

Transportation and Ageing: Exploring Stakeholders' Perspectives on Advancing Safe Mobility

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ABSTRACT

Issues of safe transportation for older adults are multifaceted and must include multiple perspectives if significant progress is to be made in the next decade as the baby-boomers begin to reach age 70. Previous work has explored the main barriers that older adults face in terms of maintaining safe mobility, promising practices for overcoming these barriers, and pressing research needs in the area that still need to be addressed. This paper expands upon this work by addressing five system-wide issues identified by a range of stakeholders that impact the success of policies and programs designed to enhance safe mobility for older adults: collaboration and communication; economics of driving reduction and cessation; the role of a traffic safety culture in maintaining safe mobility; the environment; and knowledge and education. Each of these issues is discussed based on the empirical literature. The intent of this article is to improve the safe mobility of older adults by fostering a more focused and stakeholder driven research agenda for current transportation scientists, inform agents of the ageing network of service opportunities, and create plausible opportunities for policy making.

Key words: Collaboration, driving, economics, education, infrastructure, traffic safety

Introduction

Issues of safe transportation for older adults are multifaceted and community stakeholders' perspectives must be sought, if significant progress is to be made in the next decade as the baby-boomers begin to reach age 70. In a previous paper, authored by members of the Gerontological Society of America (GSA) Transportation and Ageing Interest Group¹, the authors identified five areas that hold promise for reducing crashes and injuries among older drivers and helping them maintain community mobility when they can no longer drive. These areas were driver screening and assessment, remediation and rehabilitation, vehicle design and modification, technological advancements, and roadway design. Dickerson and colleagues¹ reviewed current evidence in each of the five areas with respect to older driver safety and mobility, as well as highlighted important research needs. In building on this earlier work, we recognised that there were institutional or system-wide issues that could either facilitate or impede success within each of the identified areas. We also recognised that sound scientific research alone may not lead to the implementation of, or changes to, programmes and policies for older adults. Rather, there was a need to understand and address the system-wide issues that often influence the effectiveness of such programmes and policies within the context of North America. Although the stakeholder symposium was conducted in the U.S., we have, as appropriate in the paper (body, discussion, implications for occupational therapists and conclusion sections) specifically addressed the themes of this paper in relation to the South African context.

In order to identify the key system-wide issues, stakeholders from the older driver transportation and mobility field (including representatives from law enforcement, licensing, planning, policy, and programming) were invited to share their perspectives in a symposium at the GSA annual meeting² on the: 1) main barriers

that older adults face in terms of maintaining safe mobility; 2) most promising practices to help older adults maintain safe mobility; and 3) most pressing research needs in the area that still need to be addressed. With the permission of all stakeholders, their responses were audio-recorded and transcribed. The research team reviewed the transcript attending to stakeholder comments as well as existing literature to identify the main themes. This paper presents these themes as five key system-wide issues with implications for advancing safe mobility: collaboration and communication, economics of driving reduction and cessation, the role of traffic safety culture in maintaining safe mobility, the environment, and knowledge and education. The system-wide issues are further explored in this article to allow for broadening of the discussion, to provide insights about how they impact programmes and policies, and to further articulate how these issues can be addressed to ensure the most effective outcomes for enhancing the safe mobility of older adults. Our intent is that this work will foster a more focused and stakeholder driven research agenda for current transportation scientists, inform agents of the ageing network of service opportunities, and create plausible opportunities for policy making.

Collaboration and Communication

An important theme that emerged from the symposium was that stakeholders from various fields are not collaborating enough or effectively. This issue is well known in the corporate and marketing worlds where it has been labeled the *silos effect*. The silo effect occurs when there is a lack of communication and coordination of efforts between stakeholder groups that leads to a negative impact on outcomes³. As discussed in several recent summaries of research^{1, 4-5}, solving the issues surrounding older adult safety and mobility will require a multidisciplinary approach. Such an approach will not be successful if organisational silos are present.



