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The Importance of Adequate Transportation to Aging in Place

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Context: aging in place

- Issues related to aging at home
 - Demand for home care: roles of family members and professionals
 - Housing adapted to the needs of people losing their independence
 - Transportation?
- The automobile is the preferred mode of travel of Canadians...seniors, too?



Research questions

- Where do seniors live? In what types of neighbourhoods?
- What are the main modes of transportation used by seniors? What are the links between their types of neighbourhoods and their travel habits?
- What are the consequences of limited mobility in terms of social participation?



Data source

- Canadian Community Health Survey – Healthy Aging (2008-2009)
- 30,865 respondents aged 45 years and over
- 16,369 respondents aged 65 years and over living in private households (92 per cent of those aged 65 years and over in 2011)
- Census 2006 was used to create the types of neighbourhoods (census tracts and housing types)



Contextual information

- Statistics Canada household surveys contain information
 - on the census tract of respondents (neighbourhood)
 - on the municipality of residence for those outside metropolitan areas



Possible types of neighbourhoods or municipalities of residence

- Based on modes of transportation used by workers to get to work
- Residential density based on housing type (percentage of population living in apartments)



Step 1: Census files, data by census tract

CT_ID	Number of people in private households	Number of people in apartments	Pct_apart
1	3000	60	2%
2	4000	40	10%
3	3500	1500	40%
4	4200	3150	75%
...			



Step 2: Merging of census data with health survey data

Pers_ID	CT_ID	Pct_apart	Density level (type)
1012	242	2	1
1013	12	25	2
1014	534	43	3
1015	376	60	5
...			

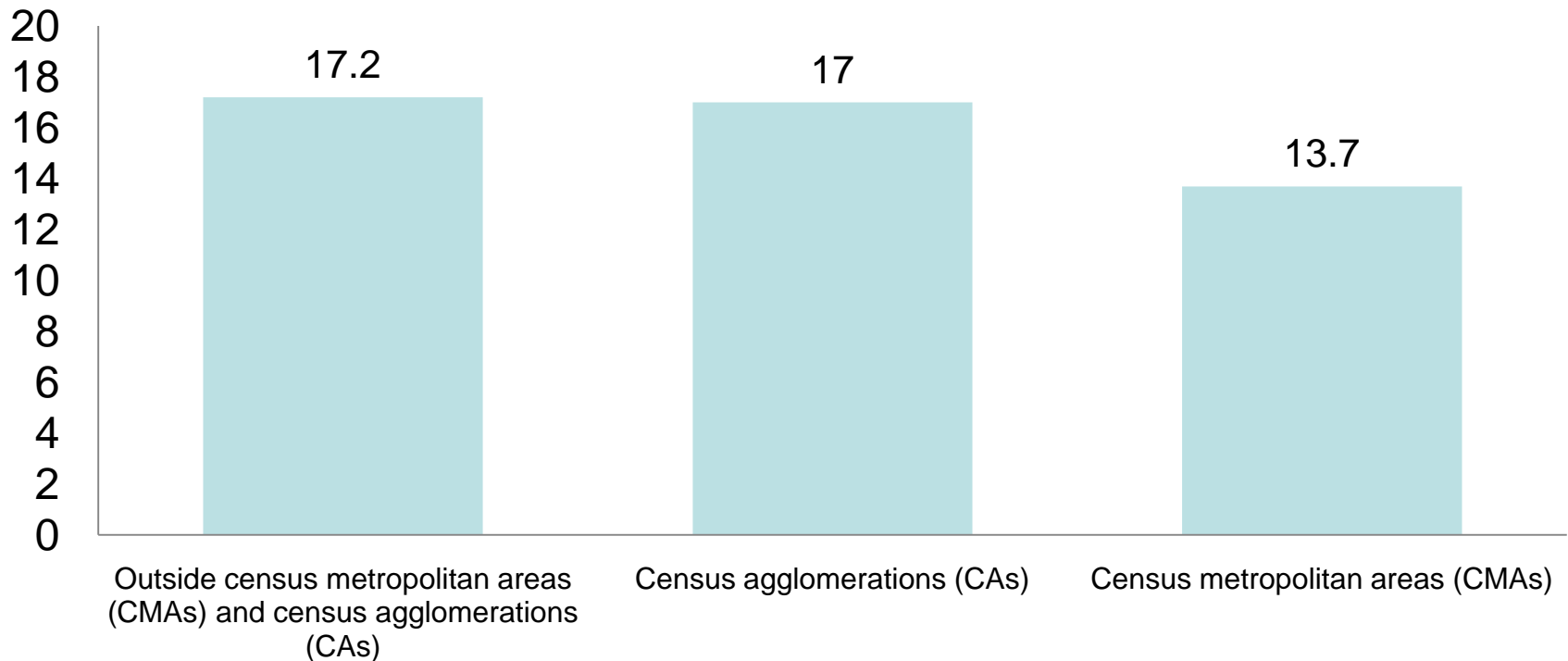


Part 1: Where do Canadian seniors live?

