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LEARNING MATERIALS FOR THE OLDER DRIVER

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Background/Introduction

The Centre for Accident Research and Road Safety – Queensland (CARRS-Q) was commissioned by Queensland Transport to develop a set of integrated learning materials that would assist older drivers in better managing their day-to-day driving. The project resulted from a review of current driver management procedures employed in Queensland, and was to form part of a complete Driver Safety and Education Strategy (Watson et al., 1996).

The aims of this project were to: (a) help older drivers become more aware of their driving limitations and the age-related driving problems they may experience; and (b) promote ways in which older drivers can moderate their driving as a result of these age-related changes. Ultimately, the resource should encourage older drivers to both self-monitor their driving ability and to make informed decisions about how best to continue driving in the safest possible way.

Methodology

In developing the educational materials, a reference group of key stakeholders in the area of older driver management was established. Members of the reference group included representatives from Queensland Transport, Office of Ageing, Council on the Ageing, Driving Rehabilitation and Assessment Services, Optometry, Occupational Therapy, RACQ and many others. The role of the reference group was to provide guidance and feedback throughout the development of the resource.

A literature review was conducted to provide guidelines for the development and dissemination of the educational material. Literature in education, social psychology, gerontology, and road safety areas was sought to determine the issues that should be considered when educating the older driver, along with the best method for projecting the intended message. More specifically, investigations into the following areas were carried out:

- Medical conditions and age-related changes that impact on driving ability
- Traditional approaches to the management of older drivers
- Driving situations most problematic for the older driver
- Strategies for self-management of driving behaviour, including strategies already employed by older drivers
- Essential components of an educational package; and
- Considerations in educating the older adult.

The needs of the target audience were assessed directly by a series of focus group interviews carried out during June and July 1997. Eight groups of older drivers from both urban and rural areas were interviewed in one and a half hour sessions. Each group comprised approximately eight people and were mostly current drivers. An interview schedule was developed to provide consistency and structure to each of the focus groups.

Project Findings

Literature Review

Older drivers see their driver's licence as part of their personal and social identity and the loss of their licence impacts greatly on their health and well-

being (Eisenhandler, 1990). Driving is a complex task that relies heavily on a person's psychomotor, perceptual, sensory, and cognitive abilities (Mayhew & Simpson, 1995; Morgan & King, 1995), and as such, the age-related decline in these abilities will impact greatly on a person's capacity to drive. Age-related changes that can impact on driving ability include:

- vision and changes to the visual system (Kline, 1994; Morgan & King, 1995; Shinar & Schieber, 1991)
- motor and psychomotor ability (Marottoli & Drickamer, 1993; Stelmach & Nahom, 1992)
- decline in cognitive functioning (Colsher & Wallace, 1993; Parasuraman & Nestor, 1993); and
- hearing problems (Colsher & Wallace, 1993; Underwood, 1992).

Furthermore, many age-related changes exist concurrently with medical conditions, so it is often necessary to consider the impact of these factors on driving, together (Rehm & Ross, 1995; Underwood, 1992).

Research shows that older drivers, given their driving experience, are just as likely as novice drivers to be involved in a crash (Barr, 1991; Ernszt & O'Connor, 1988). Crash data also indicate that older drivers are more likely to be injured in a crash when crash type and severity are controlled for (Barr, 1991; Ernszt & O'Connor, 1988). This research suggests that older drivers may benefit from a strategy assisting them to better manage their daily driving.

Traditional approaches to older driver management have been regulatory or non-behavioural in their application and, therefore, do not attempt to improve driver self-management. These approaches have included licence renewal procedures (Stamatiadis, Taylor, & McKelvey, 1990), vision testing (Lovsund, Hedin, & Tornros, 1991), car design (Shinar & Schieber, 1991), and environmental change (Shinar & Schieber, 1991). Evidence suggests that more research needs to be conducted into the effectiveness of these measures in assisting drivers to better manage their driving behaviour (Schieber, 1994).