Indeed, the need to eliminate silos underpins a number of transportation planning efforts in the United States (US) and elsewhere. For example, the Transportation Research Board (TRB) in the US sponsored a conference in 2003 dedicated to 'making connections' among the various organisations involved in transportation⁶. Canada views road safety as a shared responsibility and its Road Safety Vision involves collaboration among industry, community groups, and government partners⁷. Australia's Safe System Approach to road safety recognises that human driving performance results from a number of system-wide factors and, therefore, responsibility for traffic safety is shared among the players—from policy makers, to law enforcement, to drivers themselves⁸. Similarly, traffic safety planners in Great Britain have stressed the need for a coordinated approach among stakeholders to reducing traffic-crash related deaths and injuries called Holistic Road Safety⁹.

Despite the general recognition that maintaining safe mobility for older adults requires a coordinated effort among stakeholder groups, progress in this field is likely hampered by the silo effect. This is not surprising, as there are many institutional and psychological factors that facilitate people working in silos. For example, sponsorship for older adult safety and mobility projects is limited, so funding agencies tend to sponsor small projects that are necessarily within a specific field. The competition for these limited funds often results in small groups of people with a limited range of backgrounds working together. Employee reward structures can also enhance the silo effect. In academia, for example, professors are generally promoted based on publications in topic-specific journals that are read by people with similar backgrounds. A psychological factor that may promote the silo effect is the feeling of uneasiness among collaborators. Collaboration involves understanding the perspective, vernacular, and activities of other groups and requires participants to develop trust. Collaboration requires a facilitator who is able to see the 'big picture,' that is, someone who understands which stakeholder groups to include, what the groups can provide, and how the groups must interact to solve the problem. The facilitator must also recognise that each group's goals are equally important. For these and other reasons, effective collaboration is difficult for most groups.

Clearly, reducing the silo effect will enhance our ability to find solutions for helping older adults maintain safe mobility. Strategies for eliminating silos and enhancing stakeholder collaboration have been reviewed in several articles. For example, Foster-Fishman et al.¹⁰ synthesised the literature on collaborative community coalitions and concluded that effective stakeholder collaboration needed four levels of capacity: membership capacity (having the right organisations involved with individuals who can work collaboratively and have positive attitudes about other stakeholders); relational capacity (positive climate, shared vision, power sharing, values diversity, and positive external relationships); organisational capacity (effective leadership, formalised procedures, effective communication, sufficient resources, and continuous improvement orientation); and programmatic capacity (clear objectives and realistic goals that are need-driven).

Symposium stakeholders mentioned three promising initiatives that were at least partially targeted at increasing the effectiveness of stakeholder collaboration. One of the initiatives, *United We Ride*, is based on enhancing collaboration among US federal agencies to improve the availability, quality, and efficient delivery of transportation services for older adults, people with disabilities, and individuals with lower incomes¹¹. The programme is overseen by a council that includes members from eleven federal agencies. Among other activities, the programme funds states to develop coordinated community planning processes that bring together stakeholders with diverse interests to enhance delivery of coordinated transportation. The programme also supports a detailed website that provides information about a wide range of strategies and practices. Building on the *United We Ride* programme, the US Department of Transportation developed the *Mobility Services for All Americans* initiative¹². This initiative seeks to improve transportation services through the application of emerging technologies, innovative ser-

vices, and stakeholder collaboration. Activities for this initiative include coalition building, sponsoring demonstration programs and field tests, and conducting transportation coordination workshops. The third promising initiative is the GSA Transportation and Ageing Interest Group. The mission of this group is to enhance the safe, effective, and accessible transportation of older people by facilitating communication and collaboration among researchers and other professionals¹³. As such, the GSA Transportation and Aging Interest Group is engaged in developing collaborative research agendas (see Dickerson et al.¹), promoting science-based policy and practice (see Hudson¹⁴ and Molner et al.¹⁵), and organising stakeholder meetings such as the symposium discussed in this paper. It is clear that research is needed on how to best get the various stakeholder groups involved in older adult safety and mobility to communicate and collaborate more effectively. Stakeholders should consider the extensive literature in the business sector as a starting point for fostering those collaborations.