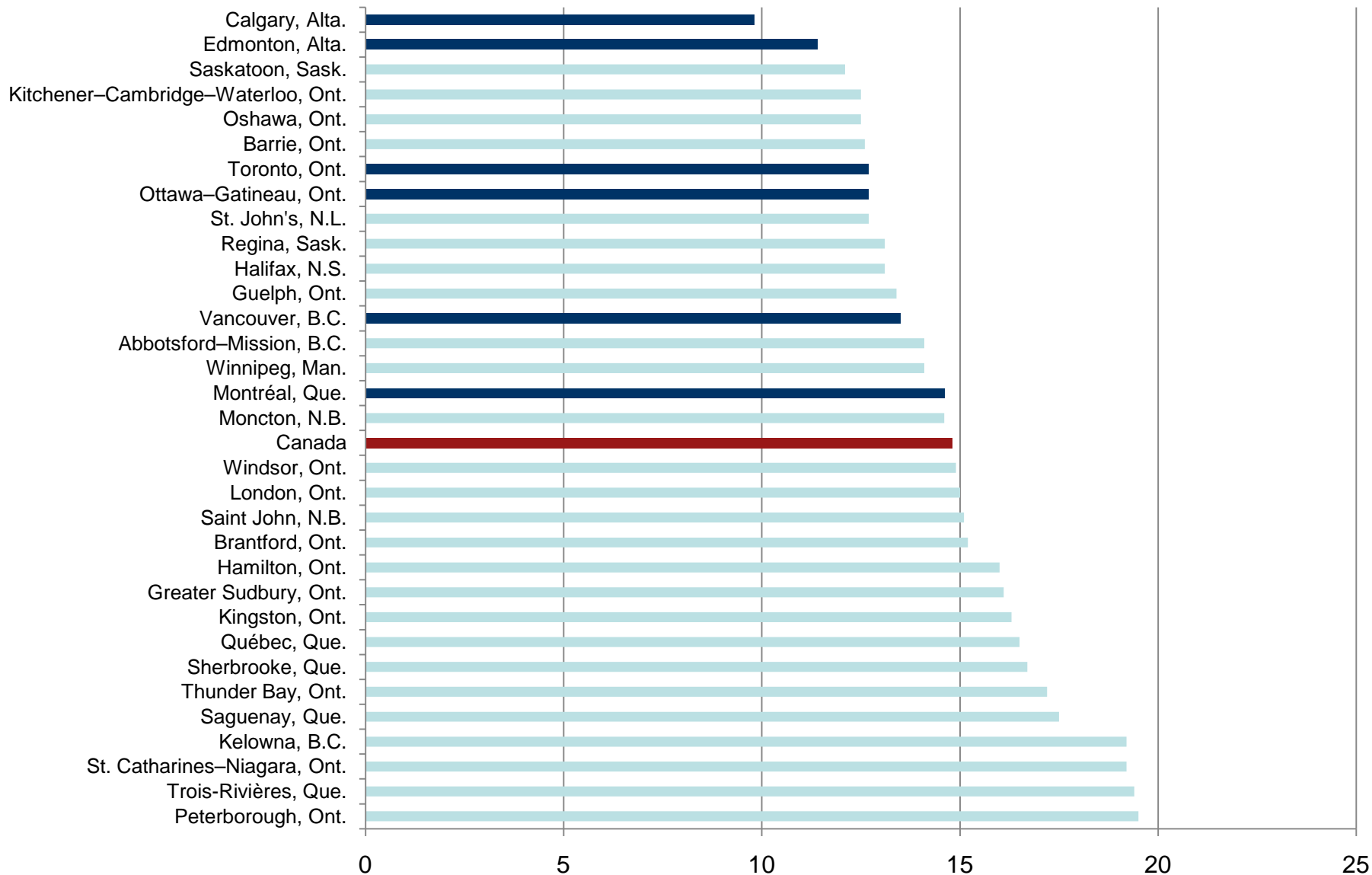


Seniors less strongly represented in census metropolitan areas (CMAs), 2011

Proportion of People Aged 65 Years and Over

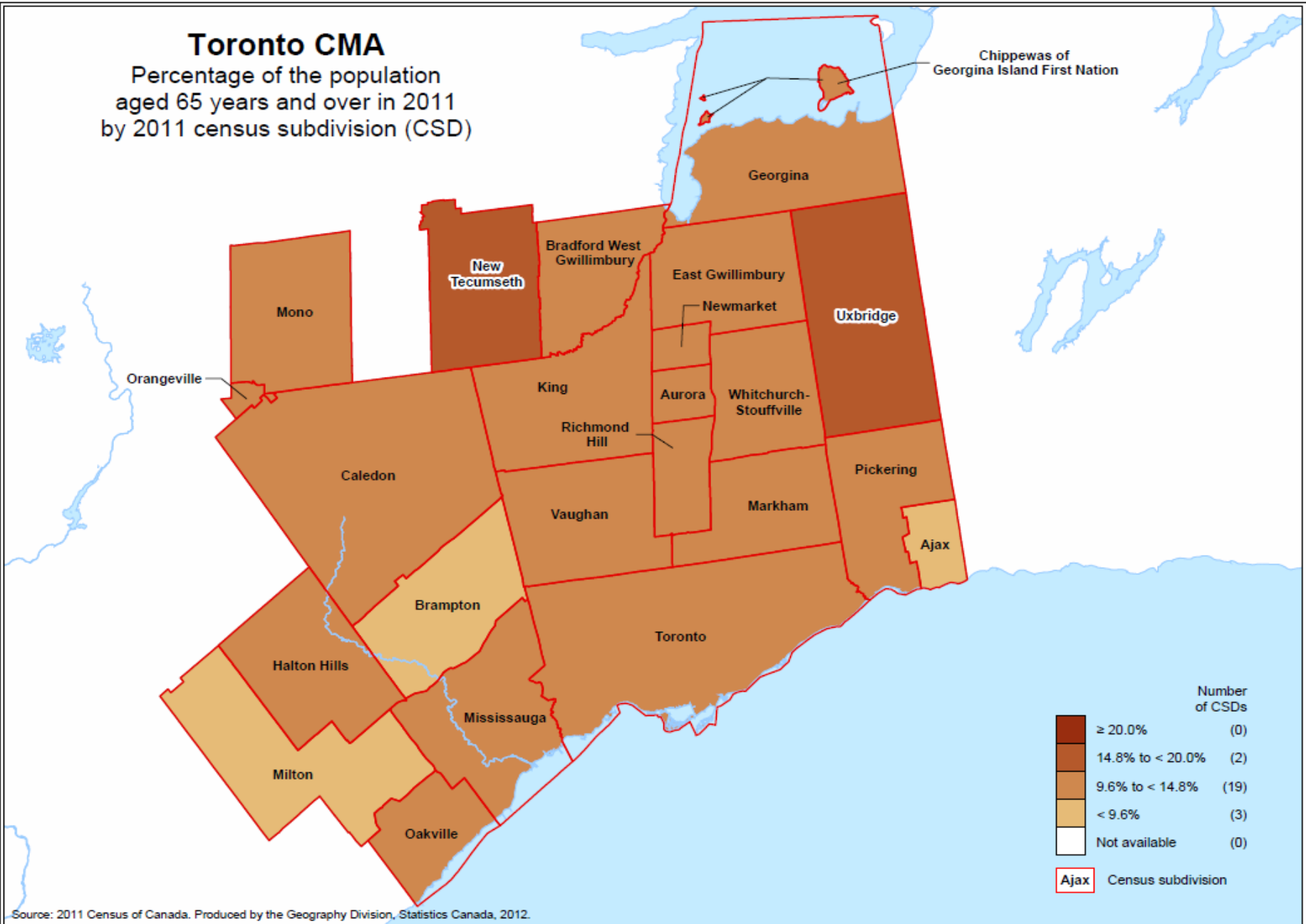


Proportion of People Aged 65 Years and Over, CMAs, 2011



Toronto CMA

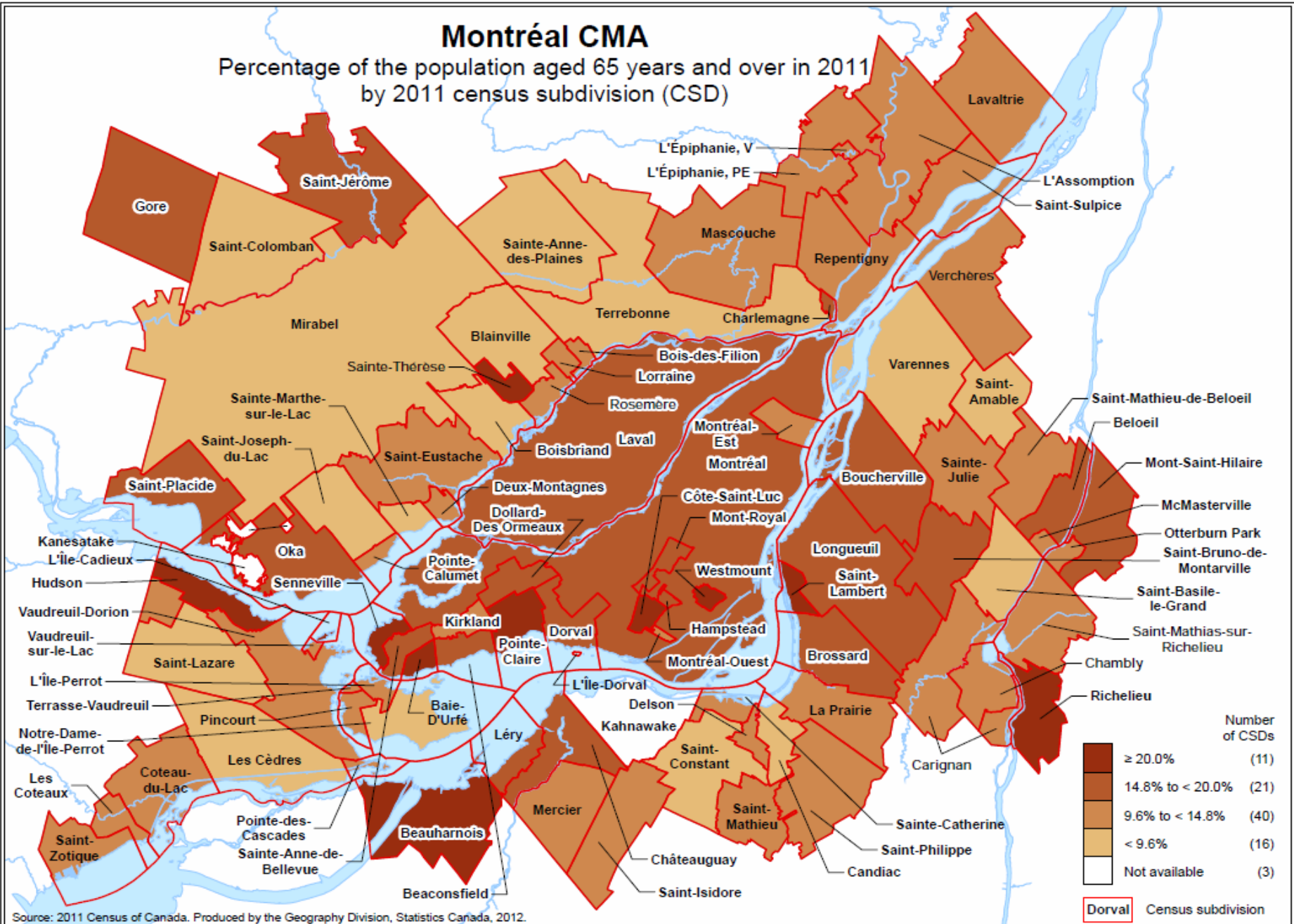
Percentage of the population aged 65 years and over in 2011 by 2011 census subdivision (CSD)



Source: 2011 Census of Canada. Produced by the Geography Division, Statistics Canada, 2012.

Montréal CMA

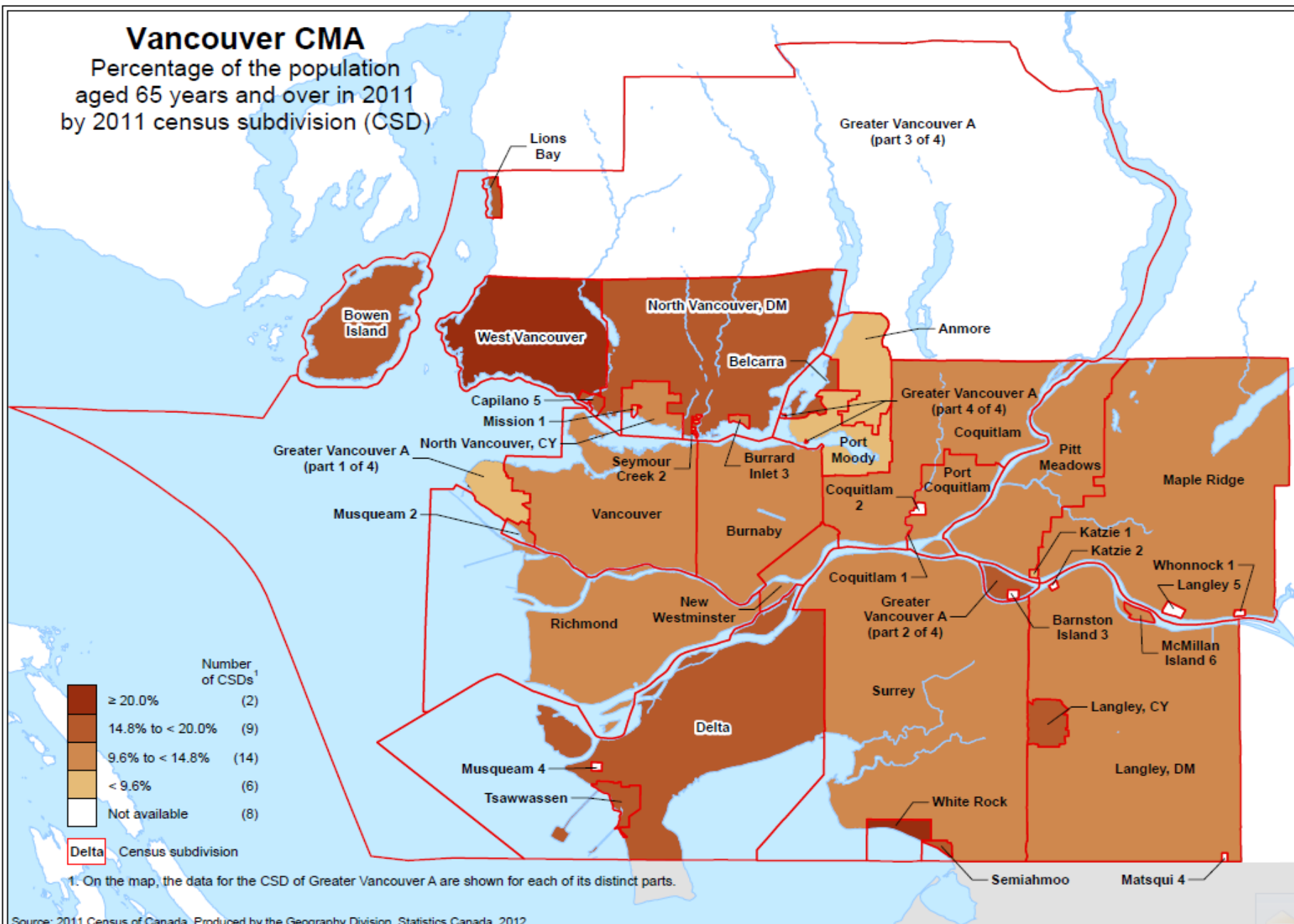
Percentage of the population aged 65 years and over in 2011
by 2011 census subdivision (CSD)



Source: 2011 Census of Canada. Produced by the Geography Division, Statistics Canada, 2012.

