

HELPING THE OLDER DRIVER
Report of an AA/MCAP* Working Party

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* MCAP – Medical Commission on Accident Prevention

PREFACE

Many older people cannot live their lives without cars. Public transport is non-existent in many areas. Many local facilities have been closed and others have been centralised either in major towns or on greenfield sites close to them. Families have been scattered around the country in the pursuit of employment and improved job prospects. And there is a general fear of violence with most non-car transport modes. All in all older people have been left with little alternative but to use a car.

The number of older drivers in the population increases year by year. Accident statistics for the population as a whole indicate a sharp rise in risk of fatality from the age of about 70 onwards, but these data do not recognise the difference in performance between individuals. It must be remembered that the accident risk of older drivers is similar to that of 25 year-old drivers – an age group usually considered to be safe.

As drivers get older, capabilities decline and performance deteriorates. These changes are gradual and vary widely from individual to individual. Potential driving problems need to be considered from around the age of 55, both from the drivers' point of view and in terms of the technological and environmental aids to driving that are being developed. At some stage older drivers have to come to terms with modifying their driving behaviour and pattern of driving. Later they will be faced with the prospect of giving up driving.

In our deliberations as members of a working group of the Medical Commission on Accident Prevention and the AA, we have been particularly mindful of how this conflict, which can have such a major impact on an older person's way of life, may be resolved. We recognise the need to maintain mobility and to enable people to drive in comfort for as long as is consistent with safety.

Absolutely critical to achieving this is the provision of information to older people about how they can adapt their driving as their abilities decline. We also need to inform them about how they should prepare for the day when driving has to cease so that the change has the minimum effect on either their lifestyle or their bank balance. Older people are likely to act on this information.

In this new edition of *Helping the Older Driver*, we have concentrated on recommendations that will help older drivers by getting this information to them. We also tackle problems with information about how medical conditions and treatments may affect driving, and highlight areas where other parts of the transport and motor industries can work towards our goals for older drivers.

Progress toward making travel on our roads safer and easier for older drivers will depend on the combined effort of many agencies. But the responsibility that lies with the relatives, friends or carers closest to the people concerned remains enormous.

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The Medical Commission on Accident Prevention was dissolved in September, 1999. This report owes much to the expertise of the members of the Commission who sat on the working group. Were it not for the demise of the Commission this report would have been jointly published with the AA.

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EXECUTIVE SUMMARY

Older people need to stay mobile. Society must support this mobility while ensuring that older drivers do not pose a safety threat to either themselves or other people. The key to achieving these aims lies in letting older drivers keep driving for as long as they can in comfort and without threatening the safety of themselves or others. This goal is best achieved by encouraging them to develop practices appropriate to their driving ability, and to think ahead to the day when driving will have either to be greatly reduced or to end.

1 The problems

Over the next thirty years there will be a significant increase in the number of older people who hold driving licences. Although it will be among the oldest drivers - those over 80 - that the greatest proportional increase will occur, the increase will not be caused solely by the increase in the elderly population. The proportion of older women holding driving licences will increase from the relatively low level of today to a level similar to that of men today. Many of these older drivers will have had access to a car for all their lives and have been driving for their whole adult life. Their lives will have been built around the car.

Older people must retain an active lifestyle, and need to feel secure from personal attack. The car is critical to this. The effects of losing the use of a car are profound, although older people who are still driving feel that these effects will be more severe than those actually experienced by those who have had to stop using a car. There is also the real risk that older people are more likely to be killed in road accidents as pedestrians than they are in cars.

Older drivers have a higher accident rate than those in middle age, but lower than the young. Among the oldest groups, accident involvement per mile travelled approximates to that of those aged 25 - the age where a young driver is traditionally considered to be safe. But it is difficult to identify the distances driven by older drivers from available survey data, and even harder to break these data down to allow comparisons of age groups within the general "older" heading. It is important that this shortcoming is resolved because without this information erroneous decisions may be made through treating this large and disparate group as a single entity.

The rise in accident rates after middle age can be accounted for in a number of ways. Principal among these is the increasing susceptibility to injury of older people. Additionally, their journey patterns mean that they spend much of their time on the roads (major and minor roads in urban areas) where injury rates per distance travelled are highest. It is important that the relative roles of

susceptibility to injury and use patterns are disentangled from the role of declining faculties in the causation of older drivers' accidents.

2 Circumstances where older drivers have accidents

Older drivers' accidents are dominated by those at junctions and intersecting traffic streams and those involving right of way decisions. Older drivers have been shown, particularly at the high end of the age scale, to be more likely to be the blameworthy party in these accidents.

There are strong indications that older drivers restrict themselves to driving where they feel safe and comfortable. This means they tend to stay close to home on frequently used routes, and avoid driving at night, on strange and busy roads and in places that generally worry them. However, it is notable that junctions, highlighted as places where older drivers have accidents, are not seen by older drivers themselves as places where they feel they need to take special care.

There are similarly strong suggestions that older drivers change their behaviour to avoid driving in situations they see as hazardous. There is also evidence that drivers who see no likelihood of giving up driving are healthier and have better accident records than those who see a likelihood of giving up in the near future. These in turn have better records and are healthier than those who have given up. Most older drivers therefore appear to behave reasonably and responsibly.

3 Ageing and driving

Ageing has both physiological and psychological effects on drivers, and these, combined with the increased frequency of ill health and the medicines that are prescribed to older people can have effects on driving. It is vital that doctors and pharmacists treat *all* older people as drivers - after all, a majority are drivers. This means that they must give advice about the effect on driving of any condition diagnosed or medicine prescribed. There is evidence that this is far from always the case at present. There is also a need for the interaction of medical conditions and the medicines that treat them and their effects on driving to be better understood, and for advice for doctors to be readily obtainable.

4 Advice to drivers: making driving habits appropriate to ability

Although older drivers can be seen to be helping themselves to compensate for the physiological and psychological effects of ageing, there is a need for them to be helped to do so. They need to be helped to recognise the decline in their own abilities, and to take steps to remedy these. They can be given help in choosing, and using, the car that best suits them, and vehicle manufacturers can

design vehicles that contain the features that older drivers need, such as automatic transmissions, wide-angle mirrors and good all round vision. Similarly there is scope to help them pick the right routes and the right times for their journeys, and to give advice on the effects of alcohol, illness and medicines on their driving. Highway engineering changes - low cost road safety measures and signing improvements - can be designed specifically to help older drivers while at the same time making the roads safer for all. It is relatively easy to help the older driver to spread out the decision making that is needed to safely navigate a junction.

5 Advice on giving up driving: planning for the future

Older drivers also need to be given advice about preparing to give up driving, and how to maintain a lifestyle that is not totally dependent on a vehicle which, one day, may cease to be available to them.

It is vital that this information is available, and that a framework exists through which it is disseminated. The medical profession has a key role in making this information available - it is from doctors that older people are most likely to accept advice.

Cars are expensive to run, particularly when distances covered are small. It is important that older people realise that public transport, including taxis, can be cheaper than the car for the journeys that they carry out. Such methods are also much less stressful, ruling out worries about parking and entering busy towns. Older people need to have access to a public transport system that is able to cater for them. Alternatives to the car will mean that most older people will be able to stop driving long before they pose a danger to themselves or anyone else.

6 Communicating with older drivers

Older drivers, their relations, and even their doctors need to be able to confirm their views about an older driver's ability to drive. From a medical point of view it is easy for a doctor to decide that a driver suffering from a condition that is a bar to holding a driving licence should not drive. It is harder with patients suffering from several conditions, that would not on their own bar a driver from driving. There is a need for a voluntary assessment regimen that takes into account how and where older drivers use their cars, where the results stay confidential to the driver and the assessor. It is particularly important that any advice given by an assessor is not considered a material fact by insurers when they come to select premium levels and to decide whether or not they will cover a particular driver. As soon as this was the case, no older driver would come forward for a voluntary assessment - the risk of becoming uninsurable, or suffering an increase in premium as the result of undergoing the

assessment, would be too great. It is important that such a regime appears friendly, and it must be seen to be advising only the driver. The regimen must be distinct from the assessments that are required by the Driver and Vehicle Licensing Agency (DVLA) when a driver's ability to keep a licence is in question.