Economics of Driving Reduction and Cessation

In addition to the need for collaboration and communication, several symposium stakeholders commented on the economic issues related to older adult driving reduction and cessation. Stakeholders were concerned that few organisations appear to consider the full economic impact of mobility loss for older adults with declining health, from the perspective of the individual, his or her caregiver, and society at large. Their sense was that, in the absence of adequate community mobility options, the loss of mobility resulting from driving reduction/cessation increases caregiver costs and caregivers' employer costs, and reduces discretionary expenditures by people experiencing mobility loss. While there are also clear costs associated with driving beyond the time one is safe to do so, stakeholders' comments focused on the costs associated with stopping driving.

It is well established that medical conditions and medications lead to declines in functional abilities that make it increasingly difficult for older adults to continue driving safely¹⁶⁻¹⁷, and that society is ill-equipped to provide good community mobility options for those who need them, (see Dickerson et al.¹). As such, providing transportation to older adults often becomes the responsibility of a caregiver (most often a family member). According to the National Alliance for Caregiving (NAC) and AARP (formerly American Association for Retired Persons)¹⁸, more than 45 million people provided unpaid care to someone age 50 or older (36 million providing care for those age 65 or more), with about 90% being a relative. More than 90% reported providing care for one or more hours per week, with about one-half reporting nine or more hours of weekly support. The most frequently reported support-activity was providing transportation services (84%). Providing these services comes at a cost to the caregiver. Although the majority of caregivers report low financial hardship resulting from caregiving, 43% report at least some hardship and 10% report high levels of hardship¹⁸.

Caregiving has two other financial impacts that need to be considered. The first is lost productivity at work. According to NAC and AARP¹⁸, more than two-thirds of caregivers report needing to make some adjustment to their work to accommodate caregiving, such as taking time off, taking a leave of absence, retiring early, or adjusting a work schedule. MetLife Mature Market Institute¹⁹ has estimated that the costs of lost productivity in the US due to caregiver accommodations are \$17.1 billion US dollars or approx. 135.7 billion Rand annually. Another economic impact is increased health care costs for caregivers. The emotional, physical, and financial stresses of caregiving can lead to health problems. Indeed, a study in four US communities found that caregiving was a risk factor for mortality²⁰. A recent case study of a large corporate US employer²¹ found that employees providing care for others reported poorer physical and mental health than employees not providing care. The study estimated that health care costs for those employees providing care was about 8% higher than for those not providing care. The researchers extrapolated these data to the general US business sector and estimated that unpaid caregiving costs employers about \$13 billion US dollars or approx. 103.2 billion Rand annually.



Driving reduction and cessation can also impose an economic burden on society directly by decreasing the discretionary spending of older adults who can no longer easily get around. The first baby-boomer will reach age 65 in 2011 and by 2029 all baby-boomers will be between the ages of 66-83 and will potentially face problems with driving²². Although there is some debate regarding the economic prospects of baby-boomers as they retire (based partly on the uncertainty of Social Security and increasing health care costs), it is likely that baby-boomers will be as financially secure as their parents²³. Therefore, despite having a sizeable disposable income, those who have lost mobility due to driving reduction/cessation are likely to reduce spending because of a lack of access to goods and services. Data from the University of Michigan Health and Retirement Study revealed that consumption and driving status were significantly associated²⁴. The researchers found that driving cessation was associated with a 46%-63% reduction in spending on trips, tickets, and dining out. They found no significant relationship between driving status and consumption related to basic needs.

The economic costs of driving reduction and cessation are potentially great and not well understood. Caregiving for older adults is necessary and will continue, but there is a need to better understand how these costs could be impacted by the introduction of various community mobility options. Given that providing transportation is the most commonly reported caregiver support activity, effective alternatives to driving for older adults could have quite large economic benefits to individuals, their families, and society as a whole.

There is also a need to better understand how mobility loss affects discretionary spending patterns among older adults. This is important not only for understanding economic loss to society due to reduced spending, but also because this discretionary spending could well be a measure of quality of life. As described by Carp²⁵ and Eby et al.⁴, activities such as entertainment are important for life enjoyment. Further, research is needed to better understand how access to goods and services can be maintained despite the loss of driving. One way to maintain this access is to provide community mobility options, but access can also be maintained in other ways such as utilising the Internet, moving physically closer to the goods and services, and bringing goods and services to the home.

