restrictions

One reason for the lack of success of engine capacity restrictions is that some small capacity motorcycles, which satisfy engine capacity restrictions, are very powerful. This has led to pressure for restrictions to be couched in terms of power, or a power to weight ratio, instead of (or in addition to) capacity (Haworth, Smith, Fox & Brumen, 1994).

It is difficult to assess the safety effects of engine size or engine power or power-to-weight ratio restrictions because riders with bigger or more powerful motorcycles generally ride further. A study by the TNO Road Vehicles Research Institute in the Netherlands (TNO, 1997 cited in Elliot et al., 2003) emphasised the distinction between two types of crash risk:

a) the risk of a rider being injured or killed in a crash in a specific period (e.g. one year); and

b) the risk of a rider being injured or killed in a crash when travelling a specific distance (e.g. one kilometre).

Many studies examined by TNO found that type (a) risk increases with motorcycle size, while the evidence is less clear for type (b) risk where it appears that motorcycle engine size is only influential in the case of fatal crashes (larger motorcycles have increased risk per kilometre ridden).

On the basis of these studies, TNO concluded that 'there is no scientific evidence that engine size is a major factor in motorcycle accidents; engine size does not emerge as a risk factor'. Elliot et al (2003, p.12) dispute this conclusion. They state that 'the high involvement of larger machines in fatal accidents – arguably the most significant group of accidents – is claimed to result only from their high mileage, despite the evidence presented earlier in the report that fatal accidents per mile does increase with motorcycle size'. According to Elliot et al (2003) the conclusion depends on whether the higher mileage can be regarded as being *caused* by bigger engines. For example, evidence suggests that larger motorcycles have higher motorcycle mileage due to their greater potential for travelling long distances (see Broughton, 1998). It would be reasonable to assume that riders who wish to upgrade to larger capacity motorcycles do so because of a desire to travel further. However, it would be necessary to obtain mileage data for a sample of riders, including many who begin to ride a larger motorcycle, in order to establish the precise influence of motorcycle size on the mileage of individual riders.

Riders of larger capacity motorcycles who do have an increased mileage would also increase their risk per year even if their risk per mile were unchanged. 'So even if the extra casualties with larger motorcycles were entirely explained by their higher mileage, overall motorcycle safety in terms of casualties per year would be worsened by the

availability of large motorcycles, and might be expected to be improved by measures that reduce the use of larger motorcycles, such as differential taxation and graduated licensing of motorcyclists. From the rider's personal perspective, it could also be argued that crashes per year is also the most pertinent risk index' (p.12).

There is some evidence to suggest that among car drivers, young drivers of high performance cars (cars with above average performance including greater engine capacity), took more risks such as deliberate speeding and risk taking (Clarke, Ward & Truman, 2002). This was associated with an increased involvement of performance motorcycles in crashes occurring at night when recreational driving was greatest. These findings reinforce the need to restrict the use of high-powered motorcyclists for novice riders

3.2.10 Speed limit restrictions

Speed limit restrictions limit the maximum speed at which novices can ride, or specify the type of road on which novices can ride. For example, novices may be prohibited from driving in excess of 80 km/h or from driving on a road with posted speed limits in excess of 80 km/h (Mayhew & Simpson, 2001).

As outlined by Senserrick and Whelan (2003), the rationale behind imposing speed limit restrictions is to:

- Provide inexperienced drivers/riders with additional time to react to cues and recover from mistakes;
- Reduce the severity of a crash and subsequent injuries;
- Allow drivers/riders to gain experience in conditions with a greater safety margin; and
- Aid development of long-term behaviour that encourages driving/riding at lower speeds.

There is little evidence of road safety benefits of these restrictions. Until 1987, Victoria had a requirement that drivers could not exceed 80 km/h in the first year of licensing. After this restriction was removed, an analysis showed no evidence of an increase in serious crashes (Vicroads, 1988, cited in Senserrick & Whelan, 2003). Doherty and Andrey (1997, cited in Senserrick & Whelan, 2003) found that restricting young drivers from high-speed roads was associated with a 5 percent increase in their crash involvement. They attributed this finding to the restriction forcing young drivers off the highest standard roads onto lower standard, less safe, roads.

In addition, there is some evidence to suggest that restricting speed limits for novice drivers prevents them from gaining experience at higher speeds and from developing high-speed driving skills (such as freeway merging and rural road driving). An alternative method might be to permit driving on lower speed roads during the initial stages of driving and then progress to higher speed roads (Staysafe, 1997).

There have been no evaluations of speed limit restrictions for novice motorcyclists, although the rationale behind the restrictions for novice drivers might be expected to apply equally well to them. It may also be that the types of speed limit restrictions applied to novice drivers might not be sufficiently low to bring about a reduction in the severity of

motorcycle crashes (since serious injuries and fatalities can occur in low speed motorcycle crashes).

3.2.11 Requirement to display L/P plates

No evaluations of the requirement to display L or P plates were found. However, some method of identifying those riders to whom particular restrictions apply would appear to be necessary for effective enforcement of those restrictions. Thus, the requirement to display L and P plates would appear to be a useful component of a motorcycle training and licensing system.

3.2.12 Lower BAC limits

Most Australian jurisdictions have introduced zero BAC for novice riders, in conjunction with zero BAC for novice car drivers. These restrictions are based on the assumption that the driving and riding skills of novices are more severely impaired at low levels of alcohol than those of their more experienced counterparts.

There is little empirical evidence that has been collected to measure the benefits of zero BAC for novice riders.

In some jurisdictions, the zero BAC limit applies for a shorter period (or not at all) for novice riders who already have a full car licence. Given the different skills required for motorcycle riding (especially the importance of balance), this may not be justified.

3.2.13 Time of day restrictions

There is little data available regarding the risk of motorcycle crashes as a function of time of day. Haworth et al. (1997) collected information about both crashes and the amount of riding in a case-control study. From those data, it was calculated that 34 percent of crashes occurred at night (6pm to 6am), while only 21 percent of motorcycle travel occurred at night. Thus, crash risk does appear to be elevated at night for motorcycles (the calculation was not possible for novice riders only).

Time of day restrictions have not been introduced in Australia for novice drivers or riders, although they have been considered by a number of jurisdictions. This is perhaps because of our generally higher minimum age restrictions than in the United States, where these measures have proven to be very effective in reducing crashes of novice car drivers.

3.3 THE EFFECTIVENESS OF RIDER TRAINING

While there is little empirical evidence to demonstrate improvements in motorcycle safety as a result of training, training is encouraged and, in some jurisdictions, is compulsory and often subsidised.

Evidence suggests that voluntary motorcycle training programs do not reduce crash risk (TOI, 2003). On the contrary, these programs seem to increase crash risk. This may be due, in part, to the increased confidence felt by many riders who have completed training, despite minimal improvements in rider skill. Such riders may therefore take more risks in situations where they lack the skills to safely avoid a crash.

Compulsory training through licensing programs produces a weak but consistent reduction in crashes (TOI, 2003). It is important to identify the components of training programs that are associated with reductions in crash risk.

Simpson and Mayhew (1990) point to some 'well designed' studies that have found that formally trained riders had the same risk of being involved in a crash as riders who did not receive instruction. Some studies have even found that formally trained riders had higher accident rates (per distance ridden).

There are two possible explanations for the lack of a proven effect of training on crashes and safety; 1) current training is ineffective, and/or 2) there are limitations in the assessment studies/methodologies used.