7 The need for research

There are the inevitable research needs. More needs to be known about the driving performance and accidents of older drivers, and this needs to be coupled with increased understanding of their travel patterns. It is not adequate to treat all people over a certain age as old. We need to be able to distinguish between the young old, the middle old and the oldest groups.

There is also a need to understand more about how the 50 year old, 30,000 mile a year driver of today will cope with being an older driver, and whether he or she will have the same attitude as today's older drivers. It is also vital that the effects of medicines are explored on people who suffer from the condition the medicine is designed to treat.

Older drivers have the potential to be a major road safety problem in the future. Simple actions taken now can prevent this becoming the case in the future.

CHAPTER 1

THE PROBLEMS

- 1.1 **Demographic changes: an increasing proportion of older drivers**
- 1.2 **Evidence of higher accident rates among older drivers**
- 1.3 **Need for further investigation**

1 THE PROBLEMS

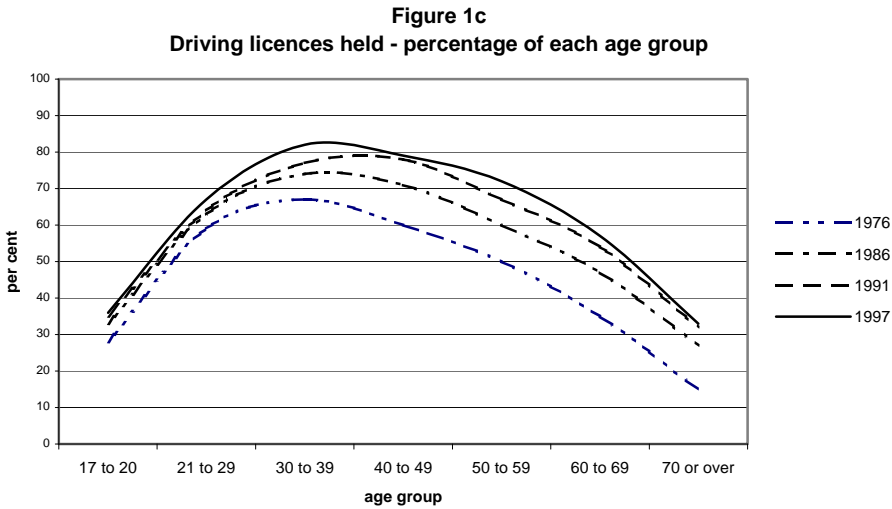
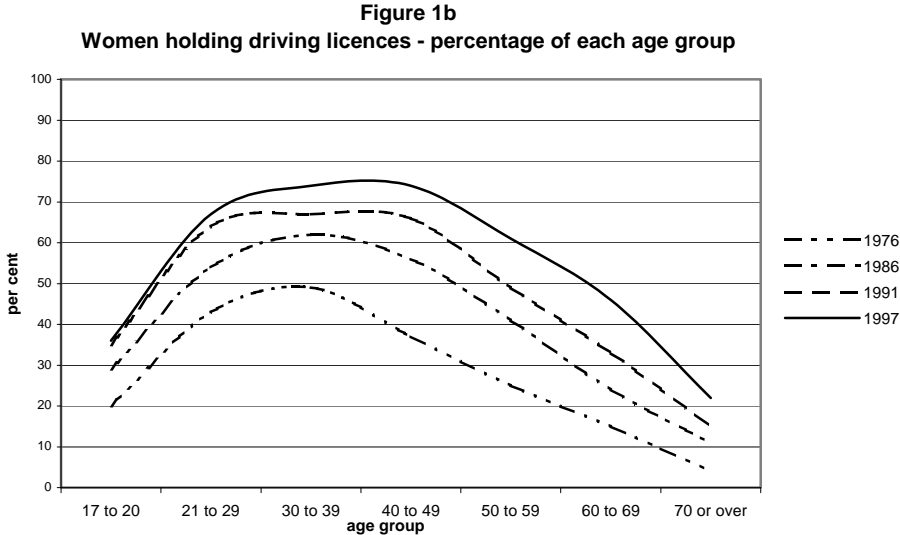
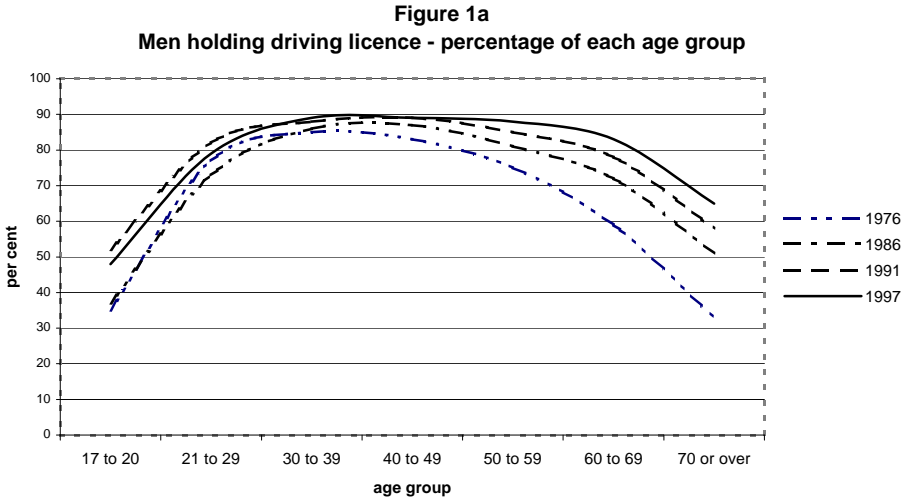
1.1 Demographic changes: an increasing proportion of older drivers

At the start of the millenium, almost 15 million people in the United Kingdom were over 55 and 4.2 million were 75 and over. By 2031 there are expected to be nearly 22.5 million people over 55 and 6.7 million 75 and over (1). In addition, dramatic increases are expected in the proportion of older people, especially women, holding driving licences (Figure 1).

Another way of measuring the changing age structure of the population is through using an elderly dependency ratio, which compares the number of people older than the state retirement age with the number of people of working age (that is 16 to 65). This ratio is to change from 30 over 65s per 100 of working age in 1994 to 39 in 2031 and 43 in 2041 (1).

In the future far more of the older members of the British population will be accustomed to the car culture and will want to continue a highly mobile lifestyle based on the use of a private car. Whereas in 1975-6 only 33 per cent of men and 4 per cent of women of 70 and over had licences, in 1993-5 the proportions were 65 per cent and 22 per cent (2). The proportion of young women learning to drive is still increasing, and the growth in the population of older women drivers will be an important and continuing trend. The 1995-7 survey shows that in the current 40 to 49 age group 89 per cent of males and 74 per cent of females hold licences, a sign of the numbers of older drivers we can expect to see in 25 to 30 years time. Figure 1 illustrates these trends. Figure 2 gives an indication of the level of access to cars by the older

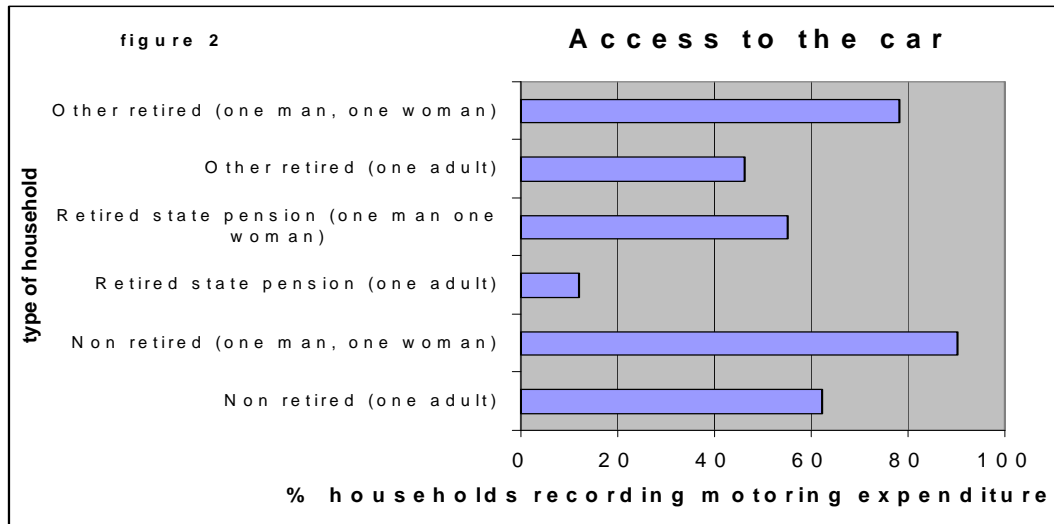
Figure 1 Changes in the number of driving licence holders



population, and shows that only among older people living alone is a car accessible to less than 50 per cent of retired people.