The Role of Traffic Safety Culture in Maintaining Safe Mobility

Another theme identified by the stakeholders pertained to the role of traffic safety culture in safe mobility. Traffic safety culture can be thought of as "the implicit shared values and beliefs that determine the way in which the society organises and acts to assure safe, sustainable mobility"^{26:14}. Recognising the importance of traffic safety culture in shaping the policies and practices of the US, the American Automobile Association's Foundation for Traffic Safety²⁷ published a set of research papers with many pointing to the willingness of US society to accept an annual highway toll of around 40,000 deaths as the price of maintaining driving mobility. Other countries have increasingly taken a different view. Canada, in its inaugural Road Safety Vision in 1996, aimed to "have the safest roads in the world"^{28:i}. The Road Safety Vision 2010 has retained that vision as well as included national targets for road safety. Sweden and the Netherlands have adopted approaches (Vision Zero and Sustainable Safety, respectively) that consider any deaths or serious injuries from traffic crashes to be unacceptable, and Australia's Safe System Approach is moving in that direction²⁹. South Africa has recently identified roadway safety as a national priority. Subsequently, a "Road Safety Research and Practice Strategies Think Tank" was conducted at the University of Stellenbosch, Tygerberg campus on June 20, 2011 to discuss initiatives, partnerships and future multi-disciplinary action steps related to roadway safety research in South Africa.

Stakeholders' discussion about traffic safety culture focused more narrowly on societal values and beliefs in the US relative to older driver safety. Two opposing views emerged, neither of which accurately described or captured the complexity and heterogeneity

of the older driver population. On one hand, concern was raised that older drivers, en masse, are often targeted as being unsafe, when in reality they are some of the safest drivers on the road. On the other hand, concern was raised that the actions of police officers often target older drivers, en masse, as being safe drivers, when in reality individual drivers may be engaging in unsafe actions on the road. In particular, law enforcement officers may 'feel sorry' for older drivers and let them go with just a warning instead of issuing a citation for a violation.

Both stereotypes discussed in the stakeholder's symposium have important implications for individual mobility and public safety. If policies and practices are based on the view that all older drivers are unsafe after a certain age and should be taken off the road, many drivers will needlessly suffer the adverse consequences associated with giving up driving such as loss of independence, mobility, and freedom, as well as feelings of diminished self-worth, self-esteem, and even depression³⁰. On the other hand, if policies and practices are based on the view that all older drivers are safe and should be left on the road, some high-risk older drivers may end up endangering themselves and other road users. Thus, efforts to better align traffic safety culture with the maintenance of safe mobility must go hand in hand with finding better ways to identify safe and unsafe drivers. Screening tools for identifying at risk drivers (discussed later in this article) are available, but many lack validity, reliability, and clinical utility.

Research is needed to better understand US traffic safety culture before substantial progress can be made in further reducing crash-related deaths and injuries among drivers. Key dimensions of the US traffic safety culture must be examined within the context of how they compare to countries such as Australia, Canada, and Sweden which have adopted a more 'death intolerant' traffic safety culture. A number of key dimensions of traffic safety culture that need further investigation were identified in the AAA Foundation for Traffic Safety compendium²⁷. These included general support for restrictions on individual rights^{26, 31}; support for specific restrictions including random breath testing³²; acceptable and actual speed tolerances³²; perception of traffic safety as a public health issue³³; acceptable driving behaviours³⁴⁻³⁵; and risk perception and driver control³⁶⁻³⁷. Each of these dimensions in turn relate to organisational capacity and readiness to change such as support for scientific or evidence-based approaches^{26, 38-39}; and system-wide coordination and leadership⁴⁰. By understanding these key dimensions, inferences could be made about the changes in attitudes and behaviours that will be required to strengthen the traffic safety culture in the US.