Investigations into the behavioural self-management of older drivers indicates that older drivers often self-regulate their driving behaviour by avoiding night or peak hour driving, driving slower, driving shorter distances, and having fewer passengers in their car (Chu, 1994; Eisenhandler, 1990). Older drivers use these strategies to assist them in problematic driving situations. Typical examples of problematic driving situations are passing, turning, maintaining speed, negotiating heavy traffic, and intersections (Eberhard, 1996). These problems become more pronounced as the complexity of the driving situation is increased (Cooper, Tallman, Tuokko, Beattie, 1993).

Currently, undertaking these self-management strategies is a personal choice and evidence suggests that not all drivers choose to manage their behaviour (Eisenhandler, 1990). This self-selection is due, in part, to drivers not being aware of their driving limitations. Misconceptions on the part of the older adult as to where the

problems actually lie may also influence the adoption of compensatory measures (Cooper et al., 1993). Education should be considered as a possible means for counteracting this problem (Ernszt & O'Connor, 1988).

Research suggests that an education package aimed at the older driver, to assist them in managing their day-to-day driving, should incorporate the driving deficiencies and limitations found in the older driver (Stamatiadis et al., 1990). Useful alternatives or measures for compensation should also be suggested (Stamatiadis et al., 1990). Providing this information is necessary in enhancing older drivers' awareness of their limitations, including physical, cognitive, and perceptual limitations (Parasuraman & Nestor, 1991).

Investigations into the development and delivery of a new package to assist older drivers in self-managing their driving behaviour, indicate that age-related changes will play an important part in the adoption of an educational message. Older adults will benefit from a resource that slowly presents the educational message (Joyce, 1994), allows the older adult more control over the speed of learning (Joyce, 1994), and stresses the important concepts and links between concepts within the educational message (Cohen & Faulkner, 1986).

Traditionally, resource materials for older adults have been presented in varying formats, including video productions, booklets, and group presentations. Evaluations of these materials are often lacking (Brubaker & Roberto, 1993) and do not provide insight into the best medium for message delivery for older adults. However, a review of persuasive communication for older adults indicates that printed materials are the most appropriate for an older population (Durand, Klemmack, Roff, & Taylor, 1980). They are easily accessible and allow the individual to self-pace their learning (Joyce, 1994), two criteria important in the adoption of an educational message.

Focus Group Interviews

Many of the findings of the focus group interviews support the findings of the literature review. Older drivers do find it difficult to give up their driver's licence. They believe that the public transport system does not adequately cater for the older adult and that their driver's licence gives them a sense of independence they would not otherwise have. With a driver's licence, they are more able to maintain their social contacts and therefore their happiness. As one driver said, without his car he would "rot away".

In deciding to give up their licence, older drivers use a variety of sources for advice. Some older drivers rely on their doctor particularly as their doctor has the power to withhold their licence. Females tended to prefer the opinions of their families and friends (excluding their spouses) when making the decision. A variety of reasons for giving up driving were put forward: nervousness in traffic; loss of confidence; involvement in accidents or near misses; the cost of maintaining a car. The major factor influencing males' decision to stop driving after they had reached 70 years of age, was the inability to obtain a doctor's letter certifying driver competency. However, most interviewees reported that doctors were too lenient in issuing medical certificates, and in some cases it was only the intervention of a relative or spouse who

approached the doctor regarding someone's competency that caused a certificate to be withheld.

Results of the focus groups also indicate that older drivers are aware of some of the problems that can affect their driving ability. Problems mentioned by older drivers included failing eyesight, slower reflexes, difficulty with decision-making, lack of confidence, arthritic conditions, tiredness, loss of concentration, and the intimidating behaviour of younger drivers. Most of the drivers had adopted a responsible attitude towards their limitations and already had developed strategies to compensate for these problems. However, older male drivers were less likely to see the need for compensatory measures as they often did not perceive themselves as having a problem that could impact on their driving. Compensatory measures employed by the focus group members included avoiding night driving, increasing following distances, driving in the left lane, travelling unfamiliar routes as a passenger before driving them alone, and preparing for new manoeuvres some time before the manoeuvre is to be executed (eg moving to the right hand lane some distance before a right-hand turn is required).

