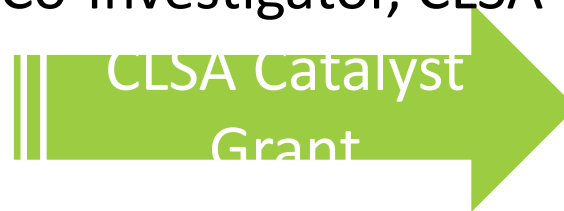# *Aging and Driving in Canada: Challenge meets Opportunity*

**Brenda Vrkljan, PhD, O.T. Reg. (Ont.)**
Associate Professor, Occupational Therapy Program
Lead Investigator, McMaster-Candrive site
Co-Investigator, CLSA

CLSA Catalyst Grant

# Meet Russ....

# [Age 99]

# Occupational Therapy

**Occupation, Health &**

# Clinical Decisions & Medical Fitness-to-Drive

| | **Medically fit to drive** | **Not medically fit to drive** |
|---|---|---|
| **Medically fit to drive** | Correctly determine client is medically fit to drive | Incorrectly determine not medically fit to drive, but are actually fit |
| **Not medically fit to drive** | Incorrectly determine medically fit to drive, but are not | Correctly determine client is not medically fit to drive |

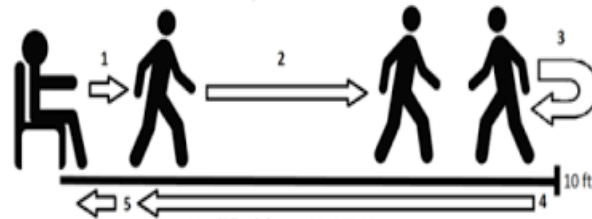# AIM: Develop a scientifically valid method
# of determining medical fitness to drive
# (i.e., risk stratification tool)

*Conducting Research*
*Influencing Policy, Changing practice*

# #1. Health of our participants
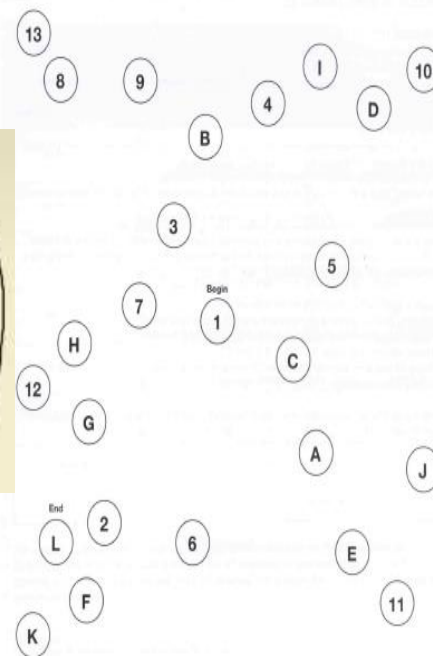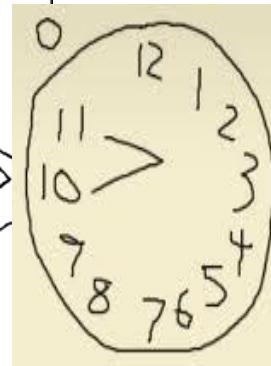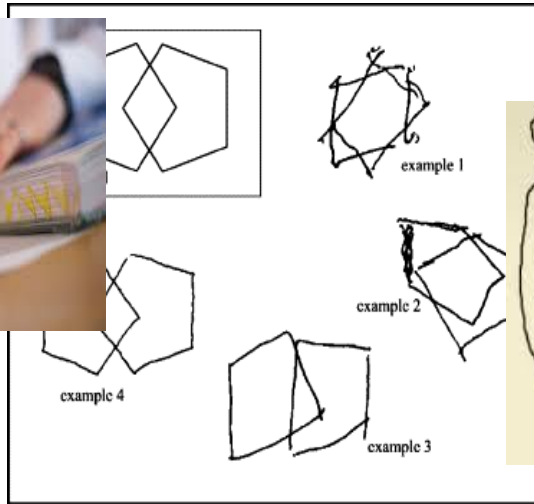
# #2. Driving Patterns (GPS Device)