Environment

'Environment' is defined broadly as including physical, social, economic, and service domains, all of which may enhance or hinder safe mobility options among older drivers and other road users⁴¹. Stakeholders focused primarily on the physical and service aspects of the environment, including the benefits associated with enhanced road design that impacts the safe driving of older adults.

The road infrastructure in the US is primarily designed on the use of the private vehicle and, in some areas, public transportation⁴². Hence a major issue influencing safe mobility is the environment, or specifically, the unfriendly environmental infrastructure. The unfriendly infrastructure is caused, in part, by suburbanisation, the planning process, or lack thereof, of suburban and urban environments, and the changing patterns of road use as a response to commuter demands.

Suburbanisation, a growing critical trend in post-industrialised societies, decentralises people from the services that they need. This phenomenon increases the dependence of people on the automobile to access services, goods, entertainment, and medical care⁴³⁻⁴⁴. In planning suburban and urban environments, the focus is on moving motor vehicles efficiently. This focus tends to overshadow other concerns such as creating a user-friendly environment for all road users. The lack of attention to broader planning issues, such as the needs of older drivers, pedestrians, and alternative



transportation users, was described by some of the stakeholders as a 'mission gap' for planners. For example, older adult communities are often developed without incorporating user friendly sidewalks, availability of near public transit, or pedestrian access to shopping. Under such circumstances driving remains the essential and often only mode of transportation to meet basic daily needs.

Road use in many metropolitan areas in the US is eclipsed by the suburb-to-suburb commute pattern, which makes commuting distances lengthy. Suburb-to-suburb commuting is generally not served by public transportation. As such, these disperse land use characteristics have made the travel patterns of Americans more dependent on the automobile. The burgeoning suburbs also mean more drivers on higher speed roads which increases the driving challenge, especially for those older adults whose driving skills may be more suitable for driving in less dense traffic and low speed environments. Federal highway design guidelines for older adults and pedestrians were published in 1998 in the *Federal Highway Design Handbook for Older Drivers*⁴⁵. However, the Handbook has yet to receive acceptance or adoption in the majority of communities due to either policy issues and/or funding challenges. For example, results from an online survey of over 1,000 members of the Institute of Transportation Engineers indicated that over two-thirds of transportation planners and engineers have not begun to consider the needs of older people in their multimodal street planning⁴⁶. Even if widespread application of the Handbook could be achieved, challenges would remain. For example, while the guidelines offer some design solutions that help older drivers navigate roads better through larger font signage or better lighting, the guidelines do not call for a radical shift toward slower, less complex roads to ultimately benefit all road users.

Recent trends among progressive planners show that communities are being designed to provide easier access to shopping, entertainment, medical care, and alternative transportation services. For example, the 'Complete Streets Movement' stresses planning to accommodate function and safety for road users including drivers, pedestrians, cyclists, and persons who use public transportation⁴⁷. As such, road design would incorporate user friendly intersections, signage, sidewalks and curbs to reduce the communities' dependence on the automobile and/ or the need to travel distances to access goods and services.

Another promising practice includes the involvement of citizens, together with planners and engineers, early in the design process. 'Context Sensitive Solutions' (CSS) allow for increased flexibility in the application of road design guidelines to better balance the needs of multiple users and understand complex tradeoffs⁴⁸⁻⁵⁰. It is no longer sufficient to design a road to reduce congestion and improve safety for motor vehicles using standard plans and charts from a design manual. Road designers must now also consider the needs of pedestrians and bicyclists of all ages, and balance cost, safety, and mobility with historical, cultural and environmental impacts. A context sensitive approach creates the opportunity to consider the unique land use context of the road and the area's valued characteristics, while weighing complex design choices with the related risk. Through this multi-disciplinary process the needs of older road users can be established as fundamental parameters for design.

There may also be an opportunity to combine successful strategies offered in the Handbook (e.g., guidelines for intersection redesign that have undergone evaluation; see⁵¹⁻⁵² with a CSS approach to road design. Such a combination may result in intersection design very different from those suggested in the Handbook, yet still improve safety and comfort for older drivers. For example, the CSS advocates not only for the older driver, but also for risk reduction of the other road users such as older pedestrians. A combination of approaches (Handbook and CSS) may result in slowing traffic down on suburban roads, potentially making the older pedestrians feel more comfortable in the road environment. The effectiveness of combining the strategies proposed in the Handbook with the principles of CSS must be considered, however, particularly in terms of increasing the value to planners and engineers.