The economic realities of car ownership in retired households are shown by the extract from the AA report *Who spends what on motoring?* (3), which is reproduced as the Appendix.

Increasing affluence will enable more older people to continue running a car, and indeed many will live in suburban or rural areas where no satisfactory



alternatives to the car for regular travel are to be found. Additionally, the increased mobility in the labour market will mean that more older people live some distance from their close family.

According to the 1996 AA Foundation study (4), those who learned to drive early in life tend to continue to drive for longer than those who were late learning to drive. Accordingly, the present tendency to start early may mean far more people driving until quite an advanced age. Indeed, the numbers of the oldest drivers (over 85) are expected to increase at the fastest rate, about 1.9 per cent a year over the next 25 years, in the countries of the European Union (5).

The over 60s make far fewer journeys by all modes per year than the younger age groups. Car driver mileage per person per year for the over 60s has trebled from 890 in 1975-6 to 2,700 in 1992-4 (6).

This increasing population of older drivers will face increasing traffic. Road traffic is expected to increase by up to 27 per cent by the end of 2010 and by up to 60 per cent by 2025 (7).

1.2 Evidence of higher accident rates among older drivers

Ageing brings increasing fatality, casualty and accident involvement rates in relation to distance travelled. Fatality rates begin to rise sharply at the age of 70 (see figure 3). The incidence of a male older driver being killed in an accident rises from the minimum of about 0.17 per 100 million kilometres in the 40 to 60 age group to 0.65 between 70 and 75 to 0.84 among those over 75 (8). Similarly the risk of being injured rises from 1.6 in a male driver's fifties to 2.4 in his seventies. At the same time the risk of being involved (but not necessarily injured) in an accident rises from 0.51 in a male driver's fifties to 0.56 in his seventies.

The U shaped fatality curves in figure 3a, with higher rates for the young and the old are notable. A much smaller upturn also occurs for injuries and for accident involvement. Special studies are needed to quantify the various factors - to separate the contributions on the one hand (up to the age of about 40) of increasing experience and competence and of increasing maturity, with a more considered attitude to risk taking, and on the other hand of the progressive degradation of driving skills with age, the increasing physical vulnerability in accidents that goes with ageing, and the changes in patterns of use. The information needed to disentangle these strands is not available in the Stats 19 data produced by the police, and the revised version of this form which was introduced in 1999 will not improve this situation.

Because older people are less robust the death and injury rates rise. Maycock quotes research by Wouters (9) and Evans (10) that shows that a male driver aged 80 would be three to four times more likely to be killed in an accident as a 20-year-old would. This research shows that the liability rises with age, accelerating from the age of 60.

Weight is added to the belief that frailty plays an important role on the upward side of the U shaped curve by Swedish data that show that casualty and fatality rates for older car occupants rise whether or not the occupant is a driver or a passenger.

Many older drivers claim to make adjustments in driving behaviour and to avoid driving conditions they find difficult, uncomfortable or stressful. This can mean that older drivers are likely to confine themselves to local journeys, albeit in both urban and rural areas. This in turn means they drive for much of the time on the types of roads where accidents and occupant casualties are most likely to happen. Currently, in terms of accidents per distance travelled, an accident involving personal injury is nine times as likely to happen on an urban road as on a motorway, and three times as likely to happen on an urban road as on a rural A road. As older drivers are less likely to use the

Figure 3 Age and fatality and accident risk

Figure 3a
Driver fatalities per 100m vehicle kilometres

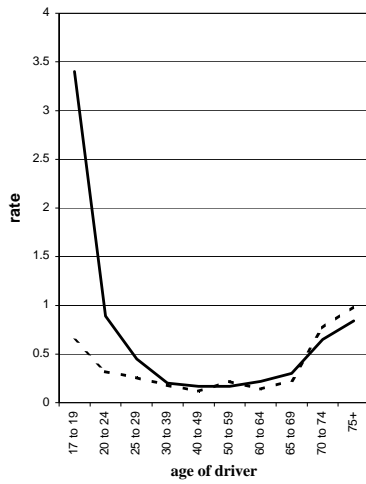


Figure 3b
Driver injuries per 100m vehicle kilometres

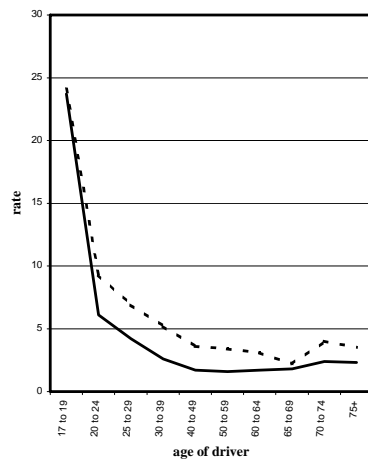
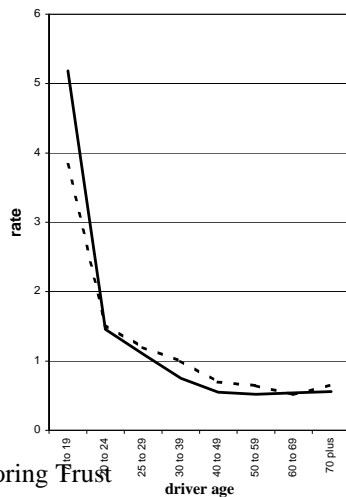


Figure 3c
Accident involvement per million vehicle kilometres



statistically safer roads, their use patterns also contribute to the upward end to the U shaped curve.

These adjustments to car use may contribute to higher accident rates per mile. This is likely to be more a function of the miles that are not driven on the roads with low statistical accident risk than one of mistaken adjustment or declining ability. Any driver with the travel patterns of an older driver could be expected to have a higher accident rate per mile driven than one who travels longer distances on major non-urban roads.

1.3 Need for further investigation

It is important that these factors are disentangled. Similarly there is need for liability for the accident to be better considered. Some study of older driver involvement in accidents involving the more vulnerable road users - particularly pedestrians - also seems necessary.

CHAPTER 2

CIRCUMSTANCES IN WHICH OLDER DRIVERS HAVE ACCIDENTS

- 2.1 Introduction
- 2.2 Accidents at junctions
- 2.3 Blameworthiness in accidents and attitudes to driving
- 2.4 Problems and changes in driving
- 2.5 Changes in driving habits
- 2.6 Giving up driving

2 CIRCUMSTANCES IN WHICH OLDER DRIVERS HAVE ACCIDENTS

2.1 Introduction

Several researchers have been highlighted by Maycock (5) as having studied the circumstances in which older drivers are involved in accidents and the features of the accidents themselves. Mainly because of exposure factors, older drivers' accidents occur in the daytime rather than at night and relatively less frequently during bad road and weather conditions than during good. Studies which have examined the kind of accidents in which older drivers are over represented suggested that the following situations are those which older drivers find difficult: accidents at junctions and intersecting traffic streams and accidents involving right of way decisions.

2.2 Accidents at junctions

The propensity of older drivers to have accidents at junctions has been shown in many studies, including ones by the Transport and Road Research Laboratory (11) and the AA Foundation for Road Safety Research (12,13). Although the proportion of older drivers in accidents at junctions is less than

The proportion of all drivers, regardless of age, in such accidents, it is the dominant type of accident for older drivers. This is simply one manifestation of a general trend: drivers appear in an increasing proportion of accidents at junctions as they grow older. One factor may be that older people seem to need bigger gaps when entering or crossing a traffic stream.

