



Cognitive screening of older drivers does not produce safety benefits

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ARTICLE INFO

Article history:

Received 19 April 2011

Received in revised form

10 September 2011

Accepted 16 September 2011

Keywords:

Older drivers

Cognitive screening

Safety measures

Public funds

ABSTRACT

Although screening policies for older drivers based on chronological age are widely used in many countries, previous research has shown that increasing age does not cause higher crash rates and that consequently, chronological age per se is at best only a weak predictor of safe driving performance. Previous research on age-based mandatory screening of older drivers has not been able to demonstrate any safety benefits from screening measures.

The present study is a population-based evaluation of the safety effects that the introduction of the cognitive test as an age-based screening tool has had in Denmark. The primary data used came from the Danish road accident register. The present study compared the number of fatal accidents before and after the implementation of screening for cognitive impairment.

There were two main findings. First, there was no statistically significant difference in the number of older drivers involved in fatal accidents before and after the implementation of the screening process, indicating that the screening had no effect on the safety of older drivers. Second, there was a significant increase in the number of unprotected older (but not younger) road users who were killed between the two periods of observation, suggesting that the screening process produced a modal shift among older persons from driving to unprotected, significantly less safe modes of transportation. As a consequence, the number of fatalities in this group increased.

Older driver screening is an example of a political measure that intuitively makes sense, but fails to produce the desired benefits. On the contrary, on a system level, it decreases the overall safety and is connected to various direct and indirect costs.

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1. Introduction

1.1. Managing older road users' safe mobility

As the size of the older population is increasing, managing older road users' safe mobility has become a topic of interest in most Western industrialised countries. Previous research has found mobility and older individuals' ability to use the transportation system independently to be closely related to different aspects of well-being and health (Farquhar, 1995; Marottoli et al., 1997; Fillenbaum, 1985). Providing satisfactory opportunities for independent travel and mobility helps the older population to maintain an independent lifestyle and their own well-being. As the safest and most convenient mode of transportation for older persons, private cars are often seen as the best option for independent mobility (OECD, 2001). The question of the fitness and safety of older drivers

has, however, also been widely discussed, resulting in a debate about the meaningfulness of screening as well as various measures the aim of which is to identify those older drivers who "no longer are fit to drive" (e.g. Fain, 2003; Fitten, 2003; White and O'Neill, 2000).

Already Hakamies-Blomqvist et al. (2002) demonstrated in their seminal paper that an increase in age does not cause higher crash rates per exposure. Since then, this finding has been repeatedly confirmed by independent studies (Fontaine, 2003; Keall and Frith, 2006; Langford et al., 2006), thus challenging the traditional conception of the age-related deterioration of safety-relevant driving skills. Chronological age per se seems to be, in the case of mature drivers, at best only a weak predictor of safe driving performance. However, screening policies based on chronological age are widely used in most European countries and many US and Australian states (e.g., Insurance Institute for Highway Safety, 2011; Langford et al., 2004b; Meuser, 2008; Mitchell, 2008; White and O'Neill, 2000).

1.2. Effects of age-based screening of older drivers

The safety effects of screening older drivers have been studied in many different contexts and with different study designs. Rock

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