Vancouver CMA

Percentage of the population aged 65 years and over in 2011 by 2011 census subdivision (CSD)

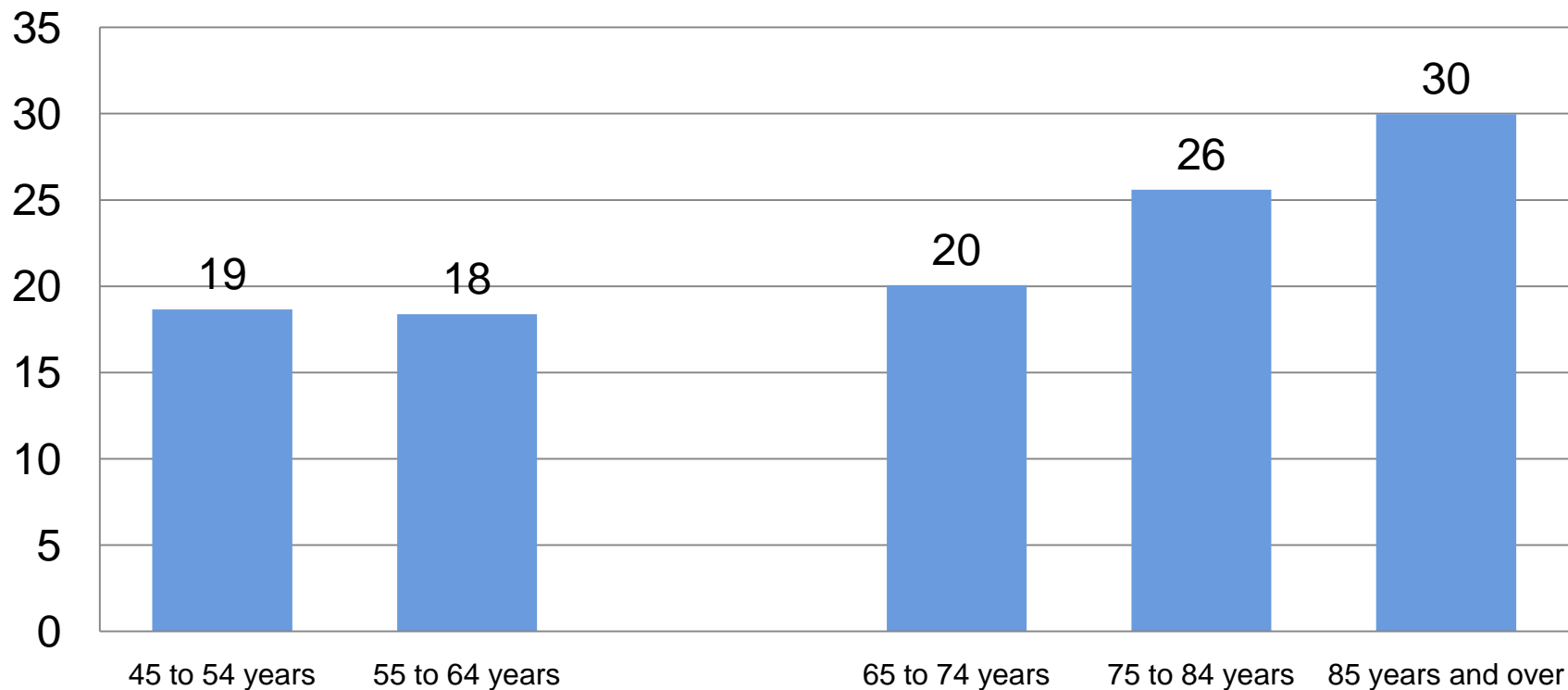


Source: 2011 Census of Canada. Produced by the Geography Division, Statistics Canada, 2012.



Seniors more likely to live in high residential density sectors, 2008

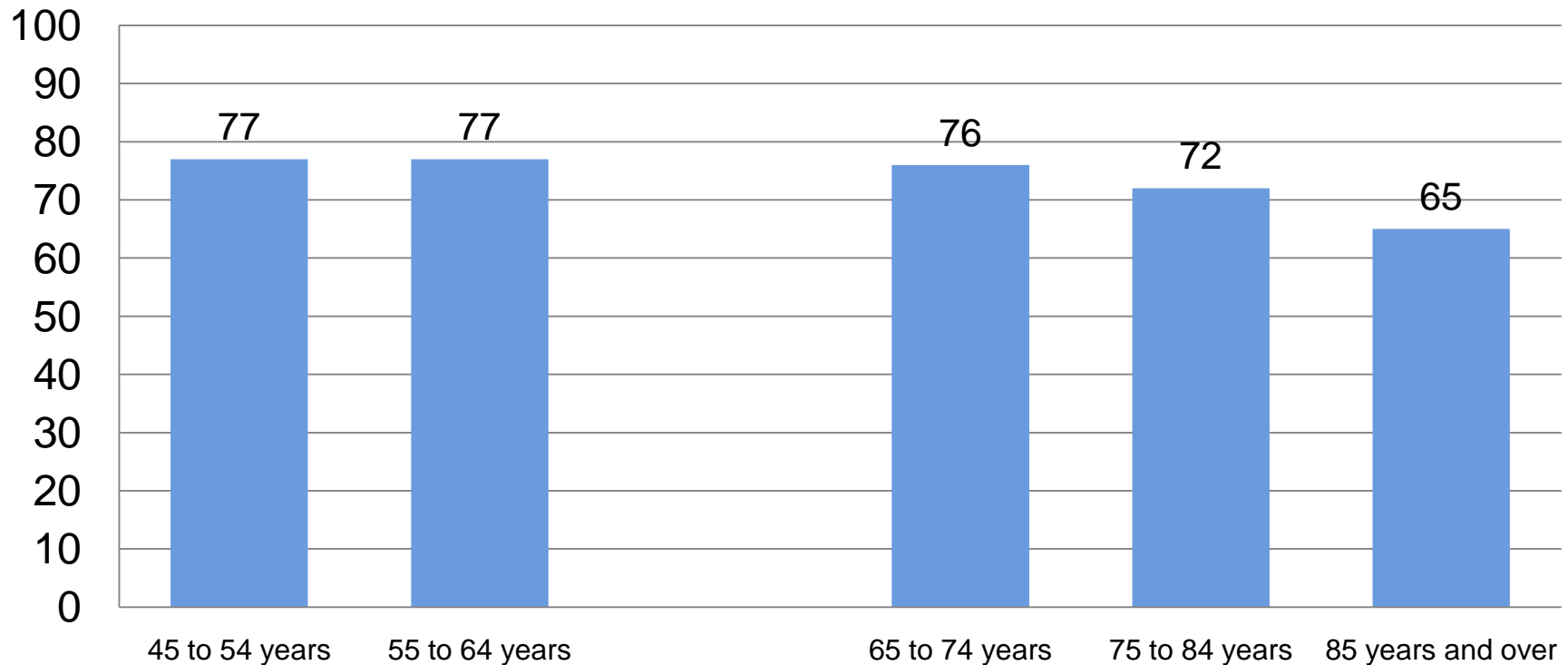
Percentage Living in High Residential Density Neighbourhoods





People aged 85 years and over slightly less likely to live in high automobile – dependant sectors

Percentage Living in Medium or High Automobile Dependant Sectors

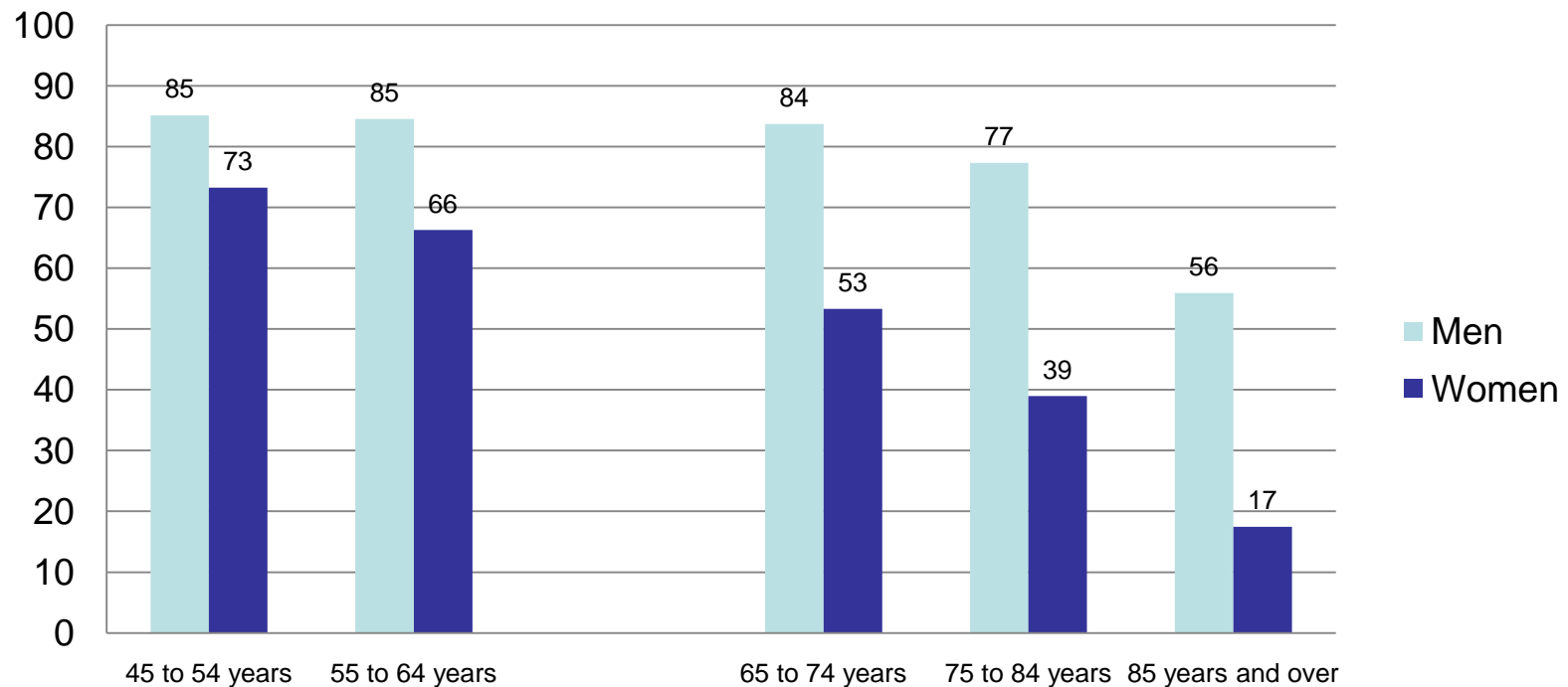




Part 2: What are the modes of transportation?

