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ROADWISE

The Journal of the Australian College of Road Safety



Vol. 1. No. 4, November, 1988

BICYCLE ACCIDENT MORBIDITY STATISTICS FROM A SUBURBAN HOSPITAL

Pedal cycle injuries are being recognised as an increasing cause for concern, particularly in children, as hospital admission rates seem to be rising at a time when other causes of childhood trauma admissions are diminishing.(1)

Our educational and legislative processes do not, at this time, seem to be working to reduce the toll of bicycle injuries. A number of recent studies have shown the high rate of injury from bicycle accidents, both on and off roads, and the disproportionate representation of head injury.(2,3)

The number of bicycle accident "near misses", particularly at night is incalculable, and riding habits demonstrate a real failure of our current efforts at bicyclist education and protection. Editorial comment has exhorted greater efforts in education and enforcement of bicycle safety measures.(4,5)

A dramatic increase in bicycle ownership is obviously a factor here. This study from the Westmead Hospital Injury Research Unit gives further weight to the mounting evidence of our failure to achieve safer bicycle riding habits particularly in young riders.

Our data gives a profile of the bicycle accident victims admitted to one Sydney suburban hospital during two, 6 month periods in 1986 and 1987.

The distribution of road trauma cases according to age from a study conducted at the Modbury and Children's hospitals in Adelaide during 1985 and 1986 shows that bicycle accident victims are 50% or more of total road trauma cases between the ages of 8

This is an extract from a paper prepared by Dr Peter L Klineberg FFARCS, Acting Director of Anaesthetics, Westmead Hospital NSW, and Christine Read RGN, RICN, Co-ordinator, Injury Research Unit, Department of Surgery, Westmead Hospital NSW.

and 13 years. This observation is supported by other studies in Brisbane (1) and Melbourne (3) and by our data at Westmead Hospital.

All injuries are recorded and graded using the Abbreviated Injury Scale (AIS)(6), for body region and severity. The scale grades all injuries according to severity, between one and six, where any injury with an AIS greater than three is regarded as serious. For example, simple fractures are graded as AIS of two or three (eg simple fractures of the leg or skull are AIS 3), concussion is usually graded as an AIS of two.

All patients were graded using the Injury Severity Score (ISS), which is the sum of the squares of the three most severe injuries in different parts of the body (7). Any patient with an ISS of greater than or equal to 16 is regarded as being severely injured.

Trauma admissions to Westmead Hospital during the 6 months July to December 1987 demonstrate the comparative injury rates for different accidents (Fig.1) for this period.

It is of note that hospital admission rates due to bicycle accidents are approximately equal to those of industrial trauma and assaults. They are one third as many as car accident victims and two

thirds as many as motorcycle and pedestrian admission rates. The bicycle is therefore highly represented in road trauma admissions and represents 5% of all trauma cases admitted to hospital and 14% of road accident admissions to Westmead Hospital.

CONCLUSIONS

1.The incidence of pedal cycle accidents is increasing and represents about 14% of road trauma admissions to hospital. Most accidents occur in the time period of 2 to 3 hours after school and involve children between the ages of 8 to 14 years, these being mainly boys.

2.The major cause of serious injury is HEAD TRAUMA, and this is the major injury in 43% of cases. Head injury is responsible for most deaths and most permanent disability.

3.The combination of bicycles and motor vehicles is particularly dangerous and responsible for 80% of fatalities (Nixon) (1).

4.Medical management analysis shows that 27% of patients require surgery on admission to hospital, and that

continued page 4

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Editorial

In this edition, the serious increase in death and injury of pedal cyclists is described by Dr P Klineberg and Christine Read. This type of accident represents 14% of road trauma accidents admitted to Westmead Hospital.

In the first ten months of 1988, 28 cyclists were killed on roads in New South Wales, compared with 17 in the same period last year. It has been pointed out that the major cause of serious injury is head trauma. Despite this fact, it is estimated that some 90-93% of cyclists do not wear safety helmets. The New South Wales Government, supported by CAPFA and Lions Clubs is campaigning to increase safety helmet wearing. The government will spend \$250,000 on the current campaign.

The studies reported here show that most accidents involve children between the ages of 8 to 14 years. A heavy responsibility consequently falls on parents and teachers to educate and control children who use bicycles.