3.3.1 Content of training

Many authors have concluded that the apparent lack of success of rider training in reducing accident risk or number of violations may stem from the content of the training programs (Chesham, Rutter & Quine, 1993; Crick & McKenna, 1991; Haworth, Smith & Kowadlo; 1999; Reeder, Chalmers & Langley, 1996; Simpson & Mayhew, 1990). The rider training programs currently in use focus mainly on the development of vehicle control skills. This is not necessarily through choice but is often brought about through time constraints and the need to prepare a rider for an end test that is skill-based.

Most training programs have been criticised for their failure to adequately address motivational factors (ie deliberate risk taking behaviours) and higher order cognitive skills such as those related to the anticipation, detection and assessment of hazards. Teaching skills is essential, yet it is recognised that many crashes are not necessarily the result of poor riding skills but of deliberate risk taking behaviour. There is considerable room for the important attitudinal concepts of cognition, perception and reaction to be more effectively delivered. Rothe and Cooper (1988) concluded that "the lack of riding skill is not the major problem. Attitudes, personality and awareness of others are". They went on to recommend that "motorcycle rider training courses should be more attentive to education than training" and these courses "should use instructors who are better prepared to implement the education-oriented programs" (p.203). Chesham et al. (1993) concluded that "training courses concentrate on riding technique and pay little attention to why safe riding is important. That is, they offer little by way of cognitive underpinning for the behaviours they promote." (p.428).

Simpson and Mayhew (1990) speculate that some riders may benefit from skills training while others will not. They posit that perhaps trainees who begin with a relatively low level of skill development could benefit from training while others who are more skilled in vehicle control may find little safety benefit in completing such a course. Rider motivations are also important, such as the reason for enrolling in the course (e.g. to satisfy parental requests).

The failure of most motorcycle training programs to include cognitive skills such as the anticipation, detection and assessment of hazards is noteworthy given the importance of such skills for safe riding and their association with crash involvement. In a review of this area, Lester (1991, cited in Elliot et al., 2003) states, "the higher order cognitive and risk perception skills, together with attitudinal and social factors are clearly associated with accident liability."

3.3.2 Hazard perception training for motorcyclists

Many motorcycle training courses state that they teach "roadcraft" and there is often an implict assumption that roadcraft equates to hazard perception and responding. But roadcraft is rarely clearly defined. Allardice (2002) defines roadcraft as "riding 'nous', the ability to recognise and react to surrounding influences and your environment" (p.41).

For motorcyclists, hazard perception requires knowledge of both the physical hazards associated with the road layout and the hazards associated with the behaviour of other road users. In Victoria, the draft new course for proceeding to a licence without a learner permit (Haworth & Smith, 1999), includes material on "coping with the road", which identifies road-related hazards, and "coping with other road users" to help riders to predict what other road users are likely to do. In order to identify a vehicle as a hazard or potential hazard, there is a need to be able to predict what it is likely to do. This is also covered in the session on "roadsense" (road rules).

While research has shown that hazard perception training in novice drivers leads to improved performance on hazard perception tests, it is not yet known whether these drivers go on to be safer drivers and have fewer crashes (McMahon & O'Reilly, 2000).

Some of the methods used for hazard perception training for car drivers may not be feasible for motorcyclists. For example, while instructors travelling with novice car drivers and providing feedback on hazards (or listening to commentaries) has been used, it may not be appropriate for an instructor to travel as a pillion with a novice rider, for the reasons outlined in Sections 4.2.5 and 4.2.6.

Many of the approaches to hazard perception training for car drivers require only detection of the hazard and response by pressing a button. Thus, they do not train improved execution of responses to hazards, an area that the crash data suggest is of greater importance to riders than drivers.

Standard motorcycle training courses leading to standard motorcycle tests have not been shown to result in reductions in crash involvement. There has been little evaluation of the effectiveness of products designed to improve hazard perception and responding by motorcycle riders. The lack of a good test of hazard perception and responding by motorcycle riders has prevented research to evaluate the effectiveness of motorcycle training programs and products in enhancing these skills.

Horswill and McKenna (1998) found that hazard perception training for car drivers reduced their risk-taking propensity. Given that motorcyclists have been found to engage in more behaviours known to increase crash risk (e.g. Horswill & Helman, 2001), it might be expected that the potential benefits of a hazard perception training program designed specifically for motorcyclists would be even more critical for this group.

Risk taking behaviour is another factor related to crash involvement. As pointed out by Koch and Brendicke (1990, cited in Elliot et al., 2003) training needs to deal with the contradiction that 'what we teach asks for an *avoidance* of risk taking whereas young people in society *validate* and *reward* risk taking.'

3.3.3 Duration of training programs

Most learner and licence motorcycle training programs have durations of 16 hours or less, and many are one-day courses. Rider behaviour cannot be dramatically altered in such a

short time frame, regardless of method (Christie, 2001). According to Goldenbeld and Hatakka (1999),

> ...it is very likely that the effects of such courses will only be short-lived if the newly-learned or improved skills are insufficiently practised or applied during driving after the course… an important part of those skills actually learned and practised are only applicable during emergency conditions that rarely occur.

Clearly there is a need for programs to be extended over a longer period involving several training sessions in order to maintain their effectiveness. Unfortunately, however, the research to date does not offer clear guidelines as to the optimal length or staging of such training (Senserrick & Whelan, 2003). Haworth and Smith (1999) concluded that four days were needed to deliver a training program that would allow novice riders to reach a level where they would be considered to be competent to ride unsupervised.

3.3.4 When training should occur

Another important consideration is when training should commence. In terms of learning to drive a car, Carstensen (2002), Goldenbeld & Hatakka (1999) and Maag, Laberge-Nadeau, Desjardins, Morin, & Messier (2001) suggest that basic vehicle-handling and learning to drive skills and knowledge should be well trained during the learner period when the novice is accompanied by a supervised driver. In the case of motorcycling, the learner rider is unaccompanied in most licensing systems, however it would be reasonable to assume that the most basic skills should be well learnt during the time when restrictions are in place.

For higher-order cognitive skills such as hazard perception, however, it has been recommended that training be implemented at a time when the novice has had some on-road solo driving experience (Catchpole et al, 1994; Gregersen & Bjurulf, 1996; West & Hall, 1998). Including hazard perception skills in a graduated licensing system provides encouragement and incentive for novices to develop these skills (Christie, 2001; Lynam, 1996).

Developing safe attitudes and motivations through insight training is likely to benefit riders prior to the learner period, or even earlier during the primary and secondary school years (Henderson, 1991; Fresta, Lee, Leven, Mark, McAlpine, Watson & Watson, 1995, cited in Senserrick & Whelan, 2003).

3.3.5 Limitations in the assessment studies/methodologies used

The lack of effectiveness of training may be due, in large part, to the ways in which effectiveness is measured. While the main goal of driver training is crash and injury reductions, other measures that can influence these factors including distance travelled and motivation levels are generally not accounted for in evaluation studies (Horneman, 1993; Palmer, 1995, cited in Senserrick & Whelan, 2003).

Simpson and Mayhew (1990) also point out that many of the evaluations of training programs analyse only the number of crashes and that if severity and type of crash were examined as well, positive effects might be found. For example, a rider may avoid an obstacle and slide or fall off as opposed to crashing into the obstacle. This would indicate a heightened hazard perception ability, but lack of practice in avoidance actions. While number of crashes is often the ultimate assessment of improved rider ability, some

weighting of the crash based on severity as measured by injury (e.g. number of days of hospitalisation) may be more appropriate.