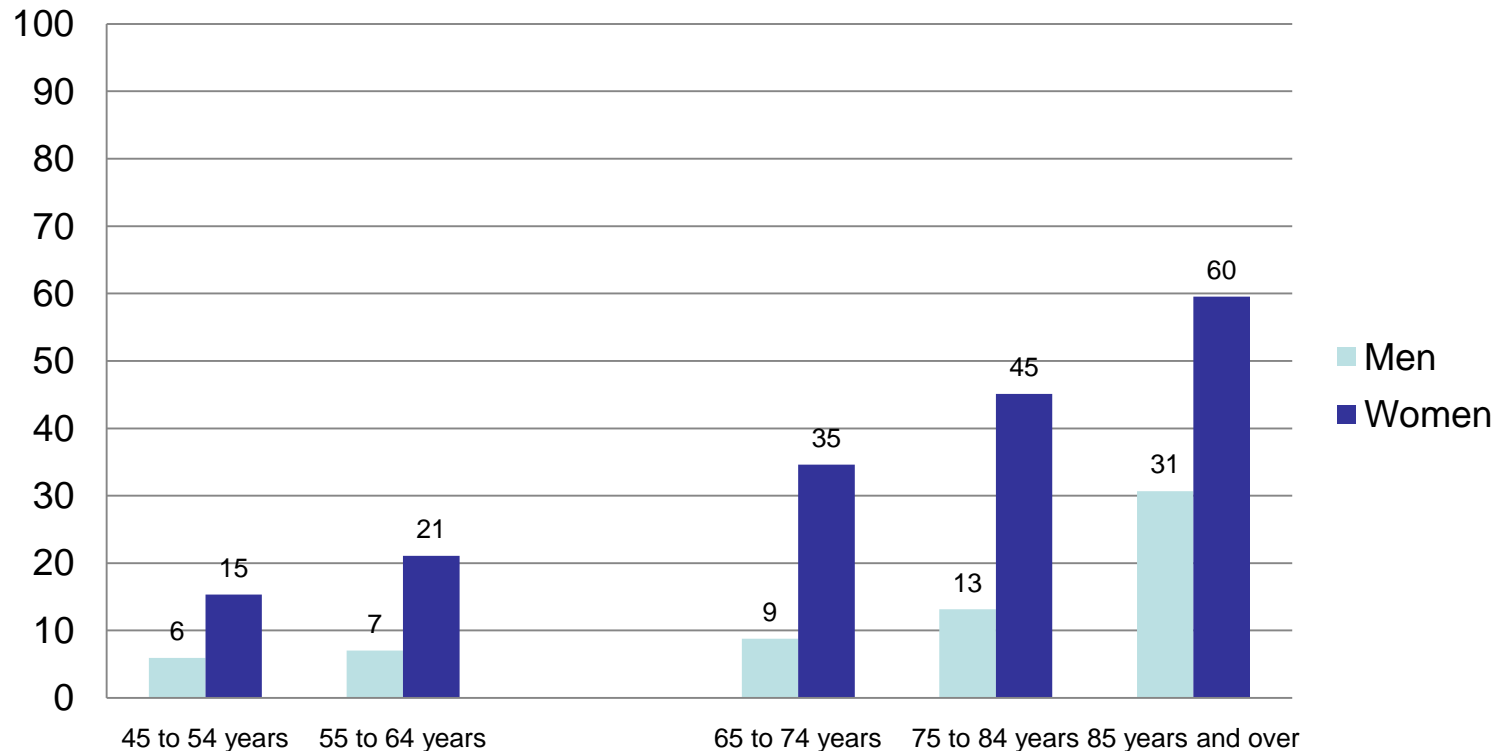
Driving their automobile is the main mode of transportation of a majority of men aged 85 years and over

Percentage Whose Main Mode of Transportation Is Driving a Vehicle, 2008-2009



Being a passenger in an automobile is the main mode of transportation of 60 per cent of women aged 85 years and over

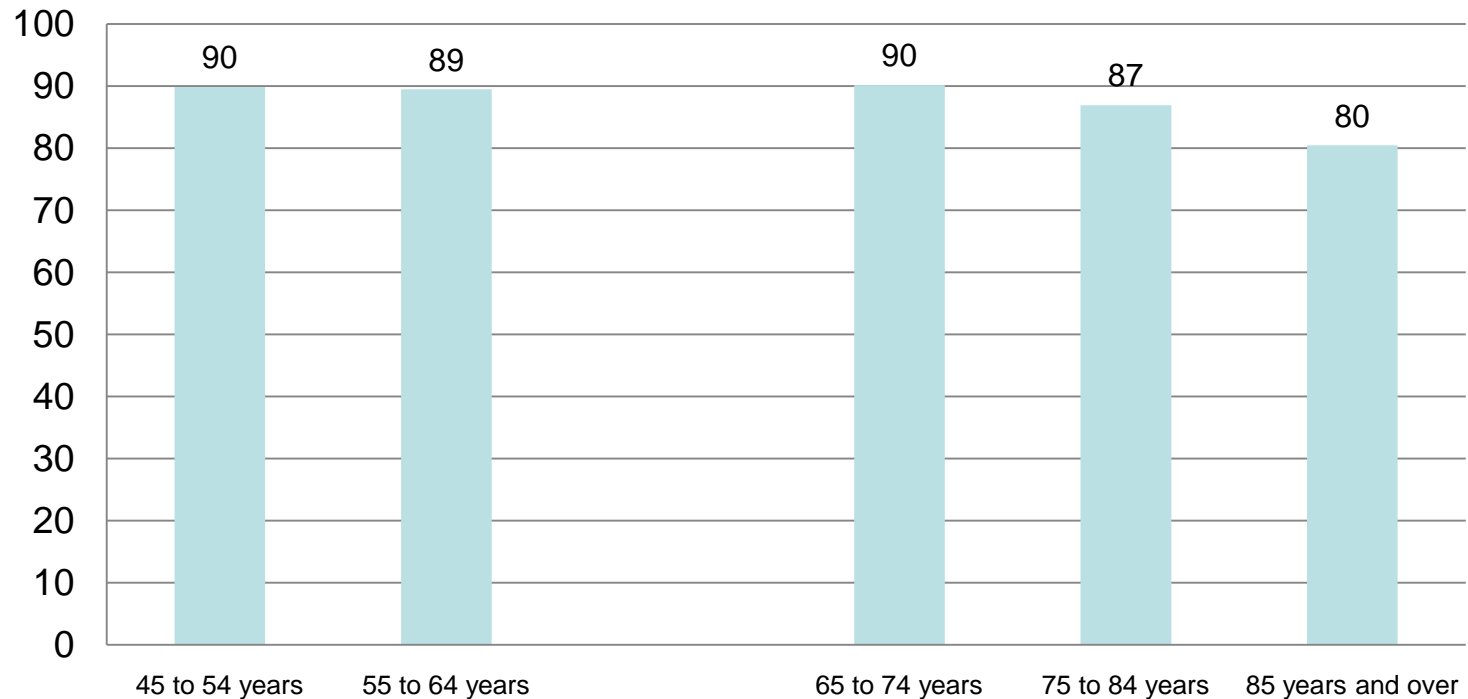
Percentage Whose Main Mode of Transportation Is Being a Passenger in an Automobile, 2008-2009





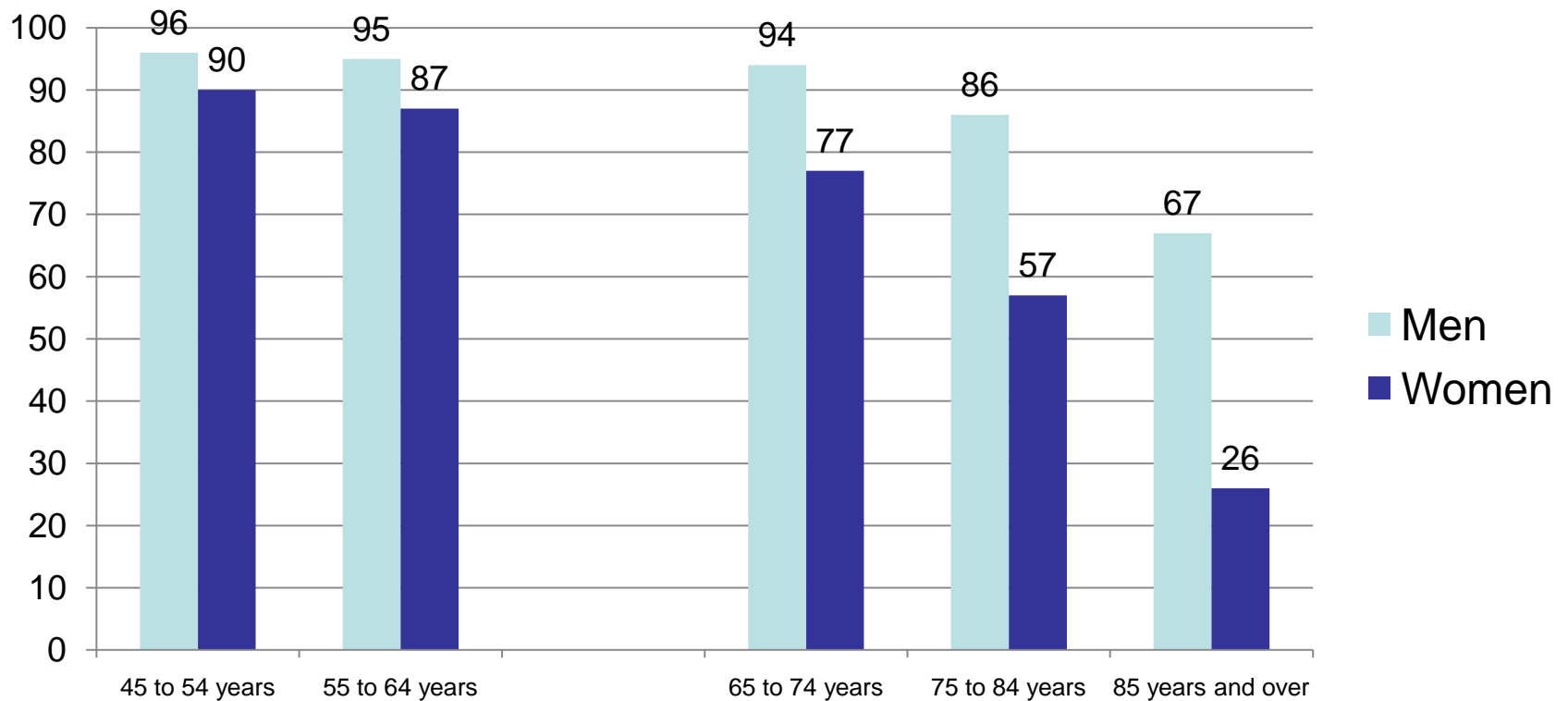
Before the age of 85 years, about 9 in 10 seniors travel mainly in private vehicles (passenger or driver)