The NSW Traffic Authority has detailed some important rules, viz, keep bicycles in sound mechanical condition; ensure that riders are clearly visible, with appropriate clothing, reflectors etc; travel on a safe route and avoid traffic; give attention to 'potholes' and obstacles; take care at intersections and heed road signs; learn to handle a cycle safely; learn to make the emergency stop.

For parents and teachers interested in the statistics and preventative measures which can be taken to reduce this serious problem, references are given in the Klineberg-Read article and in the section on publications.

Do not allow children to develop the attitude that a bicycle is a toy, rather than a mode of transport which can have lethal consequences!

The Royal North Shore Hospital's Spinal Cord Injury Awareness and Prevention Program

By: Caroline Weightman, Co-ordinator, A&P Program

Motor vehicle accidents account for almost 60% of traumatic admissions to spinal units throughout Australia. Approximately 200 new road trauma victims will be admitted each year to the six specialised spinal units located in Sydney, Melbourne, Adelaide, Perth and Brisbane.

Although, in relation to the total road trauma casualty toll this number is small, the severe and lasting effect that spinal cord injury has on the individual and his/her family makes it an area of major concern for the community and governments throughout Australia.

For the vast majority of accident victims diagnosed as having injured not only the vertebrae of the spine, but also the very delicate spinal cord, the prognosis is devastating. Although with time the injured bones of the spine will mend, any damage to the spinal cord, housed inside the spinal column, is permanent and irreversible. Damage to the spinal cord, the communication link between the

brain and the rest of the body, results in paraplegia or quadriplegia - loss of movement and feeling to the limbs and body.

Although medical science continues with research in this area, at present there is no cure for spinal cord injury. Prevention therefore is vital. For this reason, in 1982, following the increasing incidence of spinal cord injury admissions to the RNS Hospital's Spinal Unit, the Medical Director, Dr John Yeo, initiated a public and school education program throughout NSW.

The spinal cord injury "Awareness and Prevention" program, as the name implies, aims to increase community awareness of the causes and effects of spinal cord injury and ultimately reduce

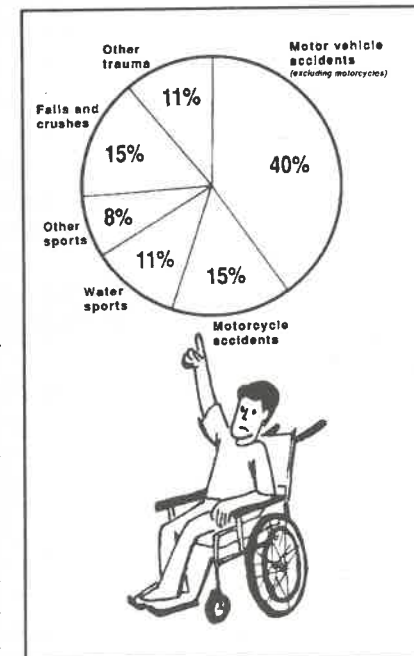
the incidence of this injury through increased safety consciousness.

Through its school and public lectures and community service advertising, the Program has made many people in NSW more aware of potential dangers of unsafe or careless behaviour.

The Program has received widespread acclaim from school and public organisations who regularly write to the Unit with evidence of the Program's success, not only in the prevention of spinal cord injury, but also in creating a broader safety consciousness and understanding of accident trauma.

To undertake its accident prevention Program, the Unit employs six lecturers, former patients of the RNS Hospital's Spinal Unit, who themselves are physically disabled and in wheelchairs as a result of spinal cord injury. The lecturers provide to the community a vivid and thought-provoking message when they recall their personal experiences of involvement in accidents.

In combatting the road trauma problem, the Accident and Prevention team highlights the need for the use of safety practices and equipment. Seatbelts, full-face motorcycle helmets, bicycle safety helmets and general road safety awareness of the consequences of drink/driving, speed and risk-taking are emphasised. Over the past few years, based on the success of the NSW program, similar programs have been initiated in WA,



Queensland, Victoria and SA.

In these days of necessary accountability, the financial value of accident prevention programs is increasingly questioned. Spinal Cord Injury is estimated to cost the Australian community in excess of \$150million each year. The initial cost of each new case of paraplegia is conservatively estimated at \$110,000 and \$180,000 for quadriplegia. As most accident victims are young and their life expectancy approaches normality the prevention of one spinal cord injury can mean a financial saving to the community of between \$500,000 and \$800,000. (Walsh, 1987 "The Cost of Spinal Cord Injury", *The Menzies Foundation Technical Report No.1* pages 53-73). The saving in human terms is immeasurable!