Most older drivers looked favourably on a resource that would assist them in managing their driving. Written material was the most preferred format for educating the older driver. Over three quarters of the people interviewed believed that reminders and notices given annually would be an ideal method of delivery. The time of car registration renewal and licence renewal were considered the two best options for presenting the older driver with this information.

As a secondary resource, most people thought that pamphlets in doctors' waiting rooms might be useful, particularly as they spend more time in the waiting room than in consultation with the doctor. Television and radio advertisements were also considered a secondary educational strategy, of less importance, than education through reminder notices. Those older drivers who advocated the use of these media believed that a wider audience than just older drivers would be reached. However, they recognised that the television would not have the same reach as printed materials and indicated that the television viewing patterns of the older adult would have to be taken into account.

Peer education was also discussed as a means for educating the older driver. Some interviewees from a retirement centre raised this issue. However, others saw peer education as a poor option. As one person commented, "Look how many people attended this meeting today, and you were paying us".

Summary of the Resource

The final draft of the resource is currently under review by Queensland Transport and is expected to be available in 1988. As the resource is still under review content details and structure may change before final production. However, it is possible at the present time to give an overview of the proposed key content and structure and related issues.

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Development

Findings from the literature review, consultations with key stakeholders, and focus group interviews were used in the initial development of the resource. Booklet format was seen as the most accessible, practical and acceptable form of resource for older drivers. Development of the booklet was based on five guiding principles: the resource had to be simple, user friendly, of the appropriate reading level, sympathetic to the age-related changes experienced by older adults, and focus on the key issues in driver management. Throughout the development and refinement of the booklet, consultation occurred with members of the reference group, along with focus groups of older drivers.

Overview of the resource

The booklet was designed around a central theme that emphasised knowing your limits and being a safer driver. It was not about giving up driving. As a result, the booklet describes the ways in which the age-related changes experienced by older drivers can affect their driving ability. It provides older drivers with a means for assessing problems with their driving and introduces some suggestions on how to overcome these difficulties.

Content of the resource

The focus of the resource is on the age-related changes that impact on driving ability. More specifically, age-related changes to vision, movement and information processing form the core of the resource. Problems with vision can include changes in clarity, range or field of vision, ability to handle glare, ability to adjust to changes in light, and ability to see fainter objects. These issues were also discussed in reference to night and twilight driving. The booklet discusses problems with movement as changes in muscle strength, flexibility, co-ordination, speed, and range of movement, while problems with information processing are seen to decrease the speed and accuracy of the information processing processes.

The booklet also briefly covers other health problems (eg diabetes, epilepsy) which can affect driving ability. Due to the complexity of these conditions and the ways in which they impact on driving, detailed descriptions were avoided. In addition, the impact of medications on driving was also discussed. Some suggestions for minimising the affect of medications were provided to assist the older driver in continuing to be a safe driver.

Additional Resources

Pamphlets were seen as an additional strategy to compliment the booklet previously described. Five pamphlets were developed based on the information presented in the booklet and included one general pamphlet on safety and the older driver and four more specific pamphlets covering:

- Movement
- Vision
- Information Processing; and
- Health Problems and Medications.