Percentage Whose Main Mode of Transportation Is Being a Passenger or Driver of a Vehicle, 2008-2009



Majority of men aged 65 years and over have a driver's licence

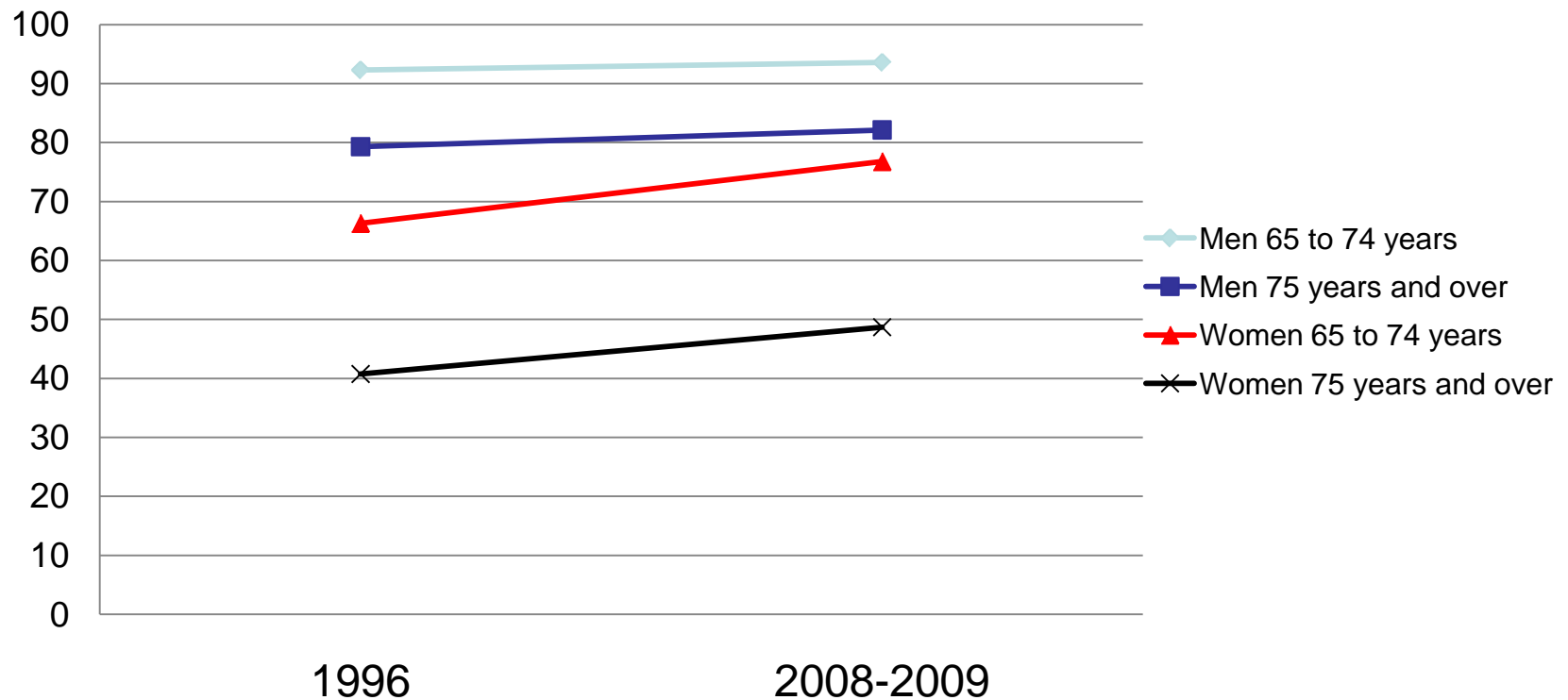
Percentage of Seniors with a Valid Driver's Licence, 2008-2009



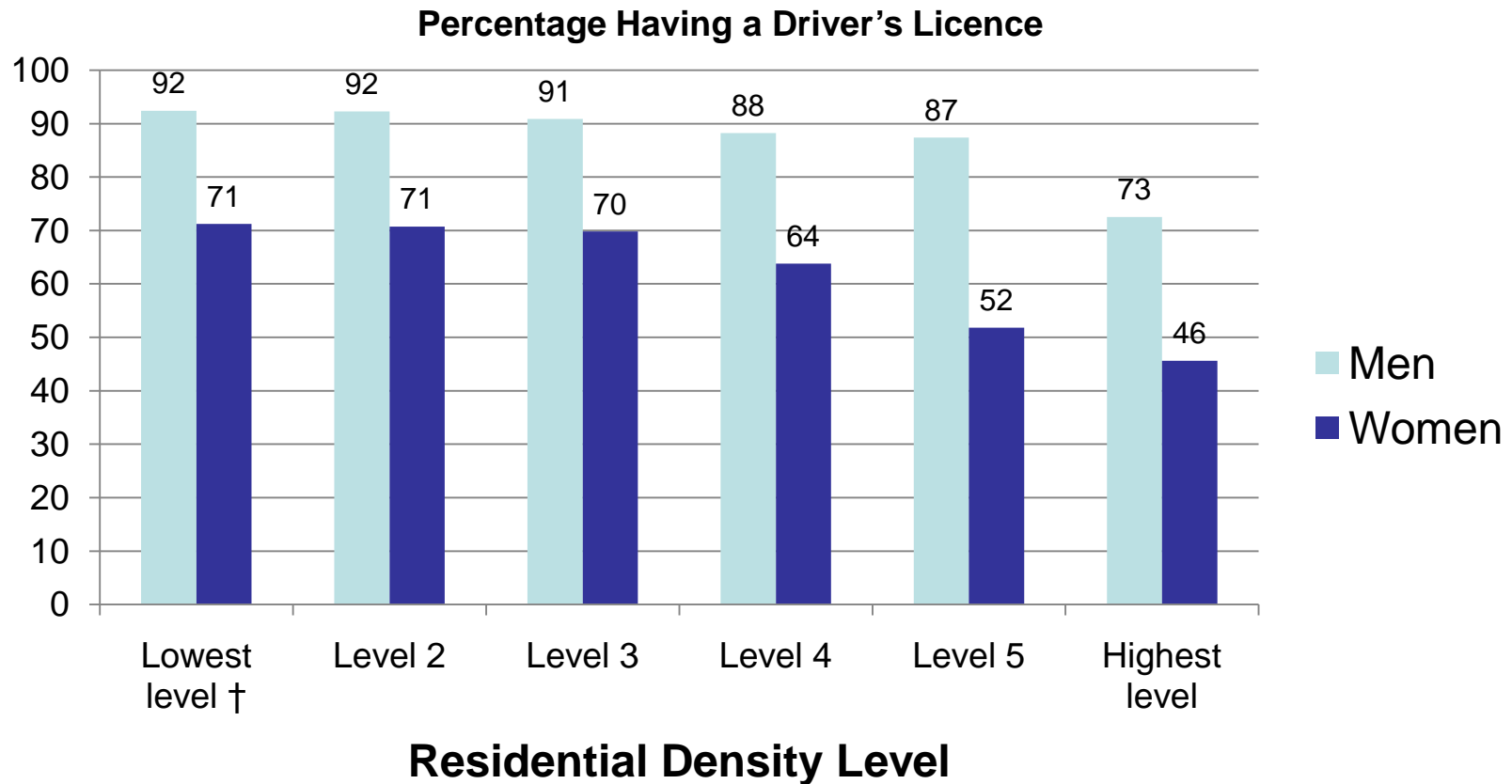


Proportion of women aged 65 years and over with a driver's licence rising rapidly