Road trauma is a community problem. We are all in some way affected by its consequences. Community awareness of the road trauma problem must be increased. We must not become desensitised to the problem. The spinal unit's "Awareness and Prevention" program, through the financial support of the New South Wales GIO, is one community group committed to increased awareness, education and accident prevention.

For further information on the A&P Program please contact Caroline Weightman at the Spinal Unit, Royal North Shore Hospital, Pacific Highway, ST LEONARDS, 2065. Ph: (02) 438 8785



Children cyclists learn all aspects of cycle maintenance, cycle handling, road rules and importance of safety helmets at the New South Wales Traffic Education Centre in Armidale

Briefly... RBT in Queensland

In the May edition of "Roadwise" an article headed "Queensland - the continuing need for RBT!" was submitted by Christopher Levy of DRUG-ARM.

The following warning is now given by the Transport Department of Queensland:

Breath Testing is now in force throughout Queensland. Penalties for first offenders - (below 0.15) maximum fine \$700; disqualification up to 9 months; possible imprisonment 3 months (above 0.15) maximum fine \$1400; disqualification, mandatory 6 months; possible imprisonment 9 months.

1985, 55, 477-83.

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7.Baker SP. The Injury Severity Score: A method for describing patients with multiple injuries and evaluating emergency care. J Trauma. 1974, 14, 187-96.

The authors wish to acknowledge the encouragement and assistance of Dr James McGrath and Dr Stephen Deane.

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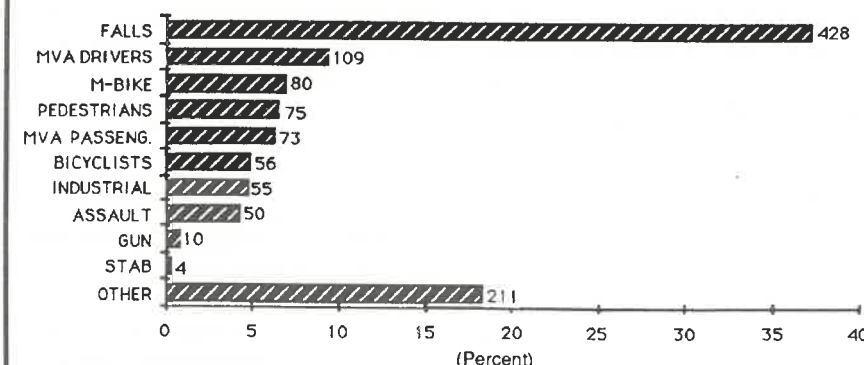
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2.O'Rourke NA, Costello F, Yelland JDN, Stuart GG. Head Injuries to Children Riding Bicycles. Med J Aust. 1987, 146, 619-21.

3.McDermott FT, Klug GL. Injury Profile of Pedal and Motor Cyclist Casualties In Victoria. Aust NZ J Surg.

Fig. 1
Trauma Admissions to Westmead Hospital

July - December 1987



continued from page 1

the average hospital stay following a bicycle accident and admission, is about 10 days.

SOLUTIONS

1. EDUCATION

- Training in road safety
- Training in riding skills
- Increasing the awareness of cyclists by other road users
- Increased awareness of danger times

These items to be managed through school and community based programs, and the drivers licensing scheme.

2. PARENTAL RESPONSIBILITY.

This to be emphasised in all bicycle safety education and awareness programs.

3. HELMET WEARING.

Encouragement, leading to legislation for compulsory helmet wearing should be an urgent goal.

4. SEPARATE BICYCLES FROM OTHER TRAFFIC.

Avoidance of collision between bicycles and motor vehicles would be a major life saver. Where separate bicycle lanes (ways) are not possible, the curbside road lane should include at least 1 metre for bicycle passage.

5. MONITOR BICYCLE ACCIDENT STATISTICS.

KEITH EDMONSTON REGIONAL TRAFFIC SAFETY SCHOOL

Following a meeting in Ballarat, Victoria, with the Regional Director of Education in 1975, a committee of pre-driver education teachers was formed with the aim of helping teachers cope with problems associated with introducing and teaching the subject. Following incidences including the involvement of schools and the tragic deaths of some young Ballarat cyclists in 1977, the attention of the community was focused on the importance of traffic safety.