In many jurisdictions, only injuries requiring medical treatment are reported in the crash data. This underestimates crashes of lower levels of severity, the very type of crashes where training might be expected to have its greatest effect.

3.3.6 Other training materials

There can be deterrents to enrolling in a training course, such as the cost and availability in some areas. The Australian Transport Safety Bureau (ATSB) has released a new motorcycle rider training video and booklet called "Ride On" that can be purchased or ordered via the internet. The video runs for 43 minutes and provides instruction in "bike control skills plus mental skills to anticipate danger as well as skills for self-control" (FORS, 2000). Rather than simply demonstrating examples of riding safely, the video includes four camera angles with zoom-ins, split screens and inserts to provide detailed information throughout the production. The video and accompanying booklet were produced with collaboration from experienced motorcyclists and instructors. While it is stressed that neither the booklet nor the video are meant as replacements or substitutes for personal training, these self-paced and accessible materials should be a useful addition.

3.3.7 Conclusions about training

Elliot et al (2003, p.60) summarise the reasons for the lack of effectiveness of current motorcycle training programs as follows:

- 'A relative lack of attention to higher order cognitive skills including those associated with hazard anticipation, recognition and assessment.
- A tendency to improve confidence rather than improve self-assessment of limitations
- Difficulties in dealing with attitudes and motivations, especially in light of research findings that motives associated with sensation seeking are for some riders, an intrinsic part of motorcycling.'

In terms of best practice in training:

- Compulsory training appears better than voluntary (possibly because of reductions in exposure rather than risk reduction)
- There is no real evidence of particular programs or components leading to reductions in crash risk
- An increased emphasis on roadcraft (without reducing the time spent on vehicle control skills) appears to be necessary at both the learner and licence levels
- Longer or more costly compulsory programs might also be expected to lead to larger reductions in riding
- Hazard perception training holds promise for the future.

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

3.4 THE EFFECTIVENESS OF RIDER TESTING

3.4.1 Purpose of testing

The main objective of driver testing should be safety. The safety objective rests on a process of driver selection; those who lack the required competence to drive are not permitted to enter the system. However, most candidates who fail a test simply undergo more practice and then take the test again so that in the end few drivers are screened out of the system. In this sense, the main purpose of driver testing is to encourage learner drivers to undergo sufficient training and practice (Waller, Li, Hall & Stutts, 1978, cited in Goldenbeld, Baughan & Hatakka, 1999; Macdonald, 1988; McKnight, 1992; Mynttinen, 1996, cited in Goldenbeld et al. 1999, & Baughan, 2000).

Goldenbeld et al. (1999) outline the ways in which a driving test may influence training:

- The content of the test and the test standards directly influence the type, standards and amount of training and practice
- The test itself may serve as training by indicating to "failed" learners the areas that need further work

3.4.2 Testing practices

Testing is a near universal requirement but there are substantial differences between jurisdictions in the required minimum age of candidate, conditions for issuing a licence, subject matter of driver testing, practical execution of testing and in the conditions for re-testing (Goldenbeld et al., 1999). In most jurisdictions, passing a particular test marks the completion of a particular stage in the licensing/graduated licensing system (GLS) and enables graduation to a higher level within that system. It is intended that the tests reinforce to learners that licensing is a progressive learning process with various assessment hurdles before a full licence is issued and that a certain level of skill must be reached at each hurdle stage.

3.4.3 Knowledge tests

In the initial stage of most western licensing systems, prospective drivers/riders must pass a theory test before being issued with a learner's permit. The theory test may cover a wide range of topics including traffic regulations, behavioural rules, automotive engineering, behaviour in risky situations, attitudes towards driving/riding, behaviour of other road users, vehicle safety, vehicle maintenance, and recognition and avoidance of risky situations (Goldenbeld et al., 1999). Successful completion of the theory test is an important first step of GLS as it is intended to provide a framework of prior road law knowledge within which the learner driver can gain practical on-road experience (Staysafe, 37, 1997).

In some jurisdictions there is a separate or additional knowledge test for motorcyclists. In other jurisdictions, motorcycle licence applicants are exempted from the knowledge test if

they already hold a car licence. There is no evidence available regarding the effects of these different requirements on motorcycle safety.

3.4.4 Practical tests

Current on-road practical tests require candidates to demonstrate satisfactory performance on road and traffic regulations and vehicle control skills but there is very little coverage of driver characteristics such as propensity to take risks and attitudes and motivation. Additionally, due to the restricted conditions in which they operate, on-road tests do not provide a good measure of higher order cognitive skills such as hazard perception and responding. Yet research to date has demonstrated that these factors may be implicated in the high accident liability of young/inexperienced drivers (e.g. Catchpole, Cairney & Macdonald, 1994; Hall & West, 1994, cited in Goldenbeld, 1999; Parker, Reason, Manstead & Stradling, 1995). However, the difficulty of including these variables in practical tests is associated with a limited understanding about how these skills can be identified, how they should be measured and at what standard of performance they should be assessed.

Most motorcycle practical tests are administered off-road, often in a very small area. Thus, while they share the drawbacks of on-road practical tests outlined above, their ability to measure even vehicle control skills at realistic speeds is limited.

3.4.5 Hazard perception tests

One of the arguments for hazard perception testing is that it encourages licence applicants to attempt to improve their hazard perception skills, either informally or by undertaking formal hazard perception training. The current motorcycle learner and licence tests arguably do not measure hazard perception, although they measure some components of the ability to respond (e.g. application of counter-steering techniques to swerving around obstacles, quick stops on straight and curved paths). Performance on these tests CHECK THIS have not been found to predict a rider's total number of crashes, their number of reportable crashes (those that resulted in a certain amount of property damage), or the number of crashes recorded in the rider's police file (Chesham et al., 1993). The relationship between performance on car driver tests and later crash involvement is also weak or non-existent.

The importance of hazard perception skills for safe riding has been clearly established. However, these skills are difficult to assess in practical tests. Therefore, some jurisdictions have implemented computerised HPTs that must be passed by car drivers applying for their probationary/restricted licences. However, only the UK includes a HPT as part of the requirement for riders to gain a learner motorcycle licence and this test is designed specifically for car drivers. No jurisdiction has implemented a HPT designed specifically for motorcyclists.

Horswill and Helman (2001) claim that the UK Hazard Perception Test may disadvantage riders. They conducted a simulator study and found that motorcyclists (who were older and also held full car licences) performed better on McKenna's hazard perception test when they were asked to respond as if they were driving their normal cars than when they were asked to respond as if they were riding their normal motorcycles. Given that McKenna's test was intended for car drivers, the researchers argue that some of the hazards might have been less relevant for motorcyclists and that this might explain why this group did not perform as well on motorcycles as they did in cars. For example,

squeezing through a narrow gap in traffic would be less of a problem for motorcyclists than for drivers of cars. Horswill and Helman consider that similar results could occur with the UK HPT and recommend that a separate HPT for motorcyclists with associated training should be introduced into licensing systems. Helman (personal communication, 2003) has advised that he intends to develop a motorcyclist hazard perception test.

It is also questionable whether the HPTs developed for car drivers give sufficient emphasis to hazards specific to motorcyclists such as road surface hazards. This would limit their ability to be able to predict later crash involvement.