Percentage with a Valid Driver's Licence



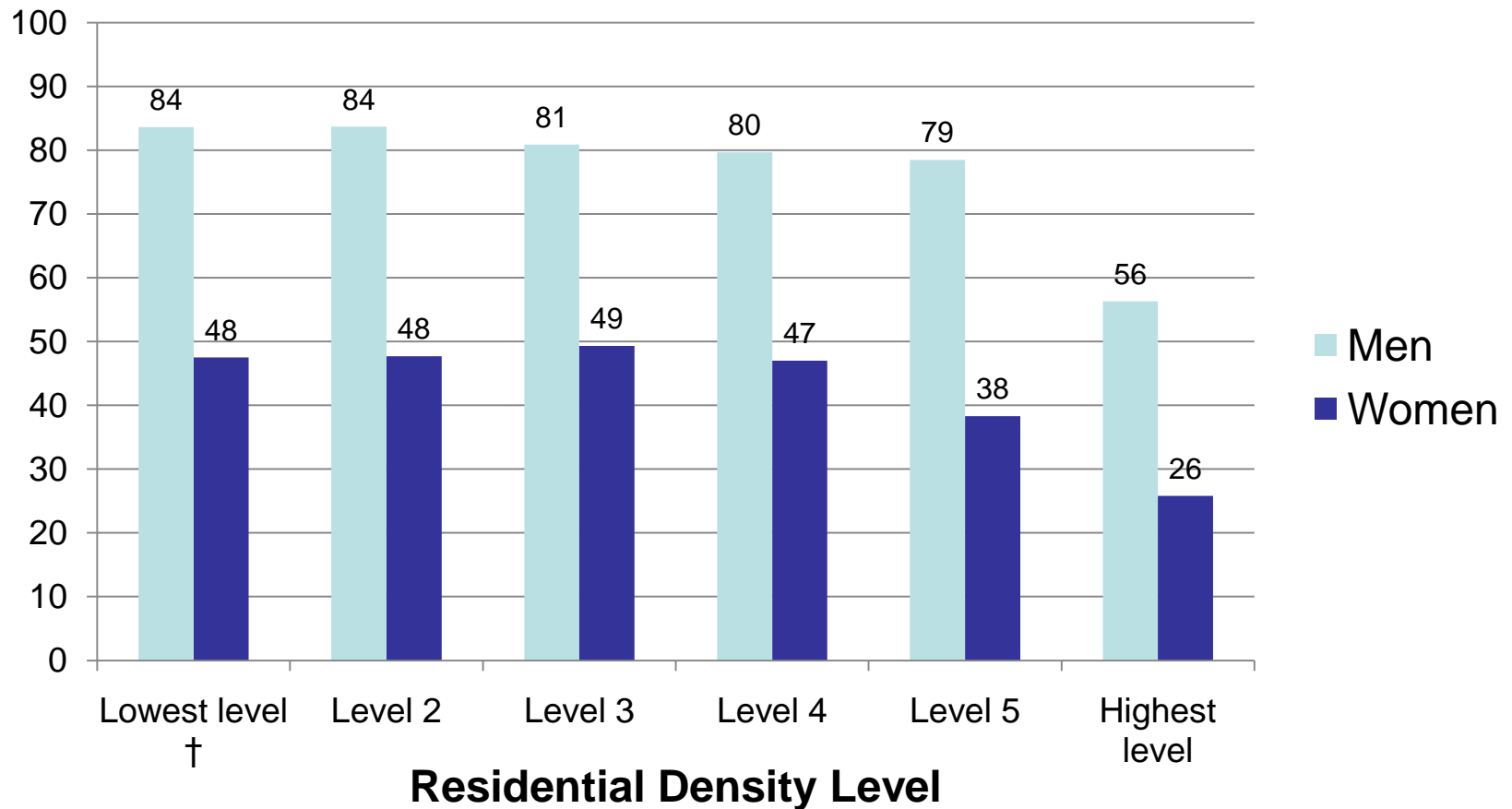
For men, residential density of their sector has little impact on their having a driver's licence...





...and driving remains the main mode of transportation for them

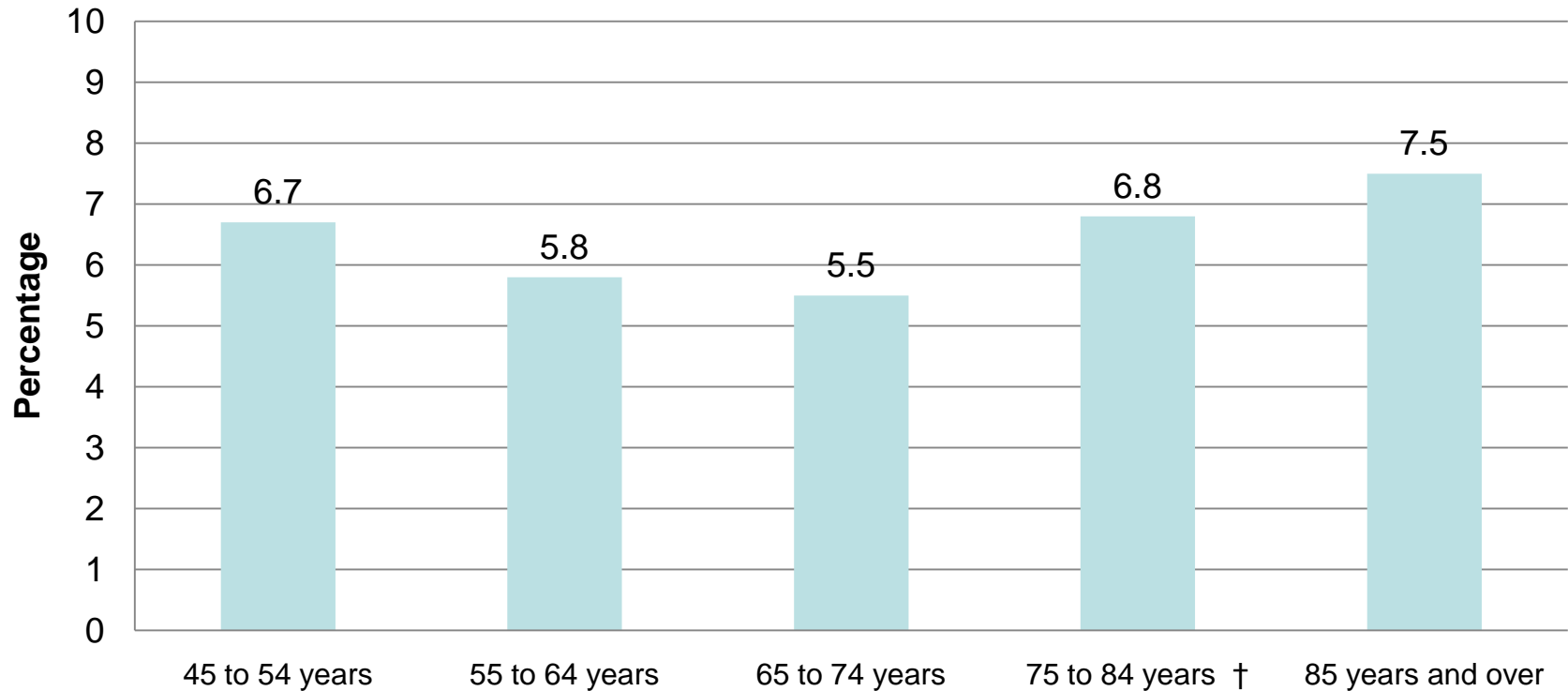
Percentage Travelling Mainly by Driving an Automobile





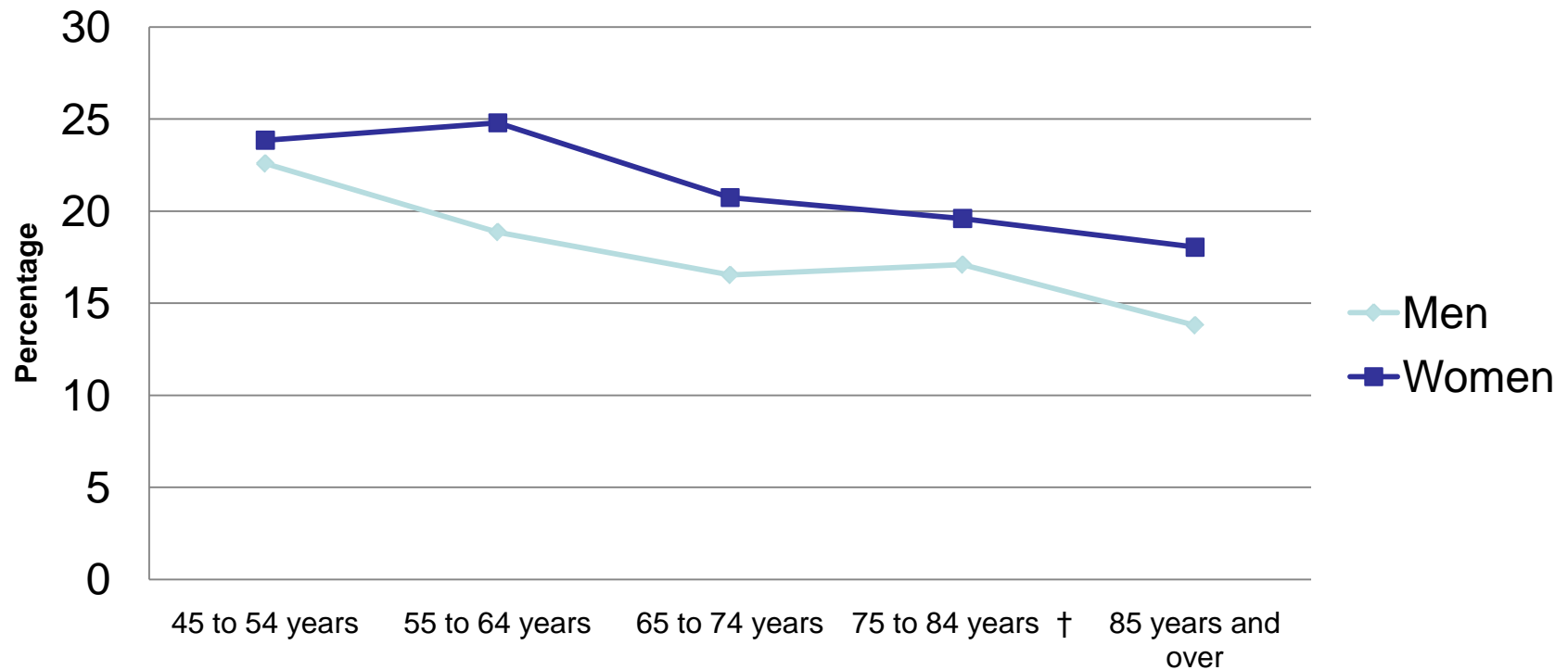
Less than 10% of seniors use public transit for most of their travel

