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| Institution: ASTON UNIVERSITY |
| Unit of Assessment: 3: ALLIED HEALTH PROFESSIONS, DENTISTRY, NURSING AND PHARMACY |
| Title of case study: 3) OLDER DRIVERS AND PEDESTRIANS: IMPACTS ON POLICIES, STEREOTYPES, PRACTITIONERS, AND PUBLIC AWARENESS |
| <p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Research conducted by Carol Holland for the Department for Transport (DfT, 2001 - 2004) contributed to a shift in public and professional attitude, stereotypes, and to revised international guidelines that recommend encouragement of self-regulation by older drivers. Furthermore, accurate pedestrian simulation methods were developed (2007 - 2010) which led to European interventions addressing the safety of older pedestrians. Improved advice to older road users has encouraged safe-mobility and social inclusion. Thus, we describe significant impact on:</p> <ul style="list-style-type: none"> • Public Policy change - encouragement of self-regulation. • Society - attitudes and stereotypes of older drivers. • Society - awareness and understanding of safe mobility to enable social inclusion. |
| <p>2. Underpinning research (indicative maximum 500 words)</p> <p>Developed countries with an increasingly ageing population face challenges in enabling older adults to maintain independence. A very significant part of this is maintaining safe mobility, both as drivers and as pedestrians. In addition to the growing older adult population, driver licensing has changed significantly: a greater proportion of older people are active drivers and expect to continue to be so while many more older women drive than in previous generations. However, despite the effects of age on speed of cognitive processing, vision and attention, and the effects of various illnesses on driving safety, older drivers stay remarkably safe with a collision frequency lower than expected from population statistics.</p> <p>Maintaining safe driving is a priority, given evidence that ceasing to drive prematurely is a key precursor of depression and isolation. Furthermore, older women give up driving earlier and in better health than older men, so contributing to their greater isolation.</p> <p>Maintaining safe use of one's environment as a pedestrian also contributes to social, physical and intellectual activity, maintenance of which is related to delay in onset of serious declines and dementias. The DfT commissioned Research Reviews (S3.1; S3.2) and subsequent research at Aston by Holland and colleagues (2001 - present, S3.3; S3.4; S3.5; S3.6) has targeted these issues and has generated the following findings:</p> <ol style="list-style-type: none"> i. That self-regulation is key to maintaining safety in older adult road users (S3.1; S3.2; S3.6). ii. That driving modification or cessation decisions should emphasise the severity of combined impairments, and net function, rather than one discrete diagnosis (S3.2). iii. That older pedestrian fatalities are related to inability to adapt to age-related changes in |

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mobility and motor control issues affecting movement initiation and speed (S3.3; S3.4; S3.5).

- iv. that goal-setting strategies which improve driver confidence increase mobility as a consequence of effects on self-regulation (S3.6).

Dates

- All work was carried out at Aston between 2000 and 2004. DfT grants were awarded to Holland and colleagues (External grant awarded to Manchester, C. Holland, Senior Lecturer carried out the work at Aston, S3.1). S3.2 resulted from collaboration with S. Handley (Senior Lecturer, Pharmacy, Aston, retired) and C. Feetham (Teaching Fellow, Aston).
- Pedestrian work was carried out 2005 - present (S3.3; S3.4; S3.5).
- Further older driver research on self-regulation has been carried out 2008 - present (S3.6).

3. References to the research (indicative maximum of six references)

1. Holland, C.A. (2001) Older Drivers: A review. Road Safety Research Report No. 25, DfT: London.
<http://webarchive.nationalarchives.gov.uk/20100202151748/http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme3/olderdriversaliteraturerevie4770> (37 citations).
2. Holland, C.A., Handley, S. & Feetham, C. (2003) Older drivers, Illness and Medications, Road Safety Research Report No. 39 Department for Transport: London. ISSN 1468-9138
<http://webarchive.nationalarchives.gov.uk/20100203043415/http://www.dft.gov.uk/pgr/roadsafety/research/rsrr/theme3/olderdriversillnessandmed.pdf> (8 citations).

This research was conducted as a result of peer reviewed funding competitively awarded from the DfT. It was published and added to the department website forming legacy resources. Web pages have been captured for reference and are available if necessary.

3. Holland, C.A. & Hill, R. (2007) The effect of Age, Gender and Driver Status on Pedestrians' Intentions to Cross the Road in Risky Situations. *Accident Analysis and Prevention* 39(2) 224-237. 10.1016/j.aap.2006.07.003 (71 citations, ISI ranking 5/92).
4. Holland, C.A. & Hill, R. (2010) Gender differences in factors predicting unsafe crossing decisions in adult pedestrians across the lifespan: A simulation study. *Accident Analysis & Prevention*, 42, 1097-1106. 10.1016/j.aap.2009.12.023 (18 citations, ISI ranking 5/92).
5. Holland, C.A., Hill, R. & Cooke, R. (2009) Understanding the role of self-identity in habitual risky behaviours: pedestrian road crossing decisions across the lifespan. *Health Education Research*, 24, 674-685 doi:10.1093/her/cyp003 (10 citations, ISI ranking 22/216).
6. Gwyther, H.E. & Holland, C.A. (2012) The effect of age, gender and attitudes on self-regulation in driving. *Accident Analysis and Prevention*, 45, 19-28 doi:10.1016/j.aap.2011.11.022 (11 citations, ISI ranking 5/92).

These four peer reviewed journal publications are in international ISI rated journals highly ranked on impact factor in their subject categories. Reference 6 was funded by an ESRC CASE award to C. Holland (ES/G003777/1) in 2008, with H. Gwyther as the research student, who has now been awarded her PhD.