This pattern runs through the results of much research. Older drivers are particularly prone to have accidents resulting from inadequate handling of complex traffic situations, mainly where there is traffic conflict. This happens mostly at junctions, with failure to yield right of way and problems with right turns. According to an Organisation for Economic Co-operation and Development (OECD) review, accidents at rural junctions and also during U turns and reversing are especially common, along with accidents involving reversing and failure to yield right of way (14). Driving more slowly, though reducing risks in general, has been shown to increase risks at intersections (15).

The biggest problem faced by older drivers at junctions seems to be when, after they have stopped their car, they are moving into or across main road traffic. This problem becomes even larger when the junction is oblique. The most important estimated direct cause of fatal accidents in a Finnish study, where the driver responsible was over 65, was observation error. This was usually because of narrowing of attention either by an internal factor (such as being in a hurry or tired or navigating a new route) or by an external factor (another car doing something unusual, children close to the road, etc). Failures to look for a specific road user or in a specific direction or to discern relevant stimuli were identified as basic errors in one study (16).

2.3 Blameworthiness in accidents and attitudes to driving

Older drivers appear to be more often to blame for an accident than middle aged drivers, according to those studies that have related blameworthiness to age (5). The probability of being the cause of an accident is represented by a U shaped curve in data from several European countries, with the minimum in middle age and, usually, 70 per cent or more of the oldest drivers being regarded as responsible (5).

The older person is generally assumed to be sensitive to criticism relating to age and ability or resistance to change. The 1988 AA Foundation study on older drivers suggested that this was the case for some (17) - an important consideration in devising measures and formulating advice.

2.4 Problems and changes in driving

The 1996 AA Foundation study *When and why older drivers give up driving* inquired about particular driving problems in detail (4). This questionnaire study was based on a sample of 2134 people, 1174 (55 per cent) of them men. Of the total sample 1780 (mean age 70.5 years) were still driving and 339 (mean age 76.7) had given up.

The worst problems in the view of the drivers themselves, in descending order of rated severity, were: deteriorating vision in poor light, maintaining alertness over long periods, sensitivity to glare, dividing attention between simultaneous tasks, and parking. Eleven and a half to 23 per cent of drivers reported deterioration in the last three years. Much higher proportions of ex-drivers, however, said that they had deteriorated in the three years before giving up, both in these and in all the other situations investigated. This can be interpreted as showing that drivers are not aware of their deterioration, but on the other hand it may reinforce the view that older drivers are responsible people and give up driving once they no longer feel capable of driving safely.

The study found that older drivers gave low ratings of difficulty to the problems that characterise the accidents that they are thought to have - mainly judging the speed of oncoming traffic and gaps in traffic and making decisions when pulling out into traffic or crossing a traffic stream.

It is probable that self-ratings do not show up insidious problems that provide no immediate feedback - a discrepancy between perception and reality (17) that may cause problems to escalate without becoming recognised. This is reflected by the findings of the first AA study, where the drivers did not regard junctions as a problem, most considering that their ability to cope with them was much the same as when they were 50 and that their reaction times were just as good (17). In another study over two thirds of drivers who had problems brought to their attention made sensible changes (18).

2.5 Changes in driving habits

It is easy to overlook the fact that there are many aspects of driving. It has been argued that driving can be divided into five distinct tasks:

- Controlling the vehicle
- Reading the road
- Anticipating the actions of others
- Navigating the route
- Reaching the destination on time.

There are now also arguments that maintaining the correct speed is a sixth aspect. Each of these tasks require attention in differing quantities in

different places. It is possible for drivers to regulate their driving to minimise the need to redirect their attention, particularly by choosing the time at which they drive and the route taken, and by reducing the importance of reaching the destination on time. By restricting themselves older drivers can reduce personal stress in making the journey, and make their tasks simpler and safer.

The main circumstances in which drivers in the 1996 AA Foundation study (4) said that they drove less often were, in descending rank order: in the rush hour; in unfamiliar vehicles; at night; when tired; in city centres; in unfamiliar areas; when in poor health; at dawn or dusk; going long distances; on motorways; and in bad weather. It must be borne in mind that the freedom of retirement would contribute to these changes in habits to varying degrees. The proportion making a change was 30-55 per cent for those intending to carry on driving for as long as possible, with generally higher percentages for those anticipating giving up and higher again for ex-drivers in their last three years. In the 1988 AA Foundation study (17) the reported changes included leaving more distance from the vehicle in front, driving with more caution, and avoiding heavy traffic and night driving. Not all older drivers, however, comments the report, appear to make - or admit to - these adjustments.

In another study drivers who had noticed sensory changes were more likely to have changed their driving habits - in particular, those with poor vision in poor light, who avoided driving long distances as well as driving in darkness and bright sunlight (18). Within two months of filling in the questionnaire and having eye and hearing tests some two thirds of these older drivers made changes to their behaviour - including planning routes beforehand (this was occasionally said to be to avoid complex junctions).

2.6 Giving up driving

In the 1988 AA Foundation study most participants accepted that by the age of 70-75 drivers should consider giving up driving and that by 80 they have to consider it very seriously (17). Respondents thought that deterioration in health was the strongest reason, followed by doctor's advice and financial reasons. Bad driving experiences, loss of confidence, and difficult driving conditions were often mentioned also.

In the 1996 AA Foundation survey (4) ex-drivers had given up driving at an average age of 72, but many would have continued for longer if they could have afforded it. They rated the following as important reasons for giving up: medical/ability (65 per cent); accident/safety (52 per cent); financial (41 per cent); and personal/social (16 per cent). For the two thirds of drivers who were prepared to estimate an age for giving up the average age estimated was 79.3 (the rest intended to carry on until they were forced to stop). This "carry on" group reported fewer difficulties in stressful driving situations; they had

also had fewer recent accidents and convictions and rated themselves more highly in terms of confidence and ability.

Older drivers may need assistance in coming to the decision to give up driving. Advice from family seemed relatively ineffective in both AA Foundation studies (4,17), although the influence of a close friend was rated highly in the second survey. The doctor is always considered the most effective influence.

CHAPTER 3

AGEING AND DRIVING

- 3.1 Changes associated with ageing
- 3.2 The legal framework for older driver licensing
- 3.3 General health
- 3.4 Psychological and cognitive changes
- 3.5 Physical changes
 - 3.5.1 Vision
 - 3.5.2 Hearing
- 3.6 Diseases
- 3.7 Medication and alcohol

3 AGEING AND DRIVING

3.1 Changes associated with ageing

This chapter looks at the important medical changes associated with ageing, both physical and mental, that may affect driving. These are discussed more fully in *Medical Aspects of Fitness to Drive* (19).

3.2 The legal framework for older driver licensing

The changes associated with ageing mean that older drivers are more likely to suffer from medical conditions that may affect their ability to drive safely. Accordingly special arrangements govern their licensing.

The current licensing regime for older drivers requires them to reapply for a driving licence at 70 and every three years thereafter. This entails the

completion of a medical declaration, and unsatisfactory answers can result in further investigations, and possibly the issue of a shorter-term licence, or refusal to issue a licence. From about 75 years of age, or earlier if there are medical or accident problems, insurance companies can require medical examinations. The occasional cases of grossly unfit drivers continuing to drive are usually the result of ignoring the system, rather than of shortfalls in the system.

Research has shown (4) that older drivers tend to support changes to the system that will give them responsibility for reporting medical shortcomings, backed up by wider reporting by doctors. However, this is seen as a replacement for the existing "intrusive" system, and would therefore effectively be a weakening of the controls currently in place.

It has always been the case that some older drivers have driven large vehicles that require group 2 licences, generally known as HGV/LGV or PSV/PCV licences. Recent changes in legislation mean that those who drive vans or minibuses or tow horseboxes or large caravans, also need Group 2 licences from the expiry of their Group 1 (car) licence at 70. To obtain a Group 2 licence it is necessary to take a driving test relevant to the vehicle to be driven, and higher medical standards also apply. Group 2 licences must be renewed every five years from the age of 45 and yearly from 65, and renewal requires a medical report signed by a registered medical practitioner. Many medical conditions for which the retention of a Group 1 licence is permitted may necessitate the revocation of a Group 2 licence. It is important that drivers understand the need to tell doctors if they hold Group 2 entitlement, and doctors need to know which of their patients hold this entitlement.