Percentage Whose Main Mode of Transportation Is Public Transit, 2008-2009



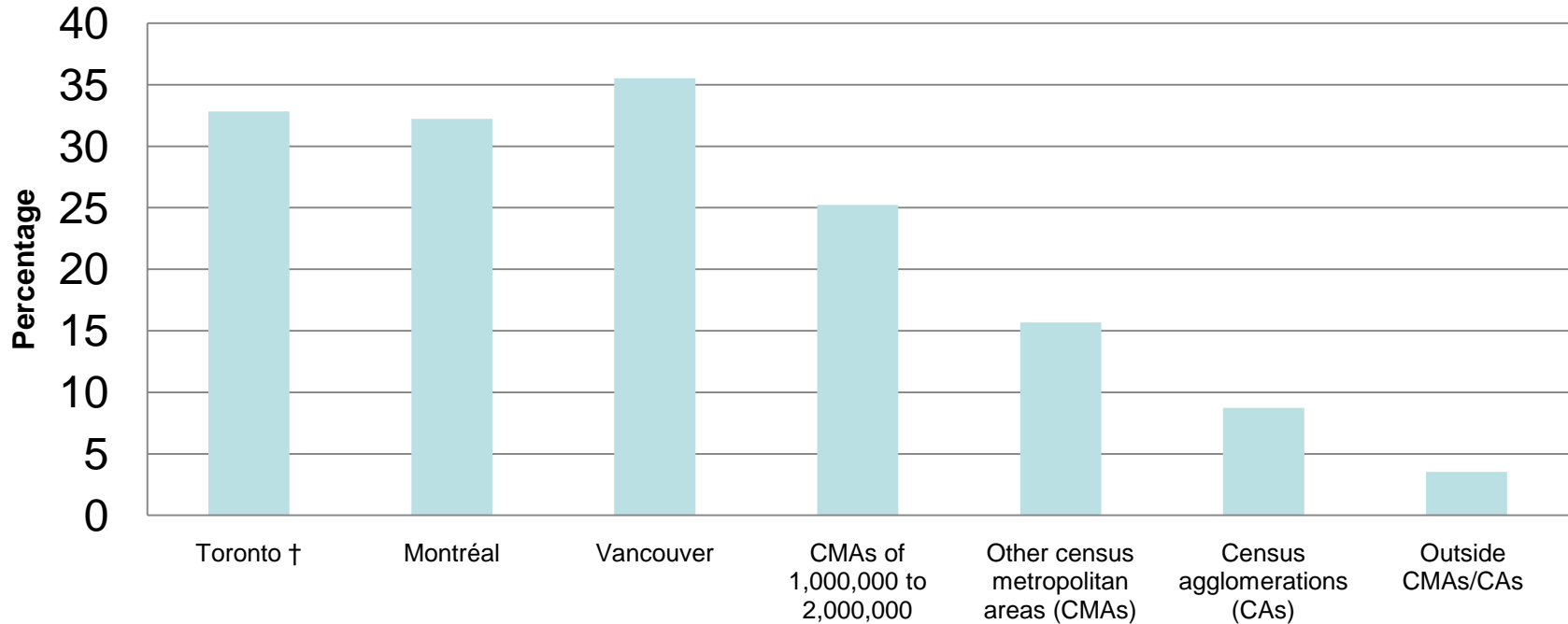
Public transit relatively little used by seniors, even occasionally

**Percentage Having Used Public Transit at Least Once in the
Previous Month, 2008-2009**



Public transit still used more frequently in larger CMAs

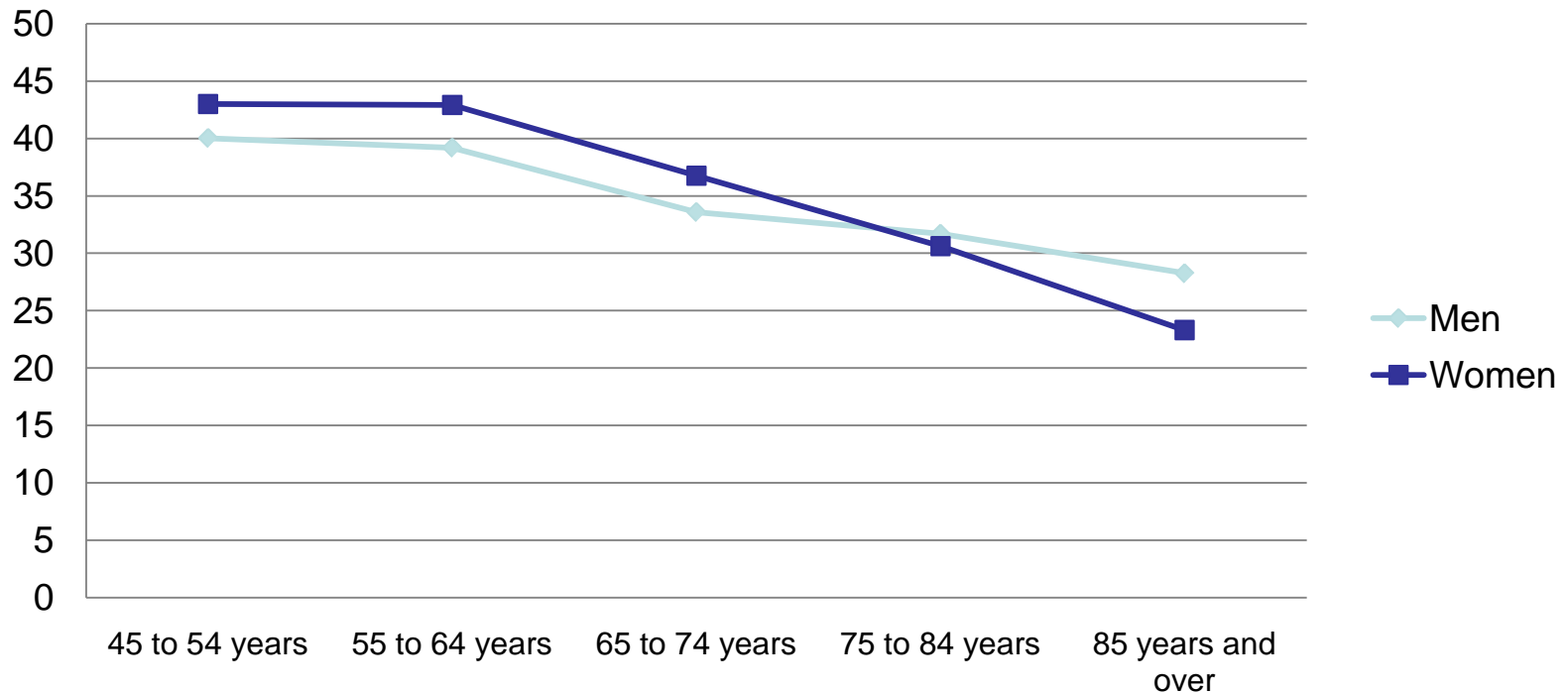
Percentage Having Used Public Transit at Least Once in the Previous Month, 2008-2009





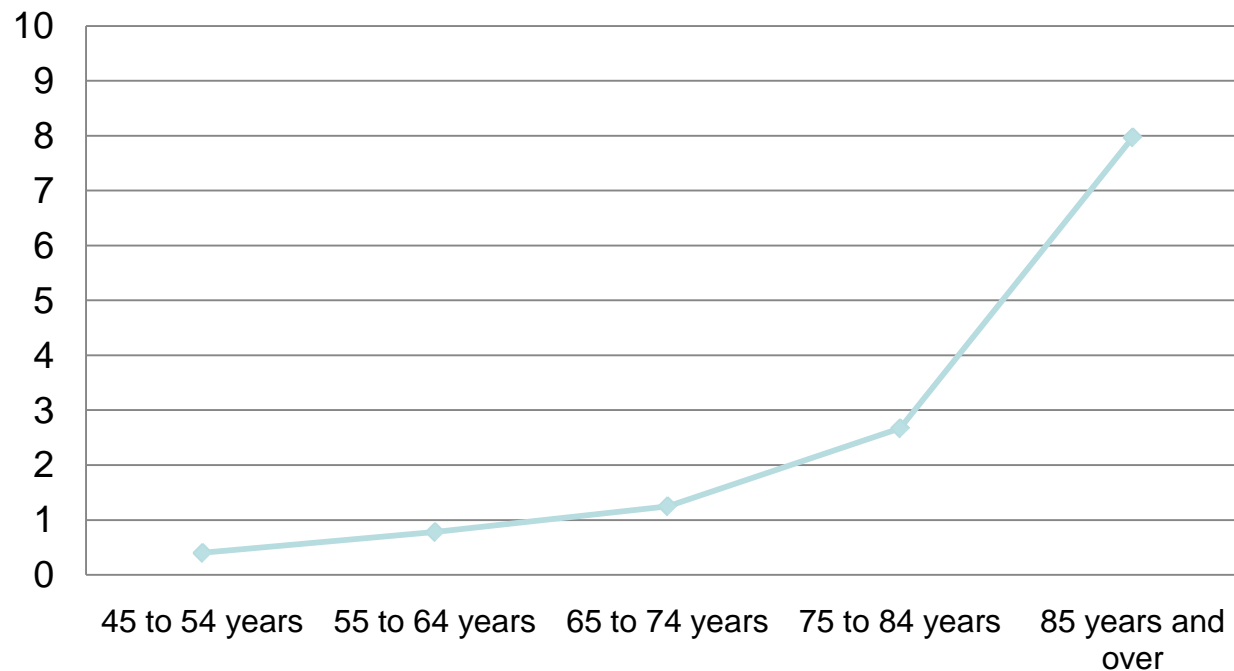
Probability of having walked as a mode of transportation at least once in the previous month also decreases with age

Proportion Having Walked as a mode of transportation in the Previous Month, 2008-2009



Conversely, probability of having used accessible transit at least once in the previous month increases with age