# #3. Crashes & Violations

| City | No. of Participants Year 1 | No. of Participants involved in At-fault collisions in Year 1 | No. of Participants in Year 2 | No. of Participants involved in At-fault collisions in Year 2 |
|---|---|---|---|---|
| Ottawa | 256 | 3 (1.17) | 248 | 7 (2.82) |
| Toronto | 124 | 2 (1.61) | 114 | 3 (2.63) |
| Montreal | 109 | 3 (2.75) | 99 | 1 (1.01) |
| Hamilton | 122 | 6 (4.92) | 116 | 1 (0.86) |
| Thunder Bay | 67 | 1 (1.49) | 62 | 1 (1.61) |
| Winnipeg | 125 | 1 (0.80) | 123 | 3 (2.44) |
| Victoria | 125 | 0 | 122 | 3 (2.46) |
| Melbourne | 257 | 0 | 242 | 0 |
| Total | 1185 | 16 (1.35) | 1126 | 19 (1.69) |

**We have over** 38,749,316 km of **data!**

# Highlights from the Candrive Study

**→ Significant differences from Year 1 to Year 5 of our data**

## Health & Function
- ↓Driving comfort & perceived driving abilities
- ↓ to stand on one leg; rapid foot taps
- ↓ Scores on MoCA, & other tests of thinking skills
- ↑ # of medications and medical conditions

## Driving
- ↓ km driven per day, trip distance
- ↓ Average speed (Km/H), # of trips, trip

# To drive or not to drive?

**Understanding the influence of the complex relationships between personal and environmental factors on the driving mobility of older Canadians**



**Candrive**
Driving research for older adults.
Au volant de la recherche sur les aînés.

CLSA Catalyst Grant

**clsa élcv**

**Driving Only**
**Volunteer Sample**
**Health & Function**
**Perceived Driving Abilities**
**GPS Driving Patterns**
**928 Canadians (Aged 70+)**

**Social Participation (Social Frailty)**
Neighbourhood Social Networks etc.

**Driving + other forms of transportation**
**Random Sample**
**Health & Function**
**+++**
**Perceived Driving Abilities**
**50,000 Canadians!**

# Age, gender, geography & driver's license



Percentage of Canadians with a current driver's license stratified by geographic location, age and sex

Driving a motor vehicle is the most common form of transportation regardless of sex and geographic location across age groups