This report is primarily concerned with those older drivers holding group 1 entitlement.

3.3 General health

Drivers in the 1988 AA Foundation study (17) reported moderate changes in their health since they were 50 - especially a decline in eyesight, including night vision, and hearing; stiffness or pain in joints; and heart disease and high blood pressure. In the second (1996) study all groups of respondents, including ex-drivers, were relatively healthy for their age, with vision defects being the most frequently reported problem (4). However, the "carry on" group (those in the survey who had no plans to give up driving) seemed to have somewhat fewer health problems, including physiological problems known to affect driving, than those in the group who envisaged a stop to their driving.

Although legislation specifies conditions where driving is not permitted, there are other areas where doctors should advise drivers not to drive. This advice can be given either because the driver suffers from a single condition, or from a combination of conditions, or because of the driver's overall state of health.

3.4 Psychological and cognitive changes

There is of course enormous variation between individuals and no direct or linear correspondence between biological and chronological age. Nevertheless, however much we claim that we are “only as old as we feel” the decline in capacities continues. This is particularly true of psychological changes.

The decline of cognitive and sensory as well as physical abilities with age has been shown in many laboratory studies and is reflected in the types of accident that older drivers have (5). Slowing of responses, difficulties in sustaining attention and in dealing with complexity, and deterioration of memory are among the important effects shown to result from ageing. Some of the resulting disadvantages are offset, however, by a long career of regular driving, although practice can improve different functions to different degrees.

The most important change is the slower processing of sensory information, the slowing of nerve and brain action coming more from central processing than from the conduction of nerves. This interferes with the interpretation of the meaning of stimuli and with decisions on suitable responses. A slowing of decision making, response selection, and response execution follows (5). The reaction time for an older person can be well estimated as 1.3 times the reaction time for a young person, regardless of the nature of the task. These slower reactions are related more to the difficulty of making decisions in complex situations than to slow reactions to simple stimuli (20). The slowing of cognitive processing correlates highly (0.4-0.6) with intelligence test measures, which measure mental agility rather than the amount of stored information, and which also decline with age. Furthermore, older people seem to have problems with just those kinds of perceptual judgements that are central to driving, such as estimating the relative size, distance, and motion of objects using spatial cues, and with general understanding.

Processing capacity is also reduced, so that the older person processes a more limited amount of information at any one time and finds it difficult or impossible to do two things at once, such as talking and carrying out some manoeuvre or even doing such simple and practised tasks as checking the mirror and changing gear. In addition, movements tend to be less automatic and so take more mental capacity than in younger people.

The maximum rate of visual search is slower in older people. In addition, the ability to process peripheral visual information may be limited - seriously so if the driver is concentrating on a complex traffic scene. More generally, older people are less efficient than younger people at picking out relevant information from a background of irrelevant “distracters”. A test that would predict accident rates far better than would visual sensitivity alone would be to measure how far peripheral objects attract the driver’s attention, in combination with some test of cognitive function (21).

Poor health has psychological effects, often exacerbating the effects of ageing (see *Medical aspects of fitness to drive* (19) and the *At a glance guide to the current medical standards of fitness to drive* (22)). Hypertension and cardiac and pulmonary insufficiency, for example, have been related to slower reaction times, and cerebral blood flow is highly correlated with cognitive abilities, such as performance in intelligence tests.

Psychological problems were not frequent or serious in the people sampled in the 1996 AA Foundation study (4). This study suggested that by and large they were relatively calm and stable people with “slight, but not excessive, concerns about personal competence.” The group of ex-drivers reported more problems than the group of drivers.

As is the case for many medical conditions, (19, 22) persons with dementia who wish to drive must in law notify the DVLA. If they are incapable of such notification their doctor or carer should make the DVLA notification on their behalf.

3.5 Physical changes

In normal ageing, even without the further effects of illness and pathological changes, there is a decline in muscle power, nerve sensitivity, skeletal strength and flexibility and also in the function and resilience of heart, lungs, and kidneys. Diseases and injuries that occur throughout life produce an accumulation of minor (or even major) effects; and degenerative diseases, such as osteoporosis of the joints and the neck, may limit driving operations and make it difficult to move the head to see traffic at junctions.

3.5.1 Vision

Vision deteriorates with age and may be further reduced by pathological eye disorders - including cataracts and retinal damage. These conditions can be

detected easily, and older drivers should ensure they undergo checks for these disorders by attending an optometrist or an eye specialist every two years.

In the 1996 AA Foundation study all participants were relatively healthy (4). However, all suffered problems with vision, although these were usually mild and correctable.

With age, adaptation to the dark becomes poorer. Road signs are seen less well at night so that there is less opportunity to act on them. Oncoming lights are also found troublesome. From the age of about 70, however, research suggests that people take an over optimistic view of their vision, even though they are aware of visual problems (18). Rabbitt (4), showed that 57 per cent of older drivers claim to have had their eyes tested within the 12 months prior to completing the questionnaire, 80 per cent within 24 months and 93 per cent within three years.

Scientific studies show that visual defects are only weakly related to road accidents for drivers of 55 years and over - even in the case of the tests giving the most consistent results, dynamic and static visual acuity (23). Thus for an individual driver such tests have little potential for accident prediction. Two tests of night vision - low light recognition threshold and glare recovery - gave inconclusive results, and no evidence was found for a progressive increase in accident rate with deteriorating total visual field - or for the idea of a visual field standard of 140°. The more cognitive aspects of vision, however, are a different matter, and the functional visual field in particular is more profoundly related to driving ability.

The numberplate test is the legal test for visual acuity. Drivers can easily test themselves using this test (reading a numberplate in good light at 20.5m or 67feet) and should be encouraged to do so. It is illegal to drive when this test cannot be passed, and many police forces publicise the fact that they will test the vision of drivers involved in accidents.

3.5.2 Hearing

There is no evidence that hearing is critical to driving and no established link between road safety and hearing.

3.6 Diseases

Cardiovascular and cerebrovascular diseases are common in older people. Atherosclerosis predisposes to cardiac infarction and stroke, with the sudden onset of incapacity. Impairment of the cerebral circulation may reach a

critical level, causing attacks of giddiness or transient loss of consciousness. Such attacks must be reported to the DVLA so that appropriate decisions can be made about fitness to drive. Ischaemic heart disease is widespread in older people and may be mild and undramatic on onset, again calling for careful assessment in relation to driving. After recovery from heart attacks and the less severe forms of stroke driving may well be possible but in both cases the trouble may recur; so thorough assessment is vital. **Overall medical factors alone are responsible for less than 1 per cent of road traffic accidents. Heart attacks appear to be a factor in only 10 per cent of those accidents where a medical condition is a factor (19).**

There is a wide variety of other diseases which can affect driving . It is important that doctors advise patients and patients seek advice from their doctors about conditions that can affect driving.

3.7 Medication and alcohol

The little research that has been done on medicines and driving shows that reaction times can be adversely affected by some medicines. However, there is no real indication that any particular medicine will affect any particular person in any given way. Additionally much of the research examining the effects of medicines on driving looks at people who are not suffering from, and have never suffered from, the condition the medicines are designed to counter. This means that the interaction of the condition and the treatment is not generally explored (24).

Another shortcoming is that the research fails to examine whether the effects of the medicine on driving change as the body becomes used to the medicine. Many medicines may have adverse effects on driving only during the early days of the treatment (24).

The preliminary results of the 1996-1998 study of drug presence in road accident fatalities show a much greater problem from the use of illegal drugs - mainly the province of the young - than medicines. Some studies have shown an increased incidence of accidents among those taking certain kinds of medication. The recent study of the presence of drugs in drivers killed in road accidents (25) has shown that around 6 per cent of drivers killed have taken medicines. This proportion is much the same as that found in a similar study carried out in the late 1980s (26).