Knowledge/Education

A final theme identified by stakeholders was the importance of knowledge and education (e.g., for older drivers themselves, government agencies at the local, state, and national levels, policy makers and planners, the health care profession, law enforcement personnel) on issues related to older driver safety and mobility. As defined in the Oxford English Dictionary, knowledge is: 1) expertise and skills acquired by a person through experience or education; the theoretical or practical understanding of a subject, 2) what is known in a particular field or in total; facts and information, or 3) awareness or familiarity gained by experience of a fact or situation. The definition of education is closely aligned with knowledge, with education defined as: 1) the process of educating or being educated, and 2) information about or training in a particular subject⁵³. In essence, education is an important means by which one becomes knowledgeable. A full discussion of the educational process is beyond the scope of this paper, but education is pivotal to efforts promoting the safe mobility of older drivers. Stakeholders also emphasised the importance of 'sharing or exchange of knowledge,' which at the most basic level, involves the processes through which knowledge is channelled between a source and a recipient⁵⁴.

Lack of knowledge and education on issues related to older driver safety and mobility was identified by stakeholders as an important but remedial barrier to advancements in safe mobility of older drivers. Lack of older driver awareness of 'knowing when to stop driving' was identified as another barrier. Evidence supports the belief that some older drivers may not 'hang up the keys' at the appropriate time. When equated for miles driven, drivers 65 to 74 years of age are more likely to be involved in fatal crashes than all but the high risk younger driver (e.g., drivers age 16 to 24⁵⁵). As discussed earlier, targeted efforts are needed to identify those with illnesses that can affect driving ability, with initiation of appropriate practices (e.g., remediation for those with illnesses responsive to remediation, removal of driving privileges and subsequent education and support on transportation alternatives for those with illnesses unresponsive to remediation).

Knowledge gaps in training and education programmes for the medical and law enforcement communities also were seen as important barriers to advancement of older driver safety and mobility. Evidence supports the existence of these barriers. Physicians are well-placed to screen or identify drivers with medical conditions that may affect driving and for those individuals who may be at-risk for negative consequences associated with driving cessation. However, lack of physician knowledge related to reporting policies and procedures or about evaluation of fitness-to-drive, and the lack of valid and reliable in-office assessment tools are two of the major barriers associated with physician screening for medically at-risk drivers⁵⁶. The law enforcement community also can play an important role in identifying unsafe older drivers. However, law enforcement officers receive little, if any training on medically at-risk and medically impaired drivers as recruits or following graduation from their respective training programs.

The acquisition of knowledge and knowledge transfer (e.g., knowledge sharing) was seen by all symposium stakeholders as being fundamental to promising practices and policies for helping older drivers maintain safe mobility. Education programs targeting older drivers have been in existence for many years, with the onus on 'helping seniors stay mobile for as long as safely possible.' National programs in the US include the classroom-based 'Safe Driving for Mature Operators' (American Automobile Association/Canadian Automobile Association), a web-based 'Online Mature Driver Improvement Course' (American Automobile Association/Canadian Automobile Association) and the 'Driver Safety Program' (AARP), available on-line and in the classroom. However, the evidence for the safety benefits of education courses targeting older drivers is lacking⁵⁷⁻⁵⁹. There are also a number of self-screening tools that have been introduced to assist older drivers in determining their driving competency. However, the reliability and validity of those tools have yet to be established.