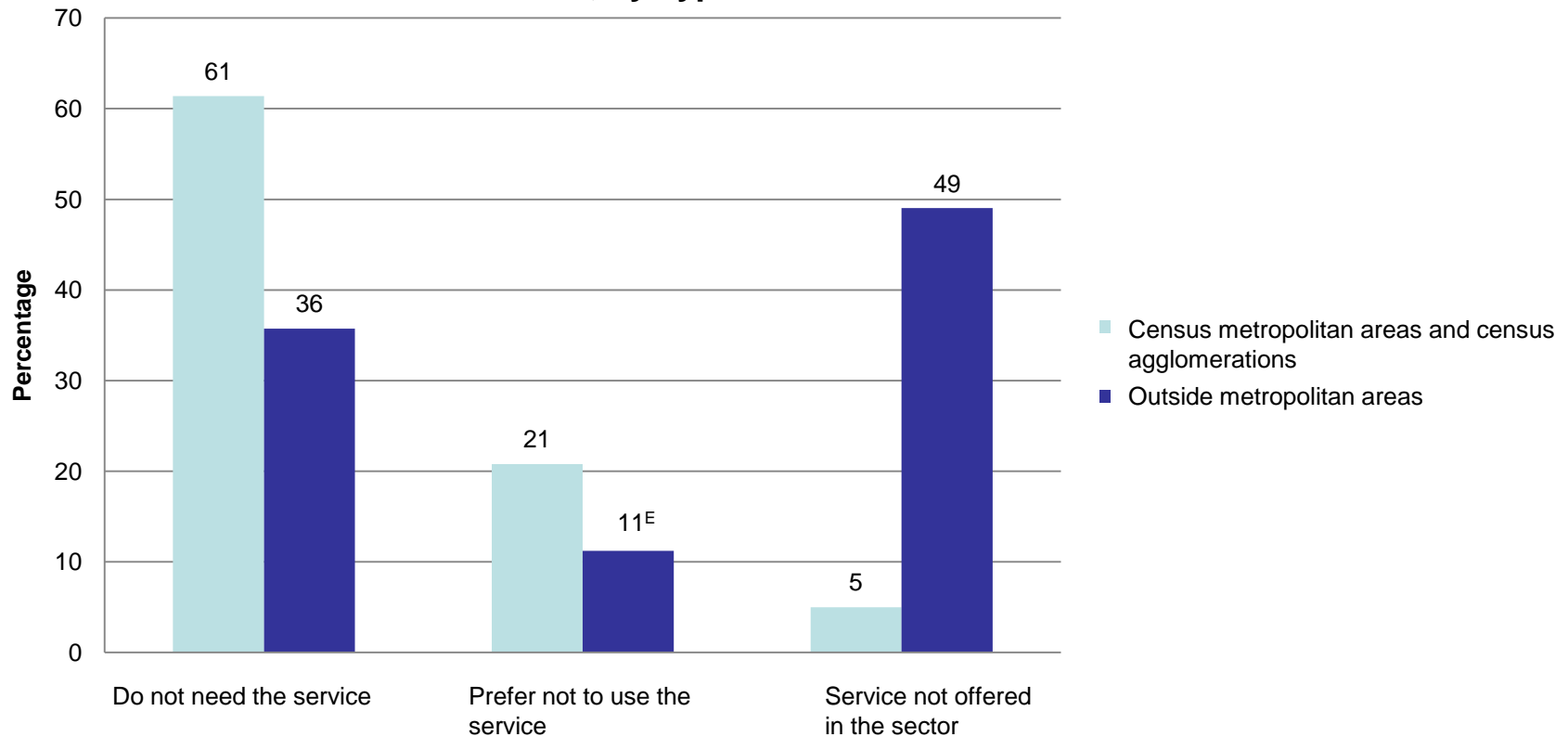
Proportion Having Used Specialized Transit in the Previous Month, 2008-2009





Outside major centres, accessible transit services are limited

Proportion Having Mentioned Various Reasons for Not Having Used Accessible Transit, by Type of Area of Residence



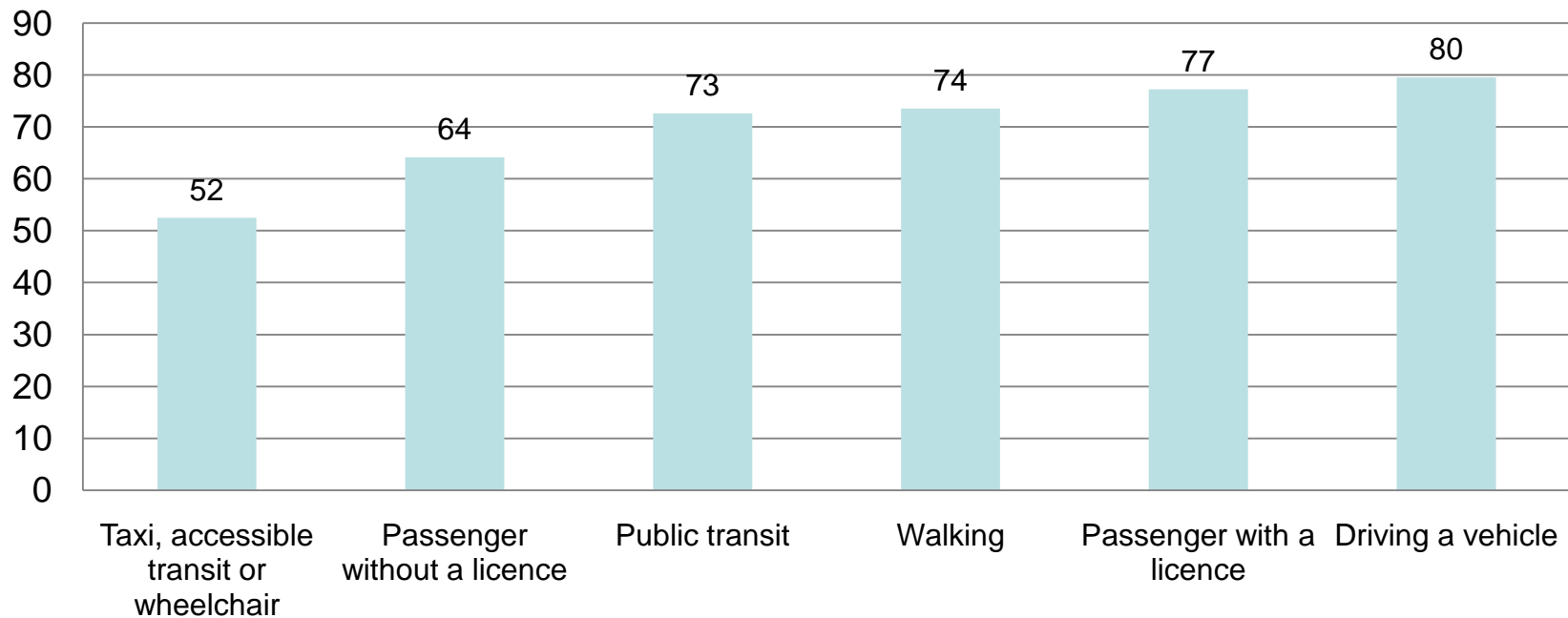


Part 3: Transportation and social participation

- Which mode of transportation is associated with a higher level of participation?
- Is there any impact independent of the mode of transportation on participation?

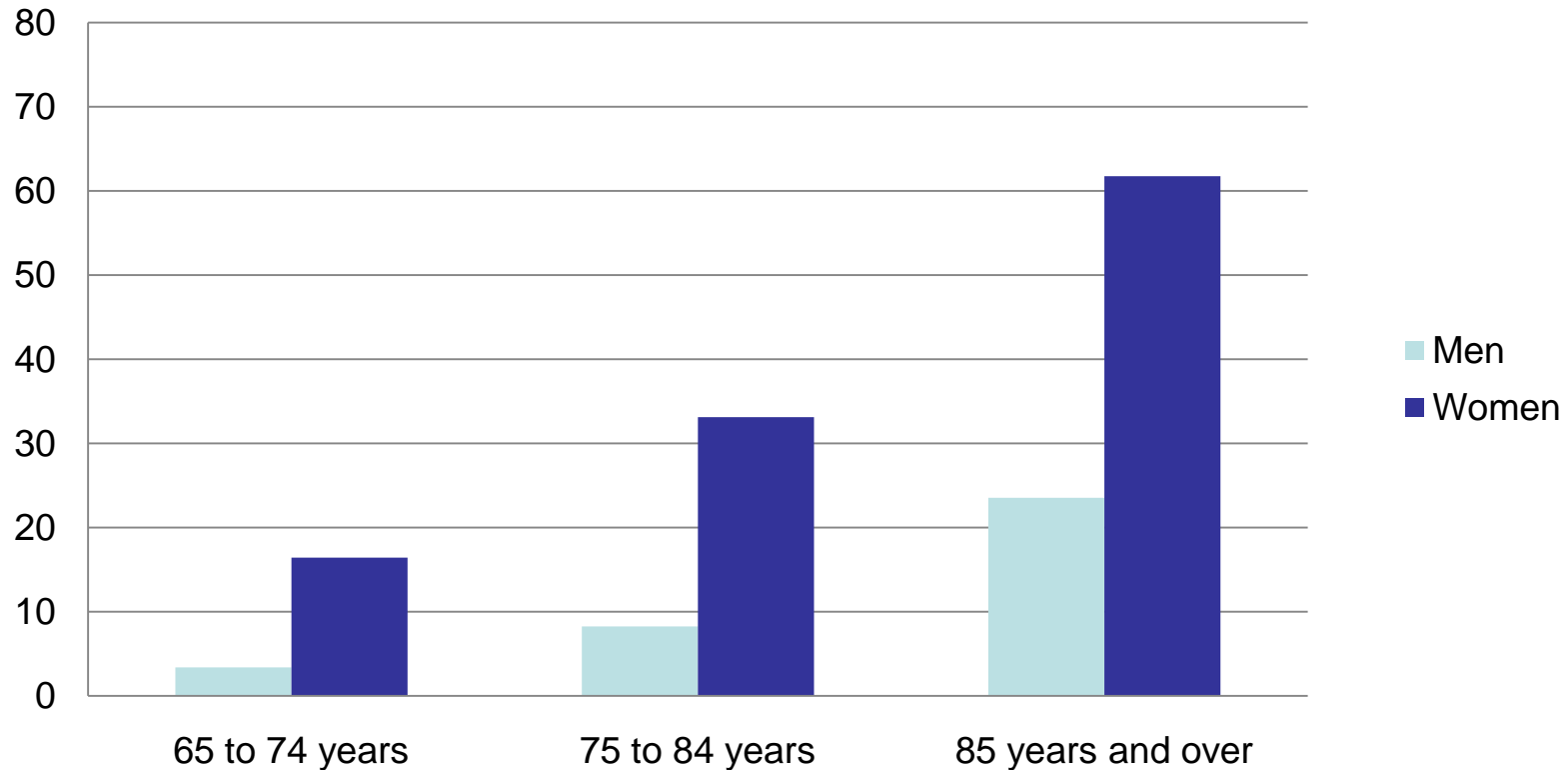
Seniors having a licence more likely to have participated in some kind of social activity at least once a week

Proportion of People Having Participated One or More Times a Week, 2008-2009



Women aged 85 years and over most likely to be limited in their travel and therefore their ability to participate socially

Proportion of People Who Depend on Accessible Transit, taxi or Who Are Mainly Passengers in a Vehicle Without Having a Licence





Conclusions

- The vast majority of senior men travel by driving an automobile, even after the age of 85 years
- The majority of women aged from 65 to 74 years drive, but most of those aged 75 years and over are passengers
- Even in high residential density neighbourhoods, typical of major centres and downtown sectors, travel by automobile is frequent
- Having a driver's licence facilitates social participation, even if travel is done mainly as a passenger
- By contrast, dependence on accessible transit or travelling mainly as a passenger in a vehicle without having a licence is a barrier to participation
- Even though a majority of seniors travel independently, a considerable number of senior women remain limited in their travel