Surveys have shown that most drivers have a disturbing lack of knowledge of the adverse effects of medication on driving, in spite of the EU requirement that all medicines have a leaflet explaining any such effects. Many claim that doctors and pharmacists often provide no information (27). There is anecdotal evidence that many doctors still do not expect older people, and

particularly older women, to be driving. Additionally, a study at the Royal Victoria Hospital in Belfast suggests that doctors are not well informed on the effects of illness and medicines on driving, or on where they can find information on which to base advice to patients.

It must be remembered that medicines help people with health problems live normal lives. Medicines do not only impair drivers - sometimes they can also make them safer drivers.

Tranquillisers such as benzodiazepines and sleeping tablets are a common cause of drowsiness in the morning and driving in such a condition would be dangerous. Some antidepressants also slow down responses and impair driving.

Painkillers and some antihistamines are among the other medicines that reduce driving ability - though the symptoms for which they are taken also have adverse effects. For fuller discussion see *Medical Aspects of Fitness to Drive* (19).

With many medicines alcohol increases side effects. Even on its own alcohol in relatively small amounts can slow reactions, reduce concentration, and impair judgement (19). Thus alcohol and ageing have a similar effect on the processing of information by a driver. Small amounts of alcohol can also induce sleepiness at the wheel.

CHAPTER 4

ADVICE TO DRIVERS: MAKING DRIVING HABITS APPROPRIATE TO ABILITY

- 4.1 **Recognising decline in ability**
- 4.2 **Choice of car**
- 4.3 **Choice of special equipment**
- 4.4 **Choice of route**
- 4.5 **Choice of time of travel**
- 4.6 **Avoiding tiredness**
- 4.7 **Medication and alcohol**

4 **ADVICE TO DRIVERS: MAKING DRIVING HABITS APPROPRIATE TO ABILITY**

4.1 **Recognising decline in ability**

The older driver should be aware that abilities will decline, though many may wish to deny this. Decline in ability does not mean that driving must cease, but recognising this decline leads to a rational acceptance of it, resulting in positive adjustment and less anxiety about driving.

Advice should be made available on modifying driving strategies in such a way as to minimise or avoid potential hazards - notably situations known to cause difficulty to older people, such as driving in poor light, handling complex traffic situations and, most critically, dealing with right turns. The more precise the advice the better, particularly regarding the most critical manoeuvre for older drivers – turning from a minor road into a major road at a junction - possibly also starting from rest and where traffic has to be joined or crossed.

Recognising those conditions that cause them stress, and then either planning to avoid them or taking special care, is an important skill for the older driver to acquire. The ability to recognise the occurrence and causes of stress is important if the older driver is to continue driving as safely and as long as possible. If stress is not countered driving is likely to be reduced - and to end sooner than might otherwise be necessary. In the 1996 AA Foundation study (4) it emerged that consistent and continuous changes in driving patterns - in particular less driving in various stressful conditions - occurred between the ages of 50 and 75+.

Physical problems equally need to be faced. Some 40 per cent of drivers in the 1988 AA Foundation survey (17) did not state that difficulties in turning their heads affected their driving, but later admitted suffering a degree of difficulty in turning their head. Such a difficulty could obviously cause serious problems at junctions, but the wider implications of this finding are no less a cause for concern. If drivers of any age do not consider whether their physical impediments affect driving they may not make compensating adjustments.

With serious health conditions clearly this is even more important. Informing the DVLA of relevant or prospective disabilities that may affect driving is a statutory requirement, but how far drivers comply with it is open to question. For example, 70 per cent of epileptic drivers who have had accidents were found not to have reported their epilepsy to the DVLA (19). These were, however, mainly in the younger age group with an average age of 35 years. Drivers also have an obligation to inform DVLA of any changes in these medical conditions.

Since by the age of about 70 drivers seem to have an increasingly over optimistic view of their declining vision (18) self testing of vision is clearly of great importance and thanks to the nature of the UK number plate test can be easily accomplished. It should be pointed out to older people that glasses used for driving should not have thick frames or sidepieces that obscure vital peripheral vision.

It is important that older people avoid tinted glasses when they are driving and tinted windscreens on their cars. Many see this as an answer to the problems of glare and dazzle. This is not the case, as their use will make it harder to see things away from the brighter lights. Again this is a vital piece of information that must be passed on to older drivers.

In summary, the central principle must be that older drivers should be made more aware of their limitations, how these might affect the ability to drive safely, and hence the need to monitor abilities and limitations regularly.

They must also understand, and be helped to understand by their doctors, the legal requirements with regard to informing the DVLA of conditions and disabilities that could affect driving.

4.2 Choice of car

Older drivers need clear advice on the desirable features that will ease and prolong driving (paragraph 6.8). A good field of vision requiring minimum movement of the head is clearly desirable. Adequate rear view mirrors and clear glass giving all round vision (particularly for reversing) are essential for the older driver. Again the point has to be made that tinted windscreens should be avoided.

Power steering is very helpful to the older driver, allowing good control with little physical effort. Changing from a manual to an automatic gearbox can also help, but a change should not be left to a late stage because some drivers may not then adapt readily, particularly in an emergency.

The increased susceptibility to injury of older drivers has been highlighted earlier. Secondary safety measures - ones that protect against injury once an accident has occurred - are thus particularly important for older drivers. Maycock cites the positioning and use of seat belts, air bags and side impact protection as particularly important.

4.3 Choice of special equipment

Supplementary rear-view mirrors to cover the blind spots are highly recommended because the older person often has a limited range of head movement - which poses particular problems at oblique junctions and in reversing. These wedge shaped mirrors stick to either the exterior mirror glass or the top of the mirror housing. The increasing use of wide-angle door mirrors on new cars should also assist older drivers.

4.4 Choice of route

Older drivers are happiest on roads they use regularly, and planning journeys to use such routes may well pay dividends. Routes using mainly left turns are safer than ones requiring many right turns, and a simple route - for instance, one using main roads and avoiding a multiplicity of junctions and complex road layouts - is usually preferable to a shorter but more difficult route.

Older people may well have trouble interpreting direction signs in busy or complicated traffic conditions, which will create problems for navigation. A prepared route with place names and road and junction numbers should be

displayed close to the line of sight, leaving only limited confirming information to be obtained from signs. Passengers can often help with directions, leaving the driver to concentrate on driving.

The future will see the widespread development of in-car navigation aids. It can be argued that these will distract a driver. However, by allowing older drivers to concentrate on the manoeuvres they have to perform, rather than sharing their attention with choosing the right route, it is quite likely that these innovations can be beneficial to older drivers who use unfamiliar routes.

4.5 Choice of time of travel

Extreme weather - fog, rain, ice, or snow - makes travel less safe and more stressful. Most trips can be cancelled in such conditions; even visits to the shops can usually be postponed for a few days. Indeed, in bad weather all drivers should travel only if the journey is essential.

Many older drivers prefer not to drive in the dark, finding it harder to understand complex traffic situations and to read traffic signs. Anyone who finds that night driving is either difficult or provokes stress should not drive at night.

All drivers face the problems of glare and dazzle, but susceptibility increases with age, and driving at times when the effects are severe should be avoided if possible. This clearly includes not only night but also times when the sun is low in the sky and in the driver's line of vision. Avoiding such times will not always be practicable, and the sun visor is still a useful defence against the problem. The effects of glare can be diminished by keeping the windscreen clean, both inside and out, as smears and smudges decrease visibility - indeed, such blemishes may make a windscreen almost opaque for someone driving against bright light. Old windscreens may need replacing, particularly if they have become scratched or pock marked.

The older driver should try to avoid heavy traffic so far as possible. Peak hours in towns are easy to anticipate though these tend to start early on Fridays. Long distance motorway commuting also takes place during these hours. Similarly, weekend and bank holiday traffic is best avoided (it is worth remembering that much weekend travel now starts on Friday afternoons).

We live in a world dominated by time pressures. Older drivers can often escape these pressures. They should try not to set themselves too rigid schedules for journeys, thereby removing a major source of stress. They should not allow others to push them into accepting this kind of rigidity.