3.4.6 Problems in evaluating testing

The extent to which testing can be used to screen unsafe riders from the licensing system is fairly limited. Most studies that have examined the role of testing in this regard have analysed the relation between test results and crashes or critical incidents post-test. Clearly, candidates who never pass their practical test cannot be involved in crashes or critical incidents as licensed riders since they are not licensed. Notwithstanding this limitation, most reviews have examined the accident records of licensed drivers who obtained high scores on test and those who obtained low scores on test.

There are several methodological problems that prevent a satisfactory assessment of the predictive validity of driving tests. Baughan (2000) summarises these as follows:

- Candidates may take only enough training and practice to bring them to a moderate probability of passing. This would guarantee low reliability and therefore low predictive validity for these candidates.

- By inducing beneficial changes to drivers' training and practice, a test may reduce the range of driving performance and accident liability of candidates, and thereby remove its own predictive validity.

- Reported crashes are comparatively rare events and are caused by many factors other than the driving skill of one of the involved drivers.

- It is unlikely that the ranking of actual levels of driving skill for a group of newly licensed drivers would remain constant over the following year during which their accident records are established.

- There is potential for candidates to provide a falsely positive picture of their driving attitudes and style; attributes which have been implicated in the high accident liability of young drivers (Parker, Reason, Manstead & Stradling, 1995; Hall & West, 1994, cited in Goldenbeld, 1999). This would reduce the ability of the test to identify and fail people with 'unsafe' attitudes and driving styles.

Currently however, there is no scope for assessing factors related to driver attitudes and driving styles in practical on-road tests because of difficulties associated with making objective assessments of these behaviours. Where such assessments are made, they generally rely on the subjective judgements of examiners. As suggested by Baughan (2000), the potential for applicants to feign favourable attitudes during testing places a greater emphasis on testing to deliver an educational message to those of concern. This might be better achieved by professional driving instructors.

3.4.7 The effectiveness of rider testing in reducing crashes

Evidence suggests that there is little evidence for a relationship between test scores and subsequent accident liability, in the case of car drivers (e.g Macdonald, 1988). There has been little research on the effectiveness of motorcycle tests, despite their widespread use. Mayhew and Simpson (1989) concluded that improved testing and licensing systems were associated with reductions in casualties among novice motorcyclists in those jurisdictions where evaluations had been conducted. However, they argued that these reductions were likely to result from a reduction in the amount of riding as potential riders were not inclined to participate in more complex schemes and, therefore, were less likely to become riders.

In an evaluation of the Driving Performance Evaluation Road Test in California, Gebers, Romanowicz and Hagge (1998) failed to find any reduction in accident involvement or traffic law violations resulting from the implementation of the program.

Rockwell, Kiger and Carnot (1990) reported an evaluation of the Ohio Motorcyclist Enrichment Program (OMEP) Basic Riding and Street Skills Course. A higher percentage of the trainees who had scored in the highest skill category had been involved in a motorcycle crash than those in all other skill test categories. However, those trainees who obtained scores above 85 percent on the knowledge test appeared to have a lower motorcycle crash involvement rate.

Buchanan (1988) compared the Motorcycle Operator Skill Test (MOST) II with the current system in New York. Those riders who were assessed by the MOST II as showing higher skill levels were not significantly less likely to be involved in subsequent motorcycle crashes.

Wood and Bowen (1987) reported an evaluation of the revised testing procedure for obtaining a learner permit in Victoria, introduced in June 1983. They found that learner rider crash reductions were smaller in areas where it was necessary to pass a skill test for the issue of a learner permit.

Jonah, Dawson and Bragg (1981) attributed the failure of the Motorcycle Operator Skill Test (MOST) to predict accident involvement to the absence of testing for danger perception and risk-taking. "The focus of the MOST test and indeed most licensing tests is still primarily geared towards the acquisition of basic vehicle control, a fact which inevitably influences the content of elementary training courses aimed essentially, whether consciously or unconsciously, at equipping novices to pass the test" (Crick and McKenna, 1991, p.104).

Given the guiding role that testing has in establishing the method and subject matter of training, it is important that researchers and practitioners have a clear theoretical outline of the task and of the goals of training (Goldenbeld et al. 1999). Any limitation in our understanding of the task necessarily places constraints on our knowledge of what should be trained and therefore what should be tested.

3.5 BEST PRACTICE COMPONENTS OF A MOTORCYCLE LICENSING AND TRAINING SYSTEM

A motorcycle licensing and training system has a number of components and exists within a graduated licensing system. The system aims to reduce the number and severity of

crashes by staging the rider's progress through the system, with each stage having its own requirements and restrictions.

There have been few evaluations of the effectiveness of particular restrictions placed on novice motorcyclists. Evaluations of restrictions related to vehicle performance (engine capacity, engine power, power-to-weight ratio) and rider training have shown mixed results. In some instances, evidence exists regarding the effect of the restriction when applied to novice car drivers (e.g. lower BAC limits, time of day restrictions).

Given the limited amount of scientific evidence available, Table 3.1 presents a summary of possible best practice components for a motorcycle licensing and training system. For each component, it assesses the likely effect on crash risk (crash involvement per km ridden), crash severity and exposure (amount of riding) separately. Within the categories of licensing, training and testing, the components are listed in order from most important to least important (to the extent that this was possible to determine). The most important components are those that have been demonstrated to, or are considered likely to, reduce both crash risk and the amount of riding. The list is a summary and, as such, it is neither exhaustive nor detailed.

3.6 COMPARING EACH JURISDICTION WITH BEST PRACTICE

The current situations in Australian jurisdictions are compared with best practice in Table 3.2. Note that information for particular licensing components in some jurisdictions was not available at the time of completion of the report. Where information was unavailable, the relevant section of the table has been left blank.

3.6.1 Minimum age for learner and provisional motorcycle licences are higher than for car licences

In terms of licensing systems in Australian, only Victoria has a higher minimum learner and provisional licensing age requirement for motorcycles than cars. In New South Wales, the minimum age to obtain a learner permit is lower for a car than for a motorcycle but is the same for obtaining a Provisional motorcycle licence. In Western Australia, South Australia, Queensland, Australian Capital Territory, Northern Territory and Tasmania, the minimum age for obtaining a learner permit to drive a car is the same as that for obtaining a learner permit to ride a motorcycle. In South Australia, Queensland, Australian Capital Territory, Northern Territory and Tasmania, a provisional motorcycle licence can be obtained at the same age as a provisional car licence. The exception to this is Western Australia, where the minimum age requirement to obtain a Provisional licence for a motorcycle is actually lower than that for a provisional car licence.

In terms of international licensing practices, New Zealand has a lower minimum provisional licensing age requirement for motorcycles than cars but an equivalent age for obtaining a motorcycle and car learner permit. In Europe and the US, the minimum age requirements vary across jurisdictions for both motorcycle and car learner and provisional licences. In some jurisdictions, the minimum age requirement for obtaining a motorcycle learner permit is younger than that for obtaining a car learner permit. However, in the US, McKnight (personal communication, 2001, cited in Mayhew) notes that for most states, the motorcycle licence is just an endorsement on the driver licence and a great majority of riders get a driver's licence first. Most applicants are over age 18 and many states require a full driver's licence before issuing a learner permit for a motorcycle.

