



Screening for Cognitive Impairment in Senior Driver: *Changes to the Licence Renewal Process*

Erik Thomsen, Senior Policy Advisor, Safety Policy and Education Branch, Ministry of Transportation Ontario

Helena Haley, Senior Research Advisor, Safety Policy and Education Branch, Ministry of Transportation Ontario

Impact of Dementia on Driving Ability

- Impairments (e.g. judgement, reaction times, attention, perception, and planning) in areas critical to driving
- Decreasing ability over time
 - Diagnosis does not mean a person can't drive
 - Challenge of pinpointing when no longer able to drive
- Number of drivers with dementia increasing

Impact for Individual & Family

- Loss of independence
- Isolation
- Impact on self-image
- Sense of loss compounded by many other losses that come with dementia
- Difficulties in understanding and adhering to licence removal

Challenges for Primary Care

- Identification of presence of cognitive impairment difficult in short office visits
- Self-reporting (and sometimes caregiver reporting) may not be accurate
- Varied knowledge/skill in effective cognitive assessment
- Varied comfort/skill sharing findings in a way that doesn't impact relationship with patient

Support for Individuals/Families

- Support is needed through process of learning of driving concerns and/or loss of licence
- Supports may include:
 - Information about identifying driving risk
 - Information about cognitive/driving assessment
 - Support for adapting/retiring driving
 - Individual/group support for loss of driving ability
 - Education about community resources to support continued independence (e.g. transportation options)
 - Better transportation options

Enhancing Ontario's Senior Driver Licence Renewal Program

Alzheimer Knowledge Exchange Webinar

Ministry of Transportation
Safety Policy and Education Branch
April 23rd, 2014



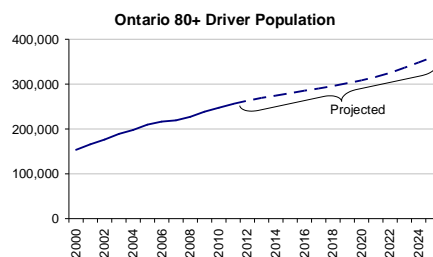
PURPOSE

- To provide an overview of enhancements to Ontario's 80 and Above Senior Driver Licence Renewal Program.
- Program enhancements were implemented on April 21st, 2014.

7

CONTEXT

- Ontario population aged 80+ will rise significantly: from about 550 thousand or 4.1% of the population in 2012 to 1.35 million or 7.6% in 2036.
- Rate of fatal collisions involving senior drivers continues to be higher than that of the general population.
 - In 2006-2010, the average at-fault fatal collision involvement rate for drivers aged 80+ was double the rate for drivers of all ages.
- **February 2012:** former Minister of Transportation made commitment to enhance the ministry's Senior Driver's License Renewal Program.



8

FORMER 80 & OVER LICENCE RENEWAL PROGRAM



- Ontario's senior driver programs aim to keep seniors driving for as long as they can safely do so.
- Ontario's former licence renewal program was unique in North America and ranked as one of the most stringent.
 - It was a renewal program; no licenses were "taken away" for simply failing any of the renewal requirements.
- The former Licence Renewal Program required 80+ drivers to renew their licence every two years with a:
 - Vision test;
 - Knowledge test;
 - Driver record review;
 - Group education session (GES); and
 - Road test, if necessary.
- Prior to 1996, senior drivers were required to complete an annual vision, knowledge and road test to renew licence.
- In 2012, as part of the 80+ Senior Driver Licence Renewal Program:
 - 117,237 drivers age 80 and over attended a Group Education Session;
 - 4,510 drivers age 80 and over were referred to a road test.

9

NEW ENHANCEMENTS & EFFICIENCIES



- Based on an extensive operational review of Ontario's existing senior licensing program, the Ministry has implemented the following enhancements:
 - Eliminate the knowledge test and replace with two brief screening tools to objectively identify drivers who may need to take a road test or see their physician;
 - Shorten and revise the GES presentation; and,
 - Ensure minimum vision requirement is met at 20/50.
- New renewal program can be completed in less than 90 minutes, whereas the former process required 3 hours.
- These enhancements will reduce the burden on drivers and are expected to improve road safety.