Traffic and weather information is available on radio and Teletext, on the Internet, in newspapers, and through recorded telephone messages. This information, often prepared by the AA, identifies problems and may remove much of the worry from driving if no problems are reported or if alternative plans can be made.

4.6 Avoiding tiredness

Drowsiness at the wheel is common among older drivers and is exacerbated by alcohol and some medicines.

Fatigue is best avoided by advance planning. Adequate sleep before driving and avoidance of heavy meals and alcohol are important. Driving should be avoided at times when the driver is, or might become, tired and when he or she might otherwise be sleeping, and also after strenuous muscular activity. As older drivers tend to be retired or partly retired this should be easier to achieve than in younger people. Driving should not continue for more than six hours in a day, and a break of at least 20 minutes should be taken at least every two hours. Frequent breaks are best. Having a change of driver clearly helps to prevent fatigue and tea or coffee can also reduce sleepiness.

If the driver feels tired a stop should be made at the first opportunity. People do not drift into sleep without any warning; on the other hand they should know that sleep follows the onset of drowsiness more quickly than may be thought (28). Just taking a break from driving is effective for only about 15 minutes; and other suggested countermeasures, such as opening the windows, turning on the radio, and taking exercise (unless strenuous), work only briefly if at all.

Current high tech devices for detecting sleepiness are not thought to be sufficiently reliable. The best solution is to take a nap of up to 20 minutes or drink coffee containing around 150 mg of caffeine (two cups) - or better still both (29). Both remedies have been found to reduce driving impairments, subjective sleepiness, and electroencephalographic activity indicating drowsiness, at least in young, healthy drivers in a simulator. There may, however, be no nearby stopping place, so advance planning to minimise fatigue is of the utmost importance. Clearly it is vital, for the benefit of all drivers but particularly older people, to promote the message that driving while drowsy is highly dangerous.

Driving on strange roads is tiring. But the danger may well come at the end of a journey, when familiar territory is reached and the driver feels able to relax. Older people in particular should be warned to guard against loss of vigilance at this stage.

4.7 Medication and alcohol

Everyone taking medication should read the leaflet included with the medication. This means that they will be warned about possible side effects that could impair driving - and drivers should know that they must in any case check on side effects. There are indeed many gaps in our knowledge of the effects of drugs and more research is needed, but where information is available clear explanations of side effects should be given to patients by the product labelling as the law requires. **Doctors and pharmacists should always assume that an older patient does drive, and should always inform older people if the drugs prescribed may affect driving. Similarly older drivers should always ask for information about effects on driving if this information is not volunteered.**

Advice must stress that alcohol is best avoided, by all drivers and particularly older drivers. Some medicines can accentuate the effects of alcohol.

However, it is easy to overlook the fact that certain essential medicines can improve driving - particularly those prescribed following epilepsy.

A vital message to drivers who take medicines, and indeed all people who take medicines, is that they should always read the label or the information leaflet, and if necessary ask their doctor or pharmacist for further information. Drivers who encounter side effects should tell their doctors, and consider not driving until the side effects have subsided.

CHAPTER 5

ADVICE ON GIVING UP DRIVING: PLANNING FOR THE FUTURE

- 5.1 When to give up?
- 5.2 Planning retirement
- 5.3 Sharing driving
- 5.4 Alternatives to the car

5 ADVICE ON GIVING UP DRIVING: PLANNING FOR THE FUTURE

5.1 When to give up?

Before most drivers begin to think about giving up driving, they should have been modifying the way they drive, and probably reducing their driving.

From the data available it is clear that there is no predetermined age by which driving must cease. The factors that lead to giving up driving are complex and vary from one individual to another. It has to be remembered that a significant proportion (nearly 40 per cent) of drivers give financial or personal reasons for giving up driving, and that although more do give medical or safety reasons these are far from being the only reasons. It also has to be remembered that medical reasons can make a driver give up suddenly, and there is a need for older drivers to give some thought to this eventuality. The 1996 AA Foundation study (4) showed that voluntary arrangements for giving up driving, supported by advice and guidance, particularly from doctors, are more acceptable to older people than stricter driving licence procedures. Drivers themselves seem to have a strong desire for guidance, on the basis of which they can make a personal decision with help from the doctor.

5.2 Planning retirement

The 1988 AA Foundation report (17) emphasises that in driving, as in other spheres of life, successful adaptation to ageing depends on recognising the changes that must occur and accepting that they must be planned for. Thus older drivers need to consider how far their lifestyle actually depends on a car. They should think about this first when they are considering retirement, and then reassess this dependency from time to time. For example, is living in some idyllic but isolated country retreat really sensible or even practicable as one gets older? In particular, is public transport available, and would it be a satisfactory alternative to the car?

Quite simply, where one lives increasingly dictates how travel needs must be met. But in any case planning to reduce dependence on a car is prudent; among other things, this may reduce worry as the driver is then less often forced to drive. Once older people reach their 80s they must accept that their children are themselves becoming older drivers, and may also wish to modify their driving habits. This can have serious implications in choice of home.

These considerations are of course obvious but, human nature being what it is, the time for thinking about the matter seriously always seems to be some years ahead. Rabbitt has found, however, that those drivers who have not set an age when they expect to give up claim to be generally fitter, and have been involved in fewer accidents, than those who have (4). This suggests that older drivers have a fairly realistic appreciation of when they will have to give up driving.

5.3 Sharing driving

People should be aware that if their household has only one driver there will be serious repercussions on their lifestyle if that person has to give up driving. Apart from planning to reduce dependence on the car, it is of considerable benefit if both partners drive regularly. Sharing the driving takes away the stress of having to drive and the fatigue of longer journeys. Above all, if both partners drive regularly they keep in practice, maintaining their confidence in handling the vehicle and in coping with traffic. But if a sole driver has to give up the other partner will find it difficult or impossible to take up or resume driving. An increasing number of women hold driving licences but husbands probably predominate in actual driving. **Clearly, however, sharing driving is increasingly important as retirement and old age approach.**

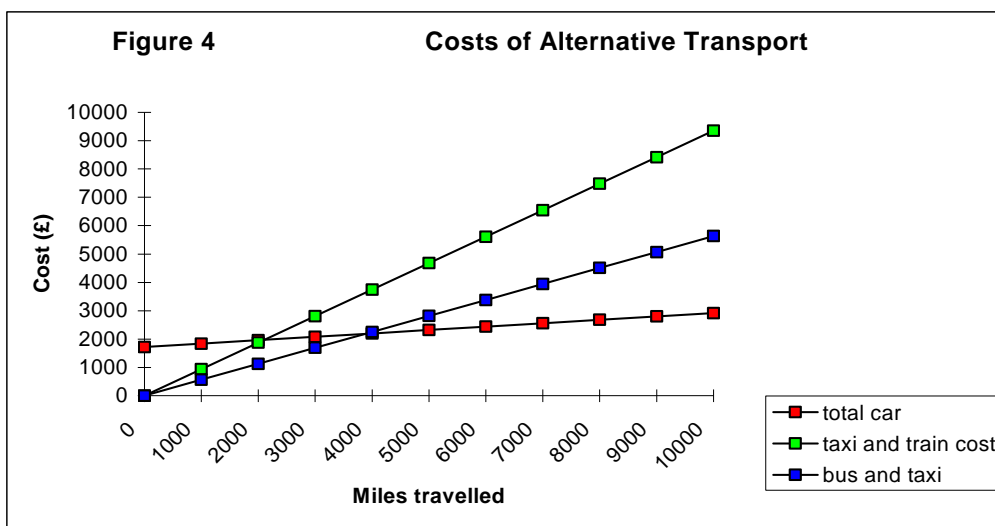
5.4 Alternatives to the car

A car is expensive to own, run, and maintain and, where the mileage is low and abilities are declining, it may not be the best means of transport. In the 1996 AA Foundation survey (4) those who had given up driving were significantly more convinced than were current drivers of the advantages of relinquishing a car.