Victoria has the largest difference between the minimum age required to obtain a car learner permit and the minimum age required to obtain a motorcycle learner permit (16 years in the former case and 18 years in the latter). It is likely that the bigger the gap between age requirements for a car and motorcycle permit, the more likely it is that a person who has chosen to learn to drive a car first will continue to drive and be less likely to take up motorcycling. However, the difference between these age requirements in most other Australian jurisdictions is about three months and there is no mandatory requirement in any Australian jurisdiction to obtain a car licence prior to obtaining a motorcycle licence. This practice provides greater incentive to obtain a motorcycle licence prior to obtaining a driver's licence and is more likely to encourage potential riders to take up riding before they take up driving, particularly at a younger age.

3.6.2 Minimum periods for L and P

There is no minimum period for which the learner licence must be held in Tasmania, while in Victoria and Australian Capital Territory the minimum period is three months. In New South Wales, the minimum holding period is three months but only for those aged over 30 and who have held their post provisional car licence for five consecutive years. In South Australia, it is recommended (but not mandatory) that riders hold their learner permit for four months, while in the Northern Territory; the holding period is 12 months – the longest of any Australian jurisdiction. Finally, in Queensland, practical test applicants must hold their permit for six months while for Q-Ride applicants; there is no minimum period for learners aged 17 years. In Western Australia there is no minimum holding period but applicants must be at least 16.5 years before applying for a provisional licence.

All Australian licensing systems require a minimum holding period for the provisional licence and the duration of provisional licensure varies from one to three years. However, in most jurisdictions, the holding period is reduced considerably for those who already hold a full car driver's licence, or who are of a certain age. While age has been found to be associated with a lower risk of casualty crash involvement for riders (Mullin et al., 2000), this practice would seem to undermine the potential safety benefits of graduated licensing because it overlooks the importance of gaining experience under lower risk conditions; a factor which is even more critical for riders than for other road user groups.

3.6.3 Maximum period for L

Australian Capital Territory has the longest maximum length of permit at two years followed by Victoria at 15 months and Queensland and Tasmania, both at 12 months. New South Wales and the Northern Territory have the lowest at six and three months respectively, although the permit can be renewed up to three times in the Northern Territory. There are no maximum holding periods for learner permits in New Zealand.

3.6.4 Other restrictions

All jurisdictions require a restriction on BAC levels during the Learner period (ranging from zero in Tasmania, Victoria, and the Northern Territory to less than 0.02 in New South Wales, Western Australia, Australian Capital Territory and South Australia). In all jurisdictions, learners must also display L-plates and abide by motorcycle size and power restrictions (ranging from 150 kw/tonne (or 260 ml) in New South Wales and the Australian Capital Territory to 260 cc in Victoria and the Northern Territory). Tasmania, New South Wales and Australian Capital Territory require learners to drive at speeds not exceeding 80 km/h.

Table 3.1 Summary of best practice components for motorcycle licensing and training system.

Component	Effect on crash risk	Effect on crash severity	Effect on amount of riding	Reason for effect
GENERAL				
No exemptions from licensing, training or testing requirements for older applicants	Unknown	Unknown	↓	Older riders need to develop riding-specific skills. May make licensing less attractive.
LICENSING				
Minimum age for learner and provisional motorcycle licences higher than for car licences	↓		↓	Consistent with graduated licensing principles. Crash risk has been demonstrated to decrease with age among young novices. Increasing the minimum age would also almost eliminate riding and therefore crashes among riders below this age.
Zero BAC for L and P	↓		↓	Reducing drink riding will reduce crash risk. Zero BAC will also reduce the amount of riding after drinking.
Restrictions on carrying pillion passengers for L and P	↓	↓		Pillions have been shown to increase crash risk and severity.
Power-to-weight restrictions for L and P	↓		↓	Crash risk may be reduced if less powerful motorcycles result in less deliberate speeding and risk taking or problems with vehicle control. Restrictions may dissuade some potential high-risk riders from riding.
Minimum periods for L and P				To ensure that other requirements have sufficient duration.
Maximum period for L				To prevent riders who are unable to pass licence test being permanent learners.
Display L and P plates				To assist in enforcement of conditions and restrictions.

Following supervisor for Ls			↓	Provide feedback and reduce high-risk behaviour. Limited availability of supervisors might reduce riding.
Speed limit restrictions for L and P			↓	Could discourage potential riders or travel on high speed roads.
TRAINING				
Compulsory training to obtain L and P	Small reduction	Unknown	↓	Ensure a basic level of competency. May make licensing less attractive.
Increased roadcraft training at both L and P (may require longer training duration and better educational skills of trainers)	↓	↓	↓	Improved ability to detect and respond to hazards by novice riders. Longer and potentially more expensive training may deter some applicants.
Off-road training for L, mix of on- and off-road training for P				Ensure a basic level of competency gained under situations that are appropriate for current level of competency. Allow safe practice of responses to hazards.
TESTING				
Off-road testing to obtain L, on-road testing for P	Unknown	Unknown	↓	Ensure a basic level of competency. May make licensing less attractive.

Table 3.2 Comparison of best practice components and the current Australian situation in motorcycle licensing and training.

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
LICENSING								
Minimum age for learner and provisional motorcycle licences higher than for car licences	No	Yes	Yes for L, No for P	No. For P it is lower	No	No	No	No
Minimum periods for L and P	No for L. 3 years for P only if rider has not already held a car P	Yes for L	3 months for L only if rider aged over 30 & held full car driver licence for 5 consecutive years	No for L but must be 16.5 years before applying for Ps	Yes for L, 3 years for P only for those with full car driver licence	No for L, no period for those aged 19 and over	Yes for L & P	Yes for L Practical test option, no for L Q-Ride option. If hold full car driver licence, there is no P period under Q-Ride
Maximum period for L	Yes	Yes	Yes		Yes		Yes	Yes
Display L and P plates	Yes for L and first year of P only if rider has not already held a car P	Yes for L & P but no for full car driver licence holders	Yes for L&P	Yes for L&P	Yes for L	Yes for L&P	Yes for L&P	

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
LICENSING								
Zero BAC for L and P	Yes for L. Yes for P only if rider has not already held a car P	Yes for L, yes for P only if in first year rider does not hold full car driver licence	No for L&P	No for L&P	No for L&P	No for L&P	Yes for L&P	
Restrictions on carrying pillion passengers for L and P	Yes, for L and first year of P only if rider has not already held a car P	Yes for L&P except side car passenger	Yes for L, yes for P only until held unrestricted licence for a minimum of 12 months	No for L&P as rider must be supervised	Yes for L, yes for P only in first 12 months		Yes for L&P	
Power-to-weight restrictions for L and P	No. Maximum engine capacity of 250cc for L and first year of P only if rider has not already held a car P	No. Maximum engine capacity of 260cc for L and first year of P	Yes for L & P	Yes for L&P	Yes for L&P	Yes for L&P	Yes for L&P	Yes for L&P
Following supervisor for Ls	No	No	No	Yes, must ride alongside or as pillion or in sidecar	No	No	No	Yes

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
LICENSING								
Speed limit restrictions for L and P	80 km/h for L and first year of P only if rider has not already held a car P	No for L&P	Yes for L, no for P	No for L&P	No for L & P			
TRAINING								
Compulsory training to obtain L and P	Yes	No for L & P	Yes for L & P	No for L & P	Yes for L, no for P	Yes for L, no for P	No for L & P	No for L
Increased roadcraft training at both L and P (may require longer training duration and better educational skills of trainers)	No				No			
Off-road training for L, mix of on- and off-road training for P	No							

Component	TAS	VIC	NSW	WA	ACT	SA	NT	QLD
TESTING								
Off-road testing to obtain L, on-road testing for P	No			On-road testing to gain P licence	No			
GENERAL								
No exemptions from licensing, training or testing requirements for older applicants	No	No	No	No	No	No	No	No

Learners are not permitted to carry a passenger in Victoria (unless a side car passenger), New South Wales, Australian Capital Territory, South Australia and Northern Territory. In Tasmania and Western Australia, learners are allowed to carry a pillion but only if this person is instructing the learner. Western Australia is the only state that requires learners to be supervised whilst riding.