10



NEW ENHANCEMENTS & EFFICIENCIES (cont'd)

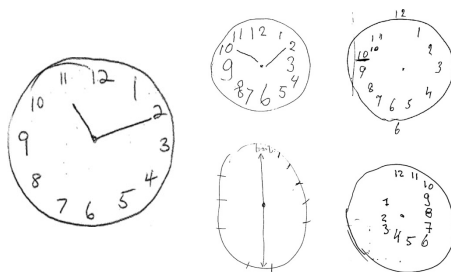
- Evidence-based cognitive screening tools (CSTs) have been introduced to identify drivers who may require further assessment (e.g., road test, medical review).
 - Under the former program, approximately 80% of drivers referred to a road test, passed, suggesting former screening criteria were not effectively identifying unfit drivers.
 - With the use of CSTs, we'll be able to better identify those who require a road test. Therefore, we expect fewer drivers to be referred for road testing, and lower pass rate.
- **This will remain a renewal program; no licenses are "taken away" for simply failing any of the renewal requirements.**
- Use of CSTs aligns with:
 - Driver Sanction and Remediation Programs Report (2012)
 - Kidnie Inquest (Ontario Coroner, 2002)
 - Sinha Report/Senior Strategy (2013)
 - CCMTA's Medical Standards for Drivers (2013).

11



RECOMMENDED COGNITIVE SCREENING TOOLS (CSTs)

Clock Drawing Test



Ten after eleven

Letter Cancellation Test (letter H)

H I H B D A H C F B H D E H D A F H I C H
 F H A D H C E H I H G D H G E B H E G H I
 H G H C G D H C B A H G D E H C H B E H D
 E B F H C D H F H G E H B H D H F A C H C
 H I H E B H G F B H F A H E B G H G F E H
 B H I G E H G H D E H C G H D H E B A H F

12

CST EVIDENCE – TIRF META-ANALYSIS

- In 2012, TIRF was awarded a contract to identify which CST best determines driving ability.
 - 446 recent, peer-reviewed articles evaluating reliability and validity of various CST were reviewed.
 - 42 tools were selected based on their relevance to fitness to drive.

The following MTO selection criteria were then applied:

- Duration (preferably under 10 minutes);
- Administration (only group setting);
- Computer/hardware requirements (only paper & pencil tests);
- Expertise required (tests to be administered by non-medical staff);
- Feasibility (tests that are simple to administer and score).

- 10 tools met our criteria.

13

CST EVIDENCE – TIRF FINDINGS

- 6 tools identified by TIRF were determined to be suitable for piloting based on feasibility of inclusion in the GES.

Clock Drawing Test	Digit Symbol Substitution Test
Single Letter Cancellation Test	Maze Task Test
Double Letter Cancellation Test	Visual Form Discrimination Test

- 2 tools were further prioritized based on their predictive ability, simplicity of scoring and administration, and zero cost impact.
- These tools covered two different cognitive capabilities, providing even greater predictive value:

- ***Clock Drawing Test***
- ***Single Letter Cancellation Test***

14



CST EVIDENCE: WHAT IS TESTED?

Visuo-spatial Ability

- “Visuo-spatial” refers to visual perception of spatial relationships among objects.
- Visuo-spatial skills are the abilities to recognize and organize information when you see something and then interpret what you see.
- When driving, you must:
 - Accurately position and manoeuvre a car (stay in lane, assess space for entering traffic flow);
 - Detect other objects on the road;
 - Judge distances; and
 - Find way to your destination.
- **The *Clock Drawing Test* measures visuo-spatial abilities.**

15



CST EVIDENCE: WHAT IS TESTED?

Psycho-motor Speed Ability

- Psychomotor speed: the amount of time it takes to process a signal, prepare a response and execute that response.
- When driving a car, you must:
 - Move eyes and head to know what is going on around you;
 - Think about what the car, other drivers, pedestrians are doing/are about to do; and
 - Respond to what you see (e.g.; pressing the brake or accelerator pedals, turning the steering wheel, or using the turn signal.)
- “*Psycho*” refers to the thinking part of the skill, while the “*motor*” refers to doing something with your muscles, such as hitting the brake when you see a pedestrian crossing.
- **The *Letter Cancellation Test* measures one’s psychomotor speed.**

16



CST DECISION-MAKING

- Three distinct elements will feed into decision-making:
 - 1. Score from test 1,
 - 2. Score from test 2, and
 - 3. Review of drivers' record.

- These three elements create 18 unique combinations.

- Depending on the combination, the driver would:
 - **Pass** (i.e.; fulfilled the renewal requirements); or
 - **Fail** the CST in a range that warrants a **road test**; or
 - **Fail** the CST in a range that warrants referring the driver into the **medical** review program to provide MTO with further information.

17



NEXT STEPS

- Program implemented on April 21, 2014

- Ongoing program evaluation
 - Collect data to track/monitor program changes

- Ongoing stakeholder and public engagement

18

QUESTIONS?



CONTACT INFORMATION



- Teepu Khawja, Manager
Road Safety Policy Office
416-235-3906
Teepu.Khawja@ontario.ca
- Yoassry Elzohairy, Manager
Road Safety Research Office
416-235-3643
Yoassry.Elzohairy@ontario.ca

For more Driving & Dementia Resources...

www.akeresourcecentre.org/Driving