Fewer Canadians aged 75+ report having a license, particularly among women

# Prevalence of driving a vehicle vs. other forms of transit
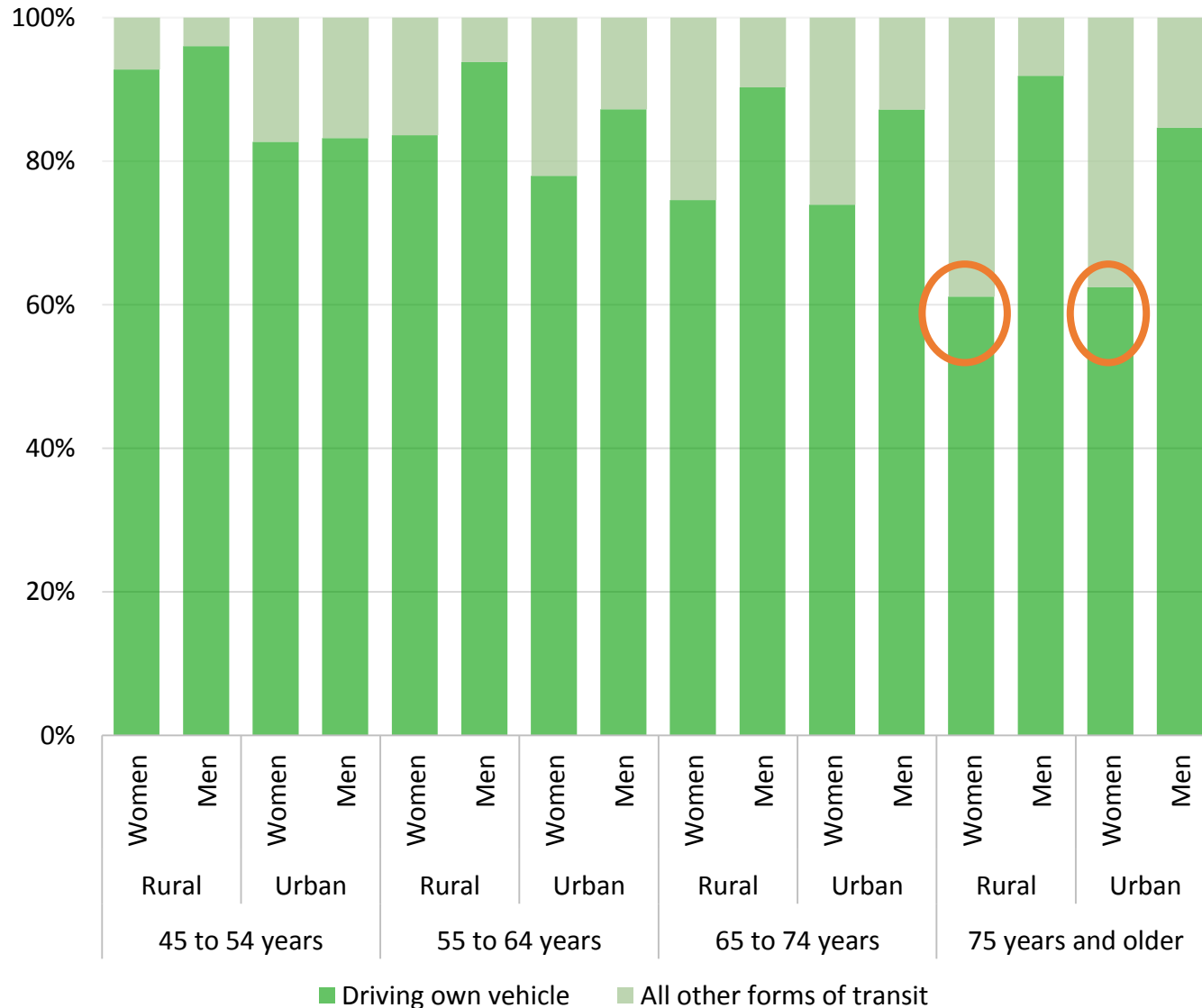


A lower prevalence of women over the age of 75 drive their own, but use all other forms of transportation more

Legend: ■ Driving own vehicle  ■ All other forms of transit

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# Transportation Mobility in Older Adulthood

- Specialized accessible transit is
seldom identified as a primary
mode of transportation,
even among persons with
poor health and limitations in their
activities of daily living.

- A higher proportion of women
aged 75 and older mainly use
this form of transportation

**Accessible Transit as Main Form of Transportation**

0.4% of Canadians

2.1% of women aged 75+
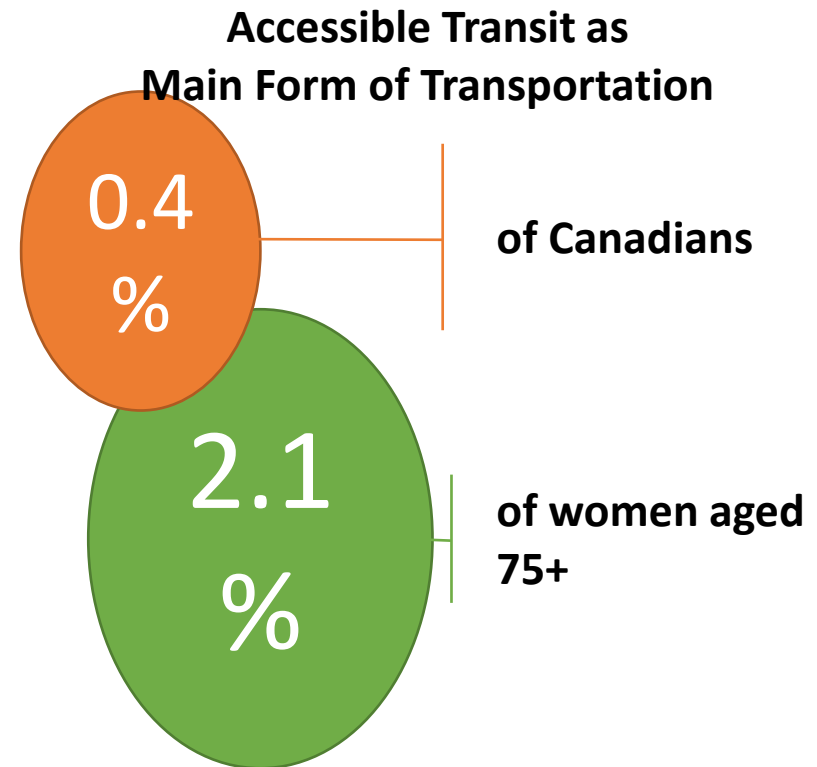
# Transportation, Sex differences & ADL Limitations