Only some jurisdictions enforce BAC restrictions during the Provisional period. Tasmania and Northern Territory require a zero BAC, while in Western Australia and Australian Capital Territory; the restriction is less than 0.02. Victoria imposes a zero BAC during the first 12 months of licensure for those who do not hold a full car driver's licence. In Tasmania, South Australia, Northern Territory and Victoria, riders are required to display P-plates, although this requirement is waived in Victoria for those who hold a full car driver's licence. Motorcycle size and power restrictions apply in all jurisdictions and these are basically the same as those specified for the Learner period. Provisional licence holders are not permitted to carry a passenger in Victoria (unless a side car passenger), Northern Territory, New South Wales and Australian Capital Territory. In the latter two states, the restrictions are lifted after the first 12 months of provisional licensure.

The lifting of some restrictions for those riders who have already held a provisional licence for a car would seem to limit the extent to which motorcycle licensing is graduated and limits the potential safety benefits of the licensing system.

3.6.5 Training requirements

In terms of training, Tasmania, New South Wales, Australian Capital Territory and South Australia are consistent with best practice in requiring satisfactory completion of compulsory training courses for the issue of learner motorcycle licences. However, only New South Wales requires compulsory training for the issue of a provisional motorcycle licence. However, in some jurisdictions such as Victoria, most applicants for a learner course undertake training anyway. In New Zealand, training is not compulsory to obtain either a learner permit or provisional licence.

The length of training currently required in all jurisdictions is less than that considered to be best practice. Thus, increasing the length of training by incorporation of additional roadcraft emphasis and practice of vehicle control skills could bring these jurisdictions closer to best practice, as would including off-road training for the provisional licence with on-road training.

3.6.6 Testing requirements

For testing, the research evidence for establishing best practice is relatively weak but research and practice tends to favour off-road testing to obtain the learner licence and on-road testing for the provisional licence. With the exception of New Zealand, most jurisdictions do not have on-road testing for the provisional motorcycle licence. In New Zealand, riders wishing to progress from the provisional to full licensure stage must pass the FLT which is conducted on-road. The ability of off-road tests to measure even vehicle control skills at realistic speeds is limited.

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

3.6.7 General

No jurisdictions provide exemptions from licensing, training or testing requirements for older applicants during the learner and provisional periods.

4.0 OPTIMAL MOTORCYCLE LICENSING AND TRAINING MODEL

As noted in the previous chapter, there is little data available regarding the effectiveness of most components of the licensing and training systems for novice motorcyclists. The exceptions to this problem are engine capacity or power-to-weight restrictions and rider training. In some instances, evidence exists regarding the effect of the restriction when applied to novice car drivers (e.g. lower BAC limits, time of day restrictions), but not specifically to novice motorcyclists.

Given these limitations, Table 4.1 presents a summary of an optimal motorcycle licensing and training model. For each component, it assesses the likely effect on crash risk and amount of riding (exposure to risk) separately. The components are listed in order from most important to least important (to the extent that this was possible to determine). The most important components are those that have been demonstrated to, or are considered likely to, reduce both crash risk and amount of riding.

Table 4.1 contains relatively more about licensing than training because there is very little about training that can be recommended in terms of achieving crash reductions.

4.1 LICENSING COMPONENTS

4.1.1 Car licence as prerequisite

The optimal model described here embodies the underlying concept of graduated licensing that experience should be gained in low-risk situations, before graduating to higher-risk situations. Riding a motorcycle is a higher risk activity than driving a car and therefore the model requires that potential riders should gain experience driving a car before they commence learning to ride a motorcycle. This is similar to the approach currently taken in most jurisdictions in regard to truck driver licensing. Since the risks associated with truck driving are higher than car driving, a potential truck driver is required to gain a full car licence before learning to drive a truck.

The effect on crashes of requiring a full car licence as a prerequisite for a motorcycle learner licence is expected to occur by a number of direct and indirect mechanisms. The most straightforward effect is to reduce licensing, and thus crash involvement, of riders aged under the full car licensing age. While the actual number of potential riders affected is a small proportion of all riders, this group has the highest crash rate and therefore potential crash savings could be significant. A second-order effect will be a reduction in motorcycle crashes resulting from potential riders taking up car licensing, rather than motorcycle licensing, because it allows them to become mobile at a younger age. Another important effect will be to re-position motorcycling in the licensing system and convey the message that it is a high-risk mode of travel.

This prerequisite is not included in any current motorcycle licensing systems to the authors' knowledge.

The next three components have similar priority.

4.1.2 Zero BAC for L and P

Zero BAC for L and P serves to reduce drink riding and thus drink riding crashes. It is proposed that it be required for the entire L and P periods, regardless of whether a previous licence has been held.

4.1.3 Restrictions on carrying pillion passengers for L and P

Restrictions on carrying pillion passengers for L and P will reduce the number and severity of crashes involving pillion passengers. It is proposed that this restriction apply for the entire L and P periods, regardless of whether a previous licence has been held.

4.1.4 Power-to-weight restrictions for L and P

The research evidence suggests that power-to-weight restrictions are likely to be much more effective than simply restricting engine capacity. It is proposed that power-to-weight restrictions apply for the entire L and P periods, regardless of whether a previous licence has been held.

4.1.5 Supplementary conditions

It is proposed that three supplementary conditions be imposed to facilitate the operation of the other components. These are minimum periods for holding the L and P licences, a maximum period for holding the L licence and the requirement to display L and P plates.

4.2 RIDER TRAINING

As noted in earlier chapters, there is little evidence that rider training reduces crash risk and its main road safety benefit appears to be reducing exposure (discouraging licensing). In addition, there is no evidence that training with particular characteristics of (e.g. on- versus off-road) is more beneficial than other types of training. The research does suggest, though, that training should focus on higher order cognitive skills as well as vehicle control skills in order to reduce crash involvement. Given this background, the importance of the competencies that are emphasised in current courses, and exactly how they are delivered, is relatively minor.

The acquisition of vehicle control and cognitive skills required for safe riding occurs over a long period of time. The training undertaken to obtain a learner or provisional licence is only one component of skill acquisition.

4.2.1 Compulsory training for L and P

Pre-learner training

Pre-learner training needs to embody a structured and incremental approach to acquiring the cognitive and vehicle control skills needed for safe operation of a motorcycle in traffic.

Table 4.1 Summary of optimal model for motorcycle licensing and training in Australia.