Promising approaches for the medical and law enforcement communities include the recent development of training pro-



grammes for both physicians and allied health care professionals, and for law enforcement officers. In addition, the American Medical Association, in cooperation with the National Highway Traffic Safety Administration (NHTSA), recently published the second edition of a 'Physician's Guide to Assessing and Counseling Older Drivers'⁶⁰. In Canada, internationally peer-reviewed courseware for medically at-risk drivers has been developed for physicians and allied health care professionals⁶¹, with accompanying DVDs to facilitate physician communication⁶², and physician knowledge and support of issues related to voluntary or involuntary driving cessation⁶³. To address the deficiencies in law enforcement knowledge on older drivers, NHTSA⁶⁴ developed a training course for law enforcement officers. The course includes information on the ageing process, how to conduct a traffic stop with an older driver, how to make referrals, and conducting an older driver community relations problem.

A number of stakeholders identified 'mobility management' as a strategic initiative for the promotion of safety and mobility of older adults. As noted by Ellis⁶⁵, the concept of mobility management emerged in the 1990's, following passage of the 1991 Intermodal Surface Transportation Efficiency Act. Mobility management is seen as an approach to managing and delivering coordinated transportation services to clients, including older drivers. Characteristics of mobility management include the cultivation of partnerships and multi-agency activities, which promotes offering customers a full range of transportation options (carpooling, subscription bus services, special shuttles, and dial-a-ride services), a single point of access to multiple travel modes and the application of advanced technologies⁶⁵. Current initiatives on mobility management include the development of person-centered mobility management strategic plan for the Federal Transit Administration (FTA), as well as federal funding for mobility management projects through the FTA's specialised transportation grant programs.

Promising approaches in the alternate transportation area include 'Supplemental Transportation Programs for Seniors'⁶⁶ and the 'Independent Transportation Network'⁶⁷. The Beverly Foundation has as its focus "grassroots and community-based informal transportation services for seniors"^{66,5}. The ITNAmerica model of senior's transportation is based on a social entrepreneurial approach in that it "makes efficient and effective use of public sector resources, and leverages those resources through collaboration with the private and nonprofit sectors"^{68:1}. Both of these approaches extend the availability of alternate transportation for seniors beyond that traditionally offered by public sector transportation providers.

Discussion

In this paper, we explored the perspectives of stakeholders involved in the design and implementation of policies and programs related to older driver safety and mobility and identified five system-wide issues that impact the success of policies and programs. As South Africa is on the brink of addressing road safety as a national priority, this paper may provide a foundation for involving stakeholders to help address this complex issue. Although the major road safety concerns in South Africa are different from those identified the U.S. we are suggesting that stakeholder opinions may inform researchers and clinicians interested in this topic on the importance of collaboration and communication, economics of driving reduction and cessation, the role of traffic safety culture in maintaining safe mobility, the environment, and knowledge and education.

Based on our investigation of the stakeholders' perspectives, there are system-wide issues that need to be addressed before progress can be made in implementing policies and programmes for advancing safe mobility among older adults. Although there are psychological factors that hinder successful collaboration, there are also institutional barriers such as funding models that discourage collaboration. Overcoming these barriers will require not only that individuals change their attitudes, but that organisations make structural and operational changes to how they do business. Such changes are not trivial and will require both an organisational and system-wide vision of what can be achieved through improved collaboration to carry out that vision.

Perhaps the strongest justification for undertaking efforts to improve collaboration is the economic impact of mobility loss on individuals, their families, organisations, and society. Although often safety enhancing, these costs result from not only the direct health care costs associated with treating drivers who may be medically unsafe, but also from lost productivity and increased health care costs of individuals who provide care to older adults, and reduced spending by older adults who have lost their mobility. Gaining a better understanding of these costs is a necessary first step in determining how improvements in community mobility might reduce them.

Underlying most of the system-wide issues discussed in this article is the traffic safety culture related to older drivers. In the US, stakeholders described two prevalent stereotypes of older drivers – all older drivers are unsafe and should be taken off the road and all older drivers are safe to drive. Neither accurately describes the population of older drivers in the US or elsewhere. Indeed, older drivers represent one of the most heterogeneous groups of the driving population. Efforts to advance safe mobility for older adults need to recognise the variability among individuals in the older driver population.