Impact case study (REF3b)**4. Details of the impact** (indicative maximum 750 words)**(i) Public Policy change - Encouragement of self-regulation**

The research S3.1 and S3.2 and resulting engagement/dissemination opportunities formed part of the evidence base for national and international policy and advisory transport documents (e.g. *"Maintaining Safe Mobility for the Ageing Population"* RAC Foundation (2010), see S5.1 and S5.2). In addition to citation in this high profile commentary, Holland was recognised as one of very few researchers in this country with specific expertise on older road users and was thus invited by the RAC Foundation to take part as a discussant in final amendments before launch. As a further consequence, the Foundation continued its review of self-assessment tools for older drivers and a new document was launched in February 2013 (S5.3 which cites S3.1) to which Holland further contributed as an expert discussant.

The outputs of research on illness and medication for older drivers (S3.2) and older pedestrians (S3.3) has been used as part of the evidence base for the Parliamentary Advisory Council for Transport Safety (PACTS, 2012) 'It's my choice: Safer mobility for an ageing population' (S5.4). Holland was interviewed for BBC Six O'Clock News on the launch date to improve public awareness of the research.

S3.1 and S3.2 are both available on the DfT website and cited by international policy sources: including EU road safety commission website: Mobility and Transport, under "Road Safety Knowledge Base" (S5.5) and the 2010 UNDP "A Review of International Best Practice in Accessible Public Transportation for Persons with Disabilities" (S5.6).

(ii) Society - Attitudes and stereotypes of older drivers

Analyses outlined in the reviews and subsequent empirical research has contributed to a change in both public and professional attitudes and a change in societal stereotypes of older drivers as unsafe. Enabling older adults' to self-regulate their driving appropriately (S3.2, S3.6), based on awareness of individual sensory and cognitive changes, has gradually become the target of recommendations, as opposed to traditional aims of encouraging driving cessation. This is reported in the DfT Strategic Framework for Road Safety (2011): *"We know many older drivers are able to self-regulate their driving behaviour ... But with an increasingly ageing population, many of whom will be continuing to drive many years after retirement, it is important that drivers are able to maintain and adapt their skills to ensure continued safe mobility as they age"* (p57, S5.7) and in the recent RAC document on self-assessment (2013): *"Older drivers' safe driving performance has been repeatedly attributed to 'self-regulation'"* (p10, S5.3).

(iii) Society - Awareness and understanding; impacts on activities and practice of charities and professional bodies

Our research suggests that when older people stop driving prematurely it has serious impacts on their quality of life and places them at increased risk as a pedestrian. Enabling drivers and advisors to have confidence to address perceived issues rather than cease driving, will have significant

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impact on reducing isolation and disempowerment. A key part of this enabling strategy has been the dissemination of findings to end-users, particularly practitioners. To this end Holland has developed and presented professional development workshops to national practitioner bodies. For example, Holland attended the Midlands Occupational Therapy Conference in 2010 to deliver a presentation and workshop to support 150 occupational therapists, medics and other healthcare practitioners in helping older people make driving decisions (S5.8).

Holland presented the pedestrian research outcomes, (S3.3; S3.4; S3.5) at an invited seminar to members of INRETS, (now IFSTTAR – French Transport Institute, Lyon 2010). This dissemination was a significant precursor to evaluation of a new training intervention for older pedestrians which demonstrated safer crossing as a positive outcome, with impact on safety of older pedestrians in France (S5.9). Evidence from S3.1 was also used as part of the evidence base for the Help the Aged document “Keeping on the Move” (2008) widely used by older drivers and those who advise them (S5.10).

5. Sources to corroborate the impact (indicative maximum of 10 references)

1. “Maintaining Safe Mobility for the Ageing Population” RAC Foundation (2010).
http://www.racfoundation.org/assets/rac_foundation/content/downloadables/maintaining%20safe%20mobility%20-%20rac%20foundation%20-%2020140410%20-%20report.pdf
2. Letter from Head of Research, RAC Foundation, RAC Foundation, 89–91 Pall Mall London.
3. Driving choices for the older motorist: the role of self-assessment tools, RAC Foundation. (2013)
http://www.racfoundation.org/assets/rac_foundation/content/downloadables/driving_choices_for_the_older_motorist_lang_parkes_and_fernandez_medina_0213.pdf
4. PACTS, (2012) It’s my choice: Safer mobility for an ageing population.
<http://www.pacts.org.uk/2012/03/its-my-choice-safer-mobility-for-an-ageing-population/>
5. EU Commission Road Safety Knowledge Base, Last accessed May 2013.
http://ec.europa.eu/transport/road_safety/specialist/knowledge/old/references/index.htm;
http://ec.europa.eu/transport/road_safety/specialist/knowledge/old/index.htm
6. 2010 UNDP “A Review of International Best Practice in Accessible Public Transportation for Persons with Disabilities”.
http://www.undp.org.my/files/editor_files/files/reports%20and%20publications/PWD%20transport%20publication.pdf
7. Department for Transport Strategic Framework for Road Safety (2011).
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/8146/strategicframework.pdf
8. Programme and letter detailing dissemination, reception and impact of the research from Occupational Therapy led conference.
9. Letter from Directeur de Recherche, Ifsttar-LEPSIS, 25, Allée des Marronniers, 78000 Versailles, France.
10. Letter from Head of Public Policy, AgeUK; Tavis House, 1- 6 Tavistock Square, London, WC1H 9NA, see also [http://www.ageuk.org.uk/documents/en-gb/professionals/research/keeping%20on%20the%20move%20\(2008\)_pro.pdf?dtrk=true](http://www.ageuk.org.uk/documents/en-gb/professionals/research/keeping%20on%20the%20move%20(2008)_pro.pdf?dtrk=true)