Component	Effect on crash risk	Effect on crash severity	Effect on amount of riding	Reason for effects
GENERAL				
No reductions in minimum durations of L and P licence period for older applicants	Unknown		↓	Older riders need to develop motorcycle-specific skills. May make licensing less attractive.
LICENSING				
Full car licence as prerequisite for motorcycle learner licence	↓		↓	Follows the principle of Graduated Licensing by ensuring that earliest experience is in a less risky form of transport. Would also provide a de facto increase in motorcycle licensing age. Crash risk has been demonstrated to decrease with age among young novices. Increasing the minimum age would also almost eliminate riding and therefore crashes among riders below this age.
Zero BAC for L and P	↓		↓	Reducing drink riding will reduce crash risk. Zero BAC will also reduce the amount of riding after drinking.
Restrictions on carrying pillion passengers for L and P	↓	↓		Pillions have been shown to increase crash risk and severity. Effect on amount of riding may be neutral if some riders who would be pillions ride solo instead.
Power-to-weight restrictions for L and P	↓		↓	Crash risk may be reduced if less powerful motorcycles result in less deliberate speeding and risk taking or problems with vehicle control. Restrictions may dissuade some potential riders from riding.
Minimum periods for L and P				To ensure that other requirements have sufficient duration.

Maximum period for L				To prevent riders who are unable to pass licence test being permanent learners.
Display L and P plates				To assist in enforcement of conditions and restrictions.
TRAINING				
Compulsory extensive off-road training to obtain L	Small reduction	Unknown	↓	Necessary to ensure adequate skills for effectively unsupervised on-road riding. May make licensing less attractive.
Compulsory extensive off- and on-road training to obtain P	Small reduction	Unknown	↓	May make licensing less attractive.
Increased roadcraft training at both L and P (may require longer training duration and better educational skills of trainers)	↓	↓	↓	Improved ability to detect and respond to hazards by novice riders. Longer and potentially more expensive training may deter some applicants.
TESTING				
Off-road testing to obtain L, on-road testing for P	Unknown	Unknown	↓	Ensure demonstrated adequate skill level before removal of restrictions. May make licensing less attractive.
On-road testing every 10 years to retain licence	Unknown		↓	Will help to prevent riders with little recent experience from returning to riding without demonstrating adequate skill level.

Work undertaken to develop a revised course in Victoria (Haworth and Smith, 1999) concluded that the following competencies should be taught in this order:

- Understanding the characteristics of the motorcycle,
- then the road system and
- then other road usersGiven that learner motorcyclists will ride unaccompanied, they need to develop a higher level of competency than a car learner driver.

Pre-provisional training

Compared to pre-learner training, pre-provisional training should focus relatively less on the characteristics of the motorcycle and the road system and relatively more on understanding the behaviour of other road users. It is anticipated that some of the training would be delivered off-road, where this environment provides a safer situation for practising emergency responses and other manoeuvres, as well as presenting classroom instruction. The on-road component could potentially incorporate on-road observation to identify the training needs of individual riders. It might be useful to undertake the observations early in the course, in order to be able to focus on identified training needs.

The optimal model includes compulsory training to obtain L and P licence. Off-road training is considered necessary prior to obtaining a learner licence to allow the most basic vehicle control and road system knowledge to be acquired under the safest conditions. On-road training then provides a next step, once the rider is judged to be competent to enter traffic.

On-road testing provides an opportunity to assess whether skills that have been taught off-road can be demonstrated in the real road environment. It provides some opportunity to measure hazard perception skills (although this has proved difficult so far) and acts as an incentive for riders to learn hazard perception skills, either from on- or off-road training courses or from other materials (such as computer packages and video instruction).

4.2.2 Increased emphasis on roadcraft

As discussed earlier, many evaluations that found little effect of training on rider crash involvement considered that this might be because training has focussed on the development of vehicle control skills required to pass tests, rather than the roadcraft skills (including hazard perception and responding) needed for safe riding. Thus, an overall increase in the roadcraft component of training at both the L and P levels is recommended.

4.2.3 Other training considerations

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

Research suggests that it probably requires about four days of training to take a completely novice rider to a stage at which they could be considered adequately safe to be allowed to ride unsupervised on the road. Past experience suggests that a rider handbook can provide guidance to learners by describing vehicle control and roadcraft issues and techniques, suggesting exercises, and emphasising the importance of protective gear and maintenance. Videos and other products can help extend training beyond the training venue.

Training venues need to be adequate to allow safe practice of the necessary skills e.g. large enough to allow manoeuvres at road speeds.

Reviews have demonstrated that individual motorcycle trainers vary in their teaching skills and in the way that they deliver the same curriculum. This suggests a need for quality assurance either by the training organisation or the regulator. There is insufficient evidence to assess whether specific training qualifications are helpful.

Studies of older riders who have returned to riding after many years of non-riding suggest that both the vehicle control and cognitive skills needed for safe riding do deteriorate when not used. In addition, the performance characteristics of motorcycles change over time, generally becoming more powerful for the same engine capacity. It is hard to be definitive about when follow-up training or testing is required, but there is clear evidence of the need for some mechanism to assess or improve the adequacy of skills of riders with little recent experience.

4.3 TESTING

Ultimately, the nature of the test determines what will be taught in training courses, and what will be practised by riders who wish to pass the test. Thus, the role of testing is not so much to weed out poor performers, but to provide an incentive to learn.

Most licensing systems do not have a knowledge test at the pre-provisional level. It may be useful to have a motorcycle-specific knowledge test that focuses on strategies for safe riding (e.g. hazard perception and responding, positioning in the lane, following and braking distances).

Experience from other jurisdictions shows that it is important for on-road testers to be able to ride a motorcycle. Not only is the tester then more aware of what is the appropriate response for a rider in a given situation, but also they may be able to follow and communicate more clearly on a motorcycle. In addition, the process has more credibility for the riders being tested and the motorcycling community. However, this can have staffing implications outside of cities and may raise OH&S concerns.

On-road assessment requires rigorous and systematic scoring to be valid and cannot be completely consistent across traffic conditions (time of day and location). Therefore, if on-road assessment is to be conducted, there is a need to develop clear guidelines for what traffic situations need to be encountered in testing, what responses are required of riders, how these will be recorded and assessed and how these observations will be condensed into an overall pass-fail criterion. Some of the newly developed car driving tests (including the New Zealand FLT and the Western Australian system) may provide useful guidance in this process.

While on-road testing for the provisional licence is much more realistic, the range of situations encountered and responses required may be restricted. For safety reasons, the ability to make "emergency responses" may be better tested off-road than on-road.

It should be noted that the costs of on-road testing for motorcycle riders may be significantly higher than off-road testing.

4.3.1 Re-testing requirements

Ideally, there should be a system that requires licence holders who have not ridden for many years to demonstrate their competence before returning to riding. One method of doing this would be to repeat the on-road assessment for the provisional licence. However, the current life-long status of full car and motorcycle licences is problematic in this regard. Perhaps there should be a requirement to retake licence test/training in order to register a motorcycle if the person gained their motorcycle licence more than 10 years ago and no motorcycle has been registered by that person in the past 5 (or 10) years.

4.4 OTHER GENERAL PRINCIPLES

Another general principle of the optimal model is that, given the high crash risks associated with motorcycling, the model should not encourage increased exposure (either in terms of getting a licence or in terms of increasing distance travelled). For this reason, the total costs of obtaining a motorcycle licence (including those associated with training and practice) should not be cheaper than for a car licence.