The first AA Foundation study (17) showed that 59 per cent of older drivers drive less than 80 miles per week (4,160 miles per year). This proportion increased to 79 per cent once the age of 75 is reached. The second study (4) showed that among older people who had given up driving financial considerations were given as one of the most common reasons for giving up.

This poses the question of at what annual mileage it might be less expensive to use taxis, trains and possibly buses. The following analysis is simplistic yet shows the financial options open to a person living in a small town on the border of Hampshire and Berkshire. It is assumed that 80 per cent of mileage will be by road and the remainder by train.

Figure 4 shows that for mileages of up to 2,000 per year it is cheaper not to own a car but to use a taxi for local journeys. This is the case for both couples and single people. For distances of up to 4,000 miles a year it is financially preferable to use a combination of bus and taxi, although the break-even mileage is lower for couples.



Note:

The following assumptions were made in this example:

Costings are based on charges of £1.37 per mile on taxis, 28p per mile by bus and 12p per mile by train. Subsidies have not been taken into consideration, although in the areas studied either tokens to the value of £46.90 or a bus pass entitling them to half price fares are given to pensioners. The tokens can be used for rail, bus and taxi travel, or purchase an older person's railcard. The possible benefits from the use of a railcard, or from using the bus pass option have also been ignored.

Thus in some circumstances the use of taxis, or a combination of taxis and public transport, may be cheaper than owning a car, though perhaps not as

flexible or convenient. Using taxis and other forms of transport also removes worry about parking and the various responsibilities of running a car. However, people who have given up driving feel more at risk of violence when travelling without their car than people who have yet to give up driving feel would be the case should they have to give up driving. This perception of violence has been shown by other research by the AA Foundation (30) to have a major effect on the lifestyle of older pedestrians - fear of violence is a major reason why older people do not go out. This also extends to using public transport.

Walking, even where there is a car available, is often unavoidable and indeed beneficial, and may be feasible and practical for some short trips. But the condition of pavements, traffic hazards, and the risks of violence are disincentives. The population at large considers walking to be a relatively safe means of transport, but consider it the means most likely to expose them to the risk of personal violence (30,31). Improvements of the environment for walking should be encouraged for the benefit of all road users.

Taxis are the second choice mode of transport after the car for people with disabilities (31). It seems unlikely that this is different for older people. Public transport offers the principal alternative to these car based modes, and for many older people is the only transport. Easy access designs for buses and other vehicles need to become more widespread. Current public transport policy, however, tends to encourage only services that are profitable, with consequent reduction of loss making services. Thus the role of public transport as a service to older people may decline, as the journey to work and other travel related to work dominate demand and influence provision of services. Again Carthy et al show that there is a high perceived risk of violence when older people use public transport (30). However, this perceived risk is, in fact, unrealistic because objectively the young and not the old are the most frequent targets of violence. There is the possibility that the education of older people that this perception is wrong could counter these fears.

In some rural areas having no car already means having no transport, unless a voluntary public service of some kind operates. Conventional public transport seems more and more unlikely to cater for the travel needs of older people in the future. **This is a matter of increasing importance, and it is vital that the kind of public transport required to provide for an older population is adopted.**

CHAPTER 6

COMMUNICATING WITH OLDER DRIVERS

- 6.1 **Modifying driving habits**
- 6.2 **Giving up driving**
- 6.3 **Providing advice and guidance**
- 6.4 **The role of the medical profession**
- 6.5 **Driving Assessments and training courses**
- 6.6 **Highway Engineering**
- 6.7 **Vehicle design**

6 COMMUNICATING WITH OLDER DRIVERS

6.1 Modifying driving habits

We have seen that changes in driving habits can make the driver more at ease and safer. Older people may be helped to make these changes by means of specially structured programmes to assess driving: video tapes, self-assessment procedures, and leaflets giving advice and guidance. The AA, the Department of the Environment, Transport and the Regions and many local authorities have produced free leaflets giving basic guidance. These have been made widely available. All such approaches are to be welcomed. But we need action to ensure that all older drivers receive this kind of advice through a structured and formal system of distribution.

The Driver and Vehicle Licensing Agency, which administers the issue of ordinary driving licences, has an obvious role, as it has to write to every driver over the age of 70 at least every three years. It also writes to Group 2 licence holders at age 65. The same applies to insurance companies, some of which make special conditions before they accept insurance proposals from

older drivers. Doctors, other health workers and opticians, all of whom have regular contact with older people, also have to accept a role, and Rabbitt (4) has shown that the doctor is seen by the older driver as the most respected source of advice. The inclusion of advice to doctors on adaptations that older drivers can make to their driving, to complement advice on specific medical conditions, in the latest edition of *Medical Aspects of Fitness to Drive* (19) is to be welcomed. The main need is for the creation of the framework within which all these groups, and also voluntary organisations, take action to ensure that information is available and reaches the older driver.

6.2 Giving up driving

Because of the variability in the performance of older people it would not be equitable to prescribe in law the age at which driving must cease. Unless therefore an age is found at which the risk of accident becomes unacceptably high, resistance to stricter driving licence procedures would be immense.

There is currently a void, however, in that there is no definitive advice or guidance on giving up driving. Thus the need is first to develop sound and constructive advice and then to find ways of making it available. Government should take the initiative in co-ordinating appropriate action.

Doctors, and particularly general practitioners, have a responsibility where their patient is medically unfit to drive - even though they may be reluctant to advise a long-standing patient to stop driving. Referral to an independent doctor may have advantages. The AA Foundation studies indicate that the most acceptable procedure would be voluntary decision with the doctor, an approved driving instructor or a mobility centre taking part (4). According to present information, the need is for a strengthening of the current advisory procedures, with a more active role for the doctor and the development of relevant, soundly based guidance. The self-assessment procedure developed in the United States is of interest here (33).

The current practice in Britain of renewing driving licences for limited periods after the age of 70 is accepted and by and large this procedure works effectively. The 1988 AA Foundation survey (17) suggested that many consider giving up driving by the age of 80, and the main survey produced an average age of 79.3 years from the drivers prepared to estimate a date for giving up. Before any tightening of the current procedure could be justified we would need clearer evidence of unacceptably high accident risk. The views expressed by the respondents in both of the AA Foundation studies (4,17) suggest that older drivers would accept formal voluntary assessment and guidance on continuing to drive - provided that the final decision still lay with them. Apart from the self-testing of vision, such voluntary procedures might include a simple method of assessing driving skills, plus - eventually -

simple tests of peripheral visual functioning and cognitive function (21) and perhaps hazard perception. Some provision for suggesting an appropriate medical examination by an independent doctor should be built into the process.

More stringent tests or standards for vision do not seem necessary, especially as the relation between vision and accidents is weak and the current number plate legibility test remains an adequate and simple assessment of visual acuity. This also has the considerable advantage of being a simple DIY test for all drivers. Nevertheless, it must be ensured that older people are aware of possible changes in their vision, and that all drivers are given every encouragement to have regular checks by an optician for pathological changes in the eyes.

Friends and relatives can be an important influence, and should be in a position to detect changes in driving and advise accordingly. They may, of course, be reluctant to persuade an older relative or friend to stop driving. But, even if the family doctor advises a patient to give up driving, only relatives and friends are able to “police” any voluntary system. The influence of the family was not rated highly, however, by most of the respondents in the 1996 AA Foundation survey (4). This must be a cause for concern. But the alternatives to informal advice, such as compulsory re-examination at specified ages, would be greatly resented and, so far as we can tell at present, of doubtful cost effectiveness. Again improved information provision could make friends and relations more able to influence older drivers in making the decision to give up.

6.3 Providing advice and guidance

Giving advice to older drivers calls for a sensitive approach if it is to be accepted. The differing characteristics of older drivers need to be taken into account.

Constructive advice and guidance for older drivers on all aspects of driving needs to be formulated. A firm initiative is required if this is to materialise and this must come from Government. Authorities such as British Medical Association are well placed to develop and publish such guidance, in conjunction with the motoring organisations. Though much advice and guidance can be based on existing knowledge, research studies from which the guidance could be properly developed are a no less important need. Local authorities, in both their social service and road safety roles, and the AA can also help in the dissemination of this information.

6.4 The role of the medical profession