**Men** who report limitations in their functional performance
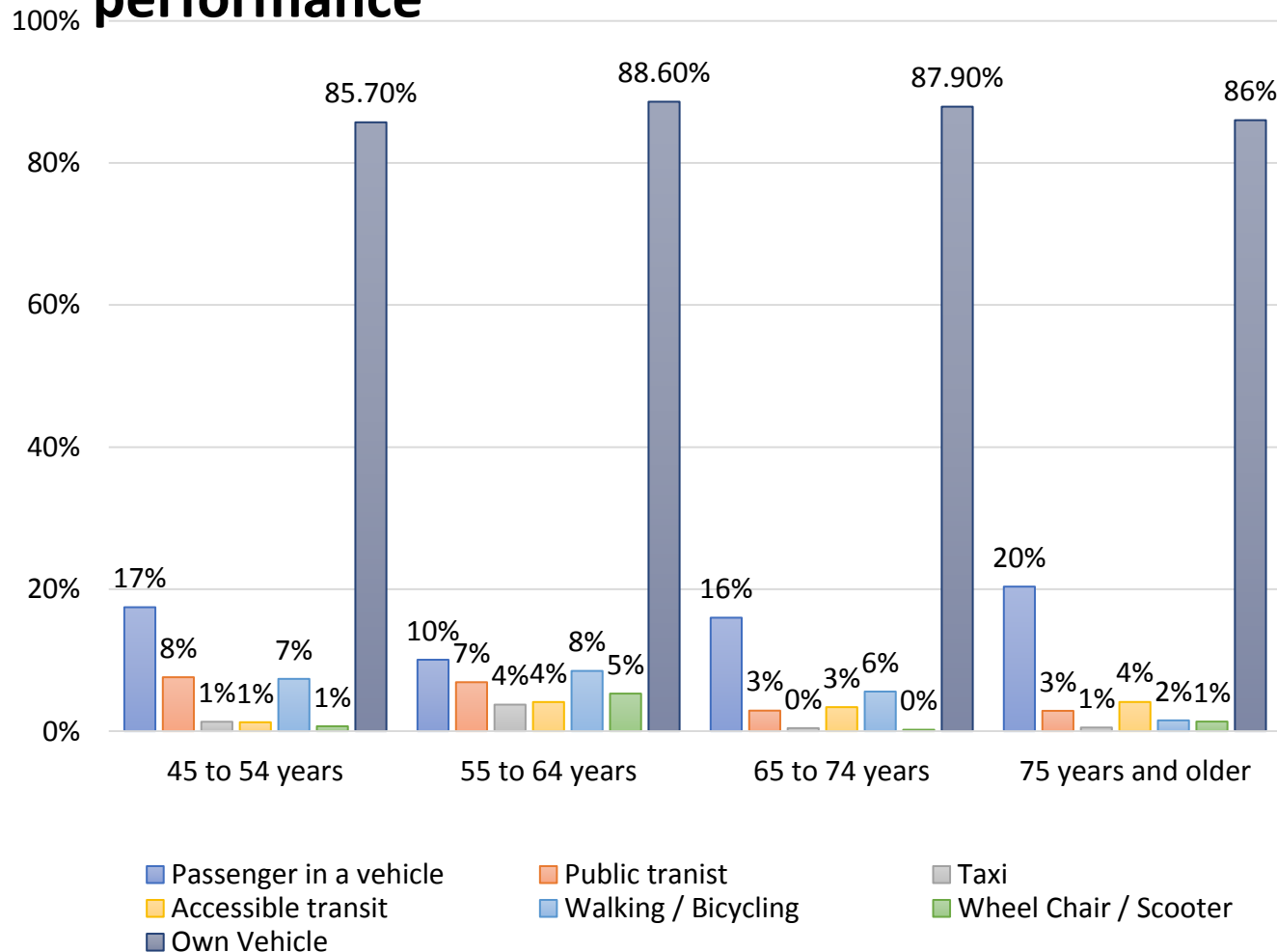


Driving is the primary mode of transportation among men who report difficulties with everyday activities. The proportion of those using other forms of mobility is different in each age group.