The model also reflects the principle that while some skills relevant to safe riding are obtained by driving and that risk taking generally decreases with age, experience in riding is also important. Therefore it does not have any reductions in minimum durations of L and P for older applicants. For this reason, it also attempts to prevent riders with little recent experience from easily returning to riding. A number of mechanisms could achieve this outcome. The approach taken in the optimal model is to require retesting every 10 years to retain a motorcycle licence.

5.0 SUMMARY

Over the past decade, the number of deaths and serious injuries to motorcycle riders has increased. The aim of the project was to review current motorcycle licensing and training in Australia against best practice for motorcycle rider training and to suggest a model for motorcycle licensing and training that would be most applicable in Australia.

5.1 REVIEW OF RIDER LICENSING, TRAINING AND TESTING SYSTEMS

A review of worldwide literature concluded that in most jurisdictions, the motorcycle licensing system is similar to that for car drivers, with similar stages (learner, provisional and full licence) and similar minimum ages and duration for these stages. The restrictions associated with these stages include those shared by car drivers (e.g. zero BAC and speed limit restrictions) but include additional restrictions such as engine capacity or power-to-weight restrictions and restrictions on carrying pillion passengers. Some licensing systems include compulsory training, while many others have high rates of voluntary uptake of training.

The literature review also found that crash rates are very high for young riders. Learner riders do not share the low crash rates found for learner car drivers. The increase in riding and crashes by older riders appears to be a worldwide phenomenon with which the existing training and licensing systems are not coping well. In many jurisdictions, the licensing system allows motorcycle licences to remain current at no additional cost to people who hold car licences. This makes it relatively easy for retired riders to take up riding again.

5.2 REVIEW OF EFFECTIVENESS OF LICENSING, TRAINING AND TESTING MEASURES

The research suggests that any safety benefits of motorcycle licensing and training probably result more from exposure reduction (a reduction in the total amount of riding) than from crash risk reduction. This is likely to be a consequence of the higher levels of both vehicle control and cognitive skills motorcycle riding requires than car driving. In addition, the potential outcomes of any failure on the part of the rider, other road users or the road environment are severe. In order to achieve substantial improvements in the safety of motorcycling, the rider training and licensing systems may need to be quite different than those for cars.

While there is little empirical evidence to demonstrate improvements in motorcycle safety as a result of training, training is encouraged and, in some jurisdictions, is compulsory and often subsidised. In terms of best practice in training:

- Compulsory training appears better than voluntary (possibly because of reductions in exposure rather than risk reduction)
- There is no real evidence of particular programs or components leading to reductions in crash risk
- An increased emphasis on roadcraft (without reducing the time spent on vehicle control skills) appears to be necessary at both the learner and licence levels

- Longer or more costly compulsory programs might also be expected to lead to larger reductions in riding

- Hazard perception training holds promise for the future.

The lack of scientific evidence from training evaluations makes it difficult to identify best practice in terms of frequency and duration of training, learning aids, training venues and assessment techniques.

5.3 COMPARISON OF AUSTRALIAN JURISDICTIONS WITH BEST PRACTICE

The current situation in Australian was compared with best practice in terms of motorcycle licensing, training and testing.

In terms of licensing, only Victoria has a higher minimum learner and provisional licensing age requirement for motorcycles than cars. In New South Wales, the minimum age to obtain a learner permit is lower for a car than for a motorcycle but is the same for obtaining a provisional motorcycle licence. In Western Australia, South Australia, Queensland, Australian Capital Territory, Northern Territory and Tasmania, the minimum age for obtaining a learner permit to drive a car is the same as that for obtaining a learner permit to ride a motorcycle. In South Australia, Queensland, Australian Capital Territory, Northern Territory and Tasmania, a provisional motorcycle licence can be obtained at the same age as a provisional car licence. The exception to this is Western Australia, where the minimum age requirement to obtain a provisional licence for a motorcycle is actually lower than that for a provisional car licence.

Victoria has the largest difference between the minimum age required to obtain a car learner permit and the minimum age required to obtain a motorcycle learner permit (16 years in the former case and 18 years in the latter). It is likely that the bigger the gap between age requirements for these two options, the more likely it is that a person who has chosen to learn to drive a car first will continue to drive and be less likely to take up motorcycling. However, in most jurisdictions, there is no mandatory requirement to obtain a car licence prior to obtaining a motorcycle licence. This practice possibly makes it easier to obtain a motorcycle licence and therefore more likely to encourage would be riders to apply for a motorcycle permit.

There is no minimum period for which the learner licence must be held in Tasmania, while in Victoria and Australian Capital Territory the minimum period is three months. In New South Wales, the minimum holding period is three months but only for those aged over 30 and who have held their post provisional car licence for five consecutive years. In Soputh Australia, it is recommended (but not mandatory) that riders hold their learner permit for four months, while in the Northern Territory; the holding period is 12 months – the longest of any Australian jurisdiction. Finally, in Queensland, practical test applicants must hold their permit for 6 months while for Q-Ride applicants; there is no minimum period for learners aged 17 years. In Western Australia there is no minimum holding period, but applicants must be at least 16.5 years before applying for a provisional licence.

Australian Capital Territory has the longest maximum length of permit at 2 years followed by Victoria at 15 months and Queensland and Tasmania, both at 12 months. New South Wales and the Northern Territory have the lowest at 6 and 3 months respectively, – although the permit can be renewed up to three times in the Northern Territory.

Many of the other restrictions do not apply to those riders who have already held a provisional licence for a car. This practice limits the extent to which motorcycle licensing is graduated and limits the potential safety benefits of the licensing system.

In terms of training, Tasmania, New South Wales, Australian Capital Territory and South Australia are consistent with best practice in requiring satisfactory completion of compulsory training courses for the issue of learner motorcycle licences. However, only New South Wales requires compulsory training for the issue of a provisional motorcycle licence. However, in most jurisdictions, most applicants for a learner course undertake training anyway (90% in Victoria).

The length of training currently required in all jurisdictions is less than that considered to be best practice. Thus, increasing the length of training by incorporation of additional roadcraft emphasis and practice of vehicle control skills could bring these jurisdictions closer to best practice, as would including off-road training for the provisional licence with on-road training.

For testing, the research evidence for establishing best practice is relatively weak but research and practice tends to favour off-road testing to obtain the learner licence and on-road testing for the provisional licence. With the exception of NZ, most jurisdictions do not have on-road testing for the provisional motorcycle licence. In New Zealand, riders wishing to progress from the provisional to full licensure stage must pass the FLT which is conducted on-road. The ability of off-road tests to measure even vehicle control skills at realistic speeds is limited.

5.4 OPTIMAL MODEL AND ADAPTATION FOR AUSTRALIA

In an optimal model, and following the principles of graduated licensing, granting a motorcycle licence should be seen as a higher step in licensing than granting a car licence, in the same way that a heavy vehicle licence is considered a more advanced form of licence than a car licence. If this option is not possible in some jurisdictions, an alternative would be to increase the minimum age for solo riding to be equivalent to the minimum age for solo car driving. Thus, the minimum age for obtaining a learner motorcycle licence would become equivalent to the minimum age for obtaining a provisional car drivers licence.

The need for a restricted licence with the same conditions as the motorcycle provisional licence, to apply to riders who already have a full car licence, must be underlined.

It is important to be aware that training and licensing systems operate as a system and changing the mix of components can alter the effectiveness of individual components. Any potential interactive effects should be carefully examined in making changes to any current or proposed training and licensing system.

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