All of the various measures for advancing safe mobility ultimately get played out in the physical environment, specifically on the roadway. If the features of the roadway are not compatible with an effort to improve mobility, then the policy or programme effort will not be as successful as it could be. For example, a programme that promotes walking as a means of mobility will not be successful if the roadway does not provide a safe place for pedestrians. To ensure that roadways are responsive to the needs of older adults, several system-wide improvements in planning and design could be made. These include taking into account the mobility needs of older adults and doing so early in the design process, as well as reconceptualising the roadway as a shared infrastructure for supporting various modes of travel including walking and bicycling.

One overarching barrier to advancing safe mobility for older adults is the lack of training and education for all of the stakeholder groups. No single group believes they have sufficient knowledge to make good decisions, including older drivers themselves. There is a clear opportunity for the development and implementation of improved training and education programs for these groups. Such improved training and education can help groups collaborate more effectively, better manage the economic toll from mobility loss, positively impact traffic safety culture, and ensure that the mobility needs of older adults are considered in roadway planning efforts.

Implications for occupational therapy practice and research

This paper underscores the importance for occupational therapists, other practitioners and researchers, of involving stakeholders in the process of addressing road safety issues.

Specific implications for practice are next discussed.

- ❖ Occupational therapy managers may identify and address institutional barriers to road safety, true to the South African context. Through consensus building, with multiple stakeholders, opportunities for collaboration and strategies for addressing the barriers may be identified and implemented.
- ❖ Occupational therapy practitioners are encouraged to assess how the performance deficits identified in clients may also impact their mobility loss, the burden on their families, organisations, and society. If community mobility issues are addressed in the clinic as a standard part of occupational therapy evaluation and intervention, occupational therapists may contribute hugely to the reduction of the economic burden associated with the loss of mobility.
- ❖ Efforts to advance safe mobility in vulnerable populations (e.g. the socio-economically disadvantaged, those with disabling conditions, the aged, or those with decreased opportunities and/or access to participate in the community) must be recognised. Occupational therapists are encouraged to think about driving and community mobility as an instrumental activity of daily living that must be assessed and addressed in the clinic, and carried



over into the real-life contexts of the clients, once discharged to their communities. Independence in community mobility is a portal to being employed, staying connected in society, accessing goods and services, and ultimately to experiencing an enhanced quality of life.

- ❖ The occupation of engaging in community mobility is occurring within the context of the physical environment, i.e. the roadway. Occupational therapists are encouraged to adopt a *preventative focus* and identify and facilitate strategies to make the roadway safer⁵¹. Plausible opportunities exist to create collaborations with local and regional stakeholders in addressing the characteristics of the roadway. For example, partnering with representatives from urban design and planning may help with “street scaping” (e.g. strategic placement of lamp poles and lights) so that physical aspects of the environment are more conducive to safety.⁴⁶
- ❖ Finally, occupational therapists may be instrumental in the design of educational and training programmes for stakeholder groups. For example, basic road safety principles may be identified and implemented with teachers to create awareness in school children and facilitate safe habits in basic road safety principles. Service learning opportunities, where occupational therapy students are engaged in community projects, render an excellent opportunity to facilitate such educational programmes.

Conclusion

Involving stakeholders in the area of road safety programmes brought insights to barriers as well as opportunities pertaining to road safety policies and programmes. We have provided a description of five central themes identified within a stakeholder symposium conducted in the U.S. Although the context in the U.S., when compared to the South Africa context, differs vastly, we propose that the core of this paper, i.e., searching stakeholder opinions, may help expedite road way safety strategies in South Africa as well. We have also provided a succinct, yet specific description of the implications of our findings for occupational therapists in South Africa practising at all levels: i.e., students, practitioners, managers and researchers - to start addressing the important issue of road safety. Occupational therapists are uniquely qualified to evaluate the complexities between person and the environment, and to provide interventions for enhanced occupational performance despite the limitations of the person (or population) or the restrictions of the environment (roadway or organisations). Thus, we encourage our occupational therapy colleagues in South Africa to adopt a roadway safety perspective, assess clients and environments with a renewed dedication to independence in community mobility, invite stakeholders to address complexities, and pursue collaborations to enhance safe mobility for all, especially the vulnerable!

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