Buildings and roads at Ballarat airport were acquired in 1978 due to the efforts of Councillors Keith Edmonston and Les O'Brien. The Victorian Premier, Mr Hamer opened the Regional Traffic Safety Centre on April 5, 1979 and announced a grant of \$10,000. A further \$30,000 was raised from the community through service clubs and school councils.

The Shire Council carried out site works. A consultant was seconded by the Department of Education to implement programmes.

Subsequently, a support teacher was seconded. A further government grant of \$5,000 was made through the Education Department and in 1980 the Wendouree Apex Club raised \$8,870 for the purchase of bicycles.

On July 10, 1981, the Minister for Education Services, the Hon N Lacy renamed the centre, "Keith Edmonston Regional Traffic Safety School - Ballarat". Recurrent funding of \$12,800 per year was granted to this school by the State government in 1983.

Other contributions towards the resources have been made, eg a bike trailer

(Wendouree Rotary Club), three driving simulators (Ballarat North Technical School, School of Mines and Castle-maine Technical School), two cars (Lions Clubs of Ballarat, Wendouree, Ballarat West, Ballarat East; Ballarat Trust; Ministry of Education), electric wheel chair (Wendouree Rotary Club).

The Keith Edmonston Regional Traffic Safety School has been created because of a need in the community to educate children in traffic safety. Due to familiarisation courses and meetings, this need has been related to interested teachers.

The teachers and the community have seen the necessity of a specialised school in the Ballarat region to implement a total sequential program in all schools.

The Premier of Victoria, Mr John Cain, visited the school on June 11, 1987 and presented the prestigious Premier's Commission, recognising the school's outstanding contribution in providing effective traffic safety education in the Ballarat region.

Briefly...

Award to NSWTEC

The New South Wales Traffic Education Centre has received the 1988 HTB Harris Memorial Award for outstanding contribution to education by a community organisation. The award is presented by the Australian College of Education, New England Regional Group.

Safety Helmets

A co-operative project by the NSW Roads and Traffic Authority, the Child Accident Prevention Foundation of Australia (CAPFA) and Lions Clubs, will reduce the cost of bicycle helmets. The bicycle helmet sponsorship scheme is available for all NSW school children.

Details are available from Parents' Associations and Lions Clubs. This scheme is designed to increase helmet wearing as an important factor in reducing the rising fatality and injury list resulting from bicycle accidents.

Letters To The Editor

Dear Editor,

I have been puzzled for some time by the "Do Not Overtake Turning Vehicle" signs found on the backs of heavy vehicles. Was this ruling introduced to remind motorists that a lengthy vehicle may move outside its own traffic lane when turning or does it offer a warning to motorists wishing to overtake that the vision of oncoming traffic may be obscured? Could you please explain the specific circumstances where this rule applies and the symbolism implied by the red and yellow design.

Dr J Clark

There is difficulty for heavy vehicles making turns. Drivers have to steer the front of the vehicle wide enough so that the rear wheels do not scuff or ride up over the kerb. Accordingly, "a vehicle of 7.5m or more in length and displaying, at the rear, a sign DO NOT OVERTAKE TURNING VEHICLE is permitted to turn left from, or partially from, the lane

adjacent to the left-hand lane and to turn right from, or partially from, the lane adjacent to the right-hand lane in a one-way street". (p 49 Motor Traffic Handbook ISSN 0727-9280, NSW Commissioner for Motor Transport, July 1987). Following vehicles must not drive between such heavy vehicles and the kerb when the latter are signalling intention to turn. Also, drivers of heavy vehicles should take care of smaller vehicles and cyclists between their vehicles and the kerb.

In addition, vehicles over 12 tonnes must bear a 400 sqm rear marking plate with angular red & yellow standard design. If insufficient space, an alternative with yellow & red horizontal bands may be used. Yellow & red are chosen as the most reactive colours. These are federal requirements contained in Australian Design Rule No. 45, applicable to all Australian states and adapted from a European Standard.

Profiling People

Dr Gordon Trinca OBE, MBBS, FRACS



In this edition of "Roadwise" the contribution made by Gordon Walgrave Trinca OBE, MBBS, FRACS to traffic safety is acknowledged.

Recent recognition of his work has been made with the presentation to him and his co-authors, in Goteborg, Sweden, of the Volvo Traffic Safety Award 1988 for the publication, "Reducing Traffic Injury - A Global Challenge" (see Roadwise Vol 1 No. 3). He also received the 1988 NSW Traffic Education Centre - Lions Club Annual Road Safety Award.