References

- Barr, R.A. (1991). Recent changes in driving among older adults. **Human Factors**, **33**(5), 597-600.
- Brubaker, T.H. & Roberto, K.A. (1993). Family life education for the later years. **Family Relations**, **42**, 212-221.
- Chu, X. (1994). **The effects of age on the driving habits of the elderly: Evidence from the 1990 NPTS** (Report No. NUTI93USF3.2). Tampa, FL: National Urban Transit Institute.
- Cohen, G. & Faulkner, D. (1986). Does 'elderspeak' work? The effect of intonation and stress on comprehension and recall of spoken discourse in old age. **Language and Communication**, **6**(1-2), 91-98.
- Colsher, P.L. & Wallace, R.B. (1993). Geriatric assessment and driver functioning. **Clinics in Geriatric Medicine**, **9**(2), 365-376.
- Cooper, P.J., Tallman, K., Tuokko, H., & Beattie, B.L. (1993). Safety-related driving performance changes in older drivers. **Journal of Traffic Medicine**, **21**(1), 21-27.
- Durand, R.M., Klemmack, D.L., Roff, L.L., & Taylor, J.L. (1980). Communicating with the elderly: Reach of television and magazines. **Psychological Reports**, **46**, 1235-1242.
- Eberhard, J.W. (1996). Safe mobility for senior citizens. **IATSS Research**, **20**(1), 29-37.
- Eisenhandler, S.A. (1990). The asphalt identikit: Old age and the driver's license. **International Journal of Ageing and Human Development**, **30**(1), 1-14.
- Ernszt, R.P. & O'Connor, P.J. (1988). **Report on accident countermeasures focusing on elderly drivers** (Report Series 4/88). South Australia: Road Safety Division.
- Joyce, M.L. (1994). The graying of America: Implications and opportunities for health marketers. **American Behavioural Scientist**, **38**(2), 341-350.
- Kline, D.W. (1994). Optimising the visibility of displays for older observers. **Experimental Aging Research**, **20**, 11-23.
- Lovsund, P., Hedin, A., & Tornros, J. (1991). Effects on driving performance of visual field defects: A driving simulator study. **Accident Analysis and Prevention**, **23**(4), 331-342.

Marottoli, R.A. & Drickamer, M.A. (1993). Psychomotor mobility and the elderly driver. **Clinics in Geriatric Medicine**, 9(2), 403-412.

Mayhew, D.R. & Simpson, H.M. (1995). **The role of driving experience - Implications for the training and licensing of new drivers**. Ontario: Insurance Bureau of Canada.

Morgan, R. & King, D. (1995). The older driver- a review. **Postgraduate Medical Journal**, 71(839), 525-528.

Parasuraman, R. & Nestor, P.G. (1991). Attention and driving skills in ageing and Alzheimer's disease. **Human Factors**, 33 (5), 539-557.

Parasuraman, R. & Nestor, P. (1993). Attention and driving: Assessment in elderly individuals with dementia. **Clinics in Geriatric Medicine**, 9(2), 377-388.

Rehm, C.G. & Ross, S.E. (1995). Elderly drivers involved in road crashes: A profile. **The American Surgeon**, 61(May), 435-437.

Schieber, F. (1994). High-priority research and development needs for maintaining the safety and mobility of older drivers. **Experimental Ageing Research**, 20, 35-43.

Shinar, D. & Schieber, F. (1991). Visual requirements for safety and mobility of older drivers. **Human Factors**, 33(5), 507-519.

Stamatiadis, N., Taylor, W.C., & McKelvey, F.X. (1990). Accidents of elderly drivers and intersection traffic control devices. **Journal of Advanced Transportation**, 24(2), 99-112.

Stelmach, G.E. & Nahom, A. (1992). Cognitive-motor abilities of the elderly driver. **Human Factors**, 34(1), 53-65.

Underwood, M. (1992). The older driver: Clinical assessment and injury prevention. **Archives of Internal Medicine**, 152(4), 735-740.

Watson, B., Fresta, J., Whan, H., McDonald, J., Dray, R., Beuerman, C., & Churchward, R. (1996). **Enhancing driver management in Queensland**. Brisbane, Australia: Land Transport and Safety Division, Queensland Transport.