**Legend:**
- Passenger in a vehicle
- Public transit
- Taxi
- Accessible transit
- Walking / Bicycling
- Wheel Chair / Scooter
- Own Vehicle

**45 to 54 years:** 17%, 8%, 1%, 1%, 7%, 1%, 85.70%
**55 to 64 years:** 10%, 7%, 4%, 4%, 8%, 5%, 88.60%
**65 to 74 years:** 16%, 3%, 0%, 3%, 6%, 0%, 87.90%
**75 years and older:** 20%, 3%, 1%, 4%, 2%, 1%, 86%

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# Transportation, Sex differences & ADL Limitations

## <u>Women</u> who report limitations in their functional performance
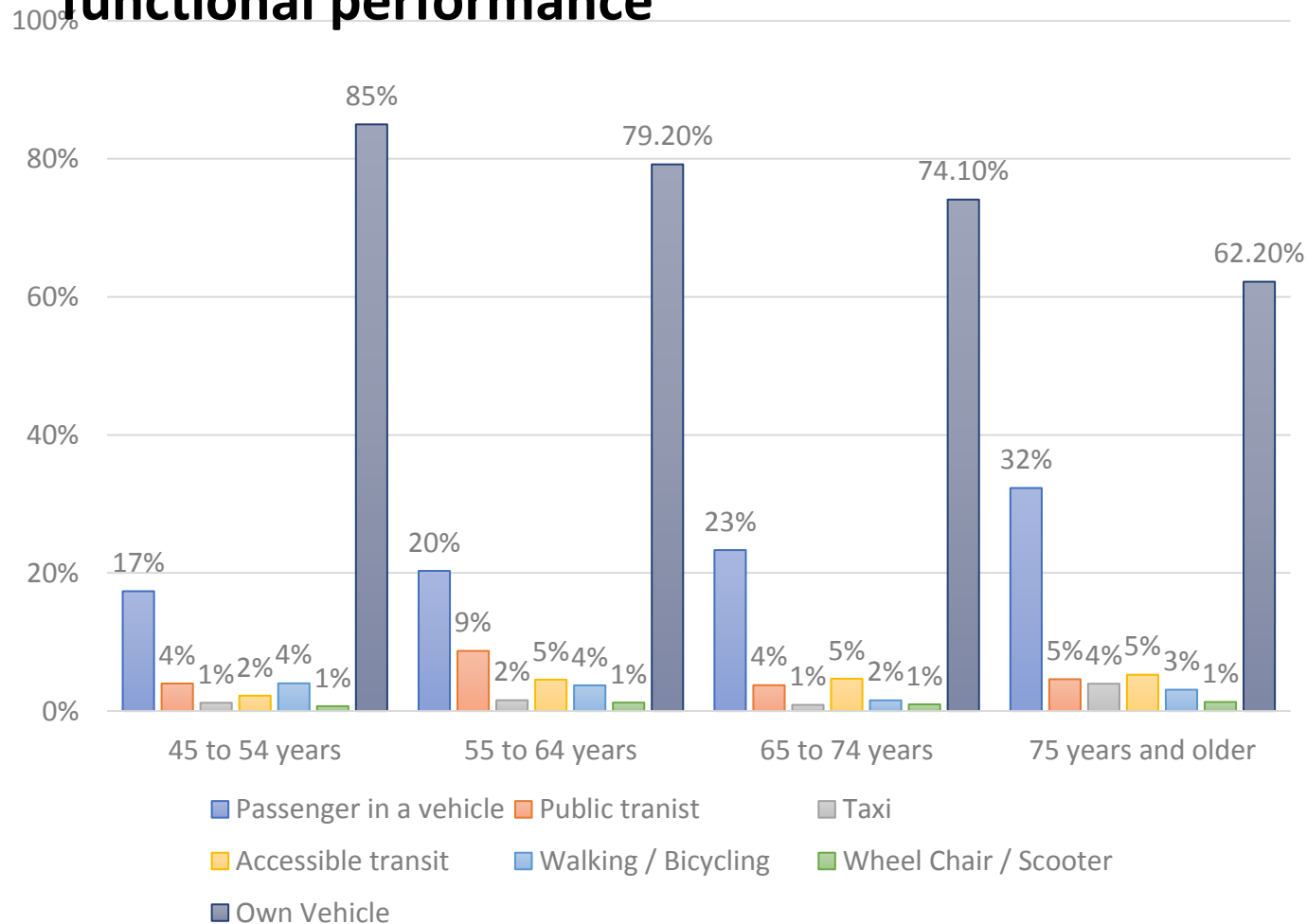


The majority of women in each group report having a driver's license; in the oldest age group there is also a large proportion who report being a passenger

# Understanding the Older Driver

# *Want to learn more about Aging & Driving?*

→ **McMaster Optimal Aging Portal** – What does drawing clocks have to do with driving cars?

→ **Google Search** : TVO, The Agenda, Brenda – ~25 min. discussion on our Candrive Research

→ **Autonomous Cars in Canada** → Google: Senate of Canada, report, Driving Change

# Thank you!

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