After graduating MBBS from Melbourne University in 1945 he has had a distinguished career in medicine and surgery in Melbourne and the United Kingdom. He now is Honorary Consulting Surgeon to the Preston & Northcote Community Hospital, Melbourne and continues his private practice as a consultant general surgeon.

For the past 20 years he has been deeply involved in the direct management of road crash casualties through his association with the Preston & Northcote Community Hospital which treats in excess of 2000 road crash casualties each year.

He is the author of nearly 80 papers and addresses on the subjects of trauma management, road trauma prevention and road safety.

His community service involvement in road safety and road crash prevention has been through the Road Trauma Committee of the Royal Australasian College of Surgeons as well as in various state, federal and international government and professional organisations concerned with road safety and road trauma care. He has been Chairman of the RACS Road Trauma Committee since 1975.

Gordon Trinca has received a number of awards in recognition of his involvement in road trauma prevention

and management. In 1978 he received the Lions International Road Safety Medal and the Gerin Medal of the International Association for Accident and Traffic Medicine. He received the OBE in 1980, the Award of Merit of the American Association for Automotive Medicine in 1981, the Advance Australia Award in 1985 and the Victorian Road Traffic Authority Road Safety Award in the same year. In 1987 he was awarded the RACS Medal for services to the Royal Australasian College of Surgeons.

ANNUAL GENERAL MEETING

The Annual General Meeting of the Australian College of Road Safety will be held at 12.30pm on Monday February 27, 1989. The venue is the White City Tennis Club (30 Alma Street, Paddington).

The after-luncheon speaker will be Mr Paul Zammit MP., Chairman of the NSW Parliamentary "Staysafe" (Standing Committee on Road Safety) Committee. The address will be followed by the Annual General Meeting.



Publications



Because of the emphasis given in this edition to bicyclist safety, publication references also relate to this topic.

"How To Provide Bicycle Safety Helmets For Children In Your School", The Child Accident Prevention Foundation of Australia, ISBN 0 7240 79122

"Bicycle Usage And Safety, Adelaide Statistical Division October 1984", ABS Catalogue No. 4503.4

"Bicycle Usage And Safety, Western Australia, November 1982", ABS Catalogue No. 9201.4

New South Wales State Bicycle Committee
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The Secretary
State Bicycle Committee
c/- Ministry of Transport
PO Box 1620
Sydney 2001

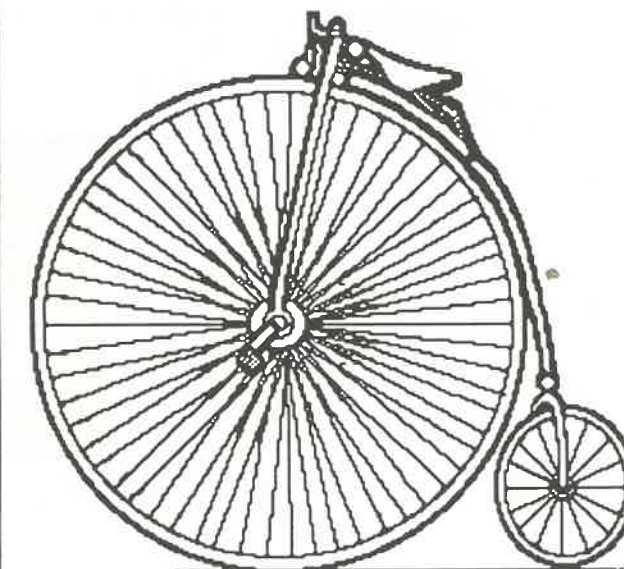
Publications listed in Annual Report:

Spike's Bike Book for Parents of Under Nine Year Olds
Spike's Bike Book for 9 to 12 Year Olds
Spike's Bike Book for 13 to 104 Year Olds
The Be Aware of Bicycle Riders Book
Use Your Head - Wear a Helmet
Getting Bicycle Facilities in your Local Area
Bicycle Bulletin, No. 1, April 1987
Bike Week Lesson Plan Sets, 1985 and 1986
Bicycle Riders and the Law

"Bicycle Helmet Safety - Final Report on Motorcycle and Bicycle Helmet Safety Inquiry", House of Representatives Committee on Transport Safety, AGPS, Nov 1985

"The Bike-Ed Course", Road Traffic Authority, Victoria 1988 (revised)

In each edition we have listed some important books, pamphlets and teaching aids. The publishers would be pleased to receive information about any other publications for inclusion in future issues.



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