

Article

Profile of seniors' transportation habits

by *Martin Turcotte*

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Introduction

Most Canadians live in neighbourhoods designed around cars as the means of travel. Consequently, they often have to drive or be driven to work, retail stores, health service centres or recreation and leisure activities. Central neighbourhoods of large cities are the exception in this residential landscape, since residents can more easily go about their daily business on foot or by public transit. However, these central neighbourhoods are home to a minority of people, including a minority of senior citizens (see "Where seniors live and how this affects their day-to-day travel").

While most seniors have retired from the workforce, a majority of them want to grow old in their own homes and take an active part in society. To do so, they need some form of transportation to run errands, participate in recreational or volunteer activities and visit family and friends. Their desire to remain in their homes is not very realistic unless they have adequate transportation. In most residential areas, this means having access to a private vehicle.

Seniors' dependence on cars raises safety issues. Although most seniors drive carefully, statistics show that people aged 70 or older have a higher accident rate per kilometre driven than any other age group except young male drivers, still the highest

risk category.¹ In addition, seniors are more likely than younger people to be killed when they are involved in a collision.² In the context of an aging population, the balance between road safety and the autonomy some people associate with driving is a growing concern.

This article examines various issues about seniors' access to transportation or to a vehicle, bearing in mind that the majority of seniors live in areas with few alternatives to car travel. The first part of the article focuses on having a driver's licence and driving a car. It compares men and women by place of residence and age group, and discusses the possession of a driver's licence and the driving habits of seniors who have the weakest visual, auditory, motor and cognitive faculties (and those who have been diagnosed with Alzheimer's disease).

The second part describes seniors' primary forms of transportation other than the car. In particular, the number and proportion of seniors with more limited access to transportation, especially those who need help getting around, are quantified and assessed. The last part of the article examines the impact of seniors' main form of transportation on their level of social participation. Seniors living in residences and institutions are excluded from this study.

A large majority of seniors drive cars

In 2009, 3.25 million people aged 65 and over had a driver's licence—three-quarters of all seniors. Of that number, about 200,000 were aged 85 and over. Since people in their 80s and over are, and will continue to be, a fast-growing segment of the senior population,³ the number of elderly drivers will also continue to increase at a rapid pace.

The current generation of seniors comprises a large number of women who have never driven. As a result, there is a substantial gap between the sexes with regard to having a driver's licence, particularly in the 85-and-over age group. In 2009, 67% of men aged 85 and over living in private households had a driver's licence, compared with 26% of women. The dependence of elderly women on their spouse or relatives and friends for transportation is expected to decline sharply in the future, since nearly as many women as men in the 45-to-64 age group have a driver's licence (Chart 1).

The percentage of seniors who have a driver's licence is very similar to the percentage who drove a vehicle in the past month (Table 1). There are slightly larger differences at more advanced ages. It is worth noting, however, that old age is not a barrier to driving for many men. In the 90-and-over population living in private households, 37% of men

What you should know about this study

This study uses data from the Canadian Community Health Survey – Healthy Aging (CCHS), conducted in 2008 and 2009. The target population consists of people aged 45 and over living in occupied private dwellings in the 10 provinces. Seniors living in residences or institutions are therefore excluded from this study.

Data collection for the Canadian Community Health Survey – Healthy Aging took place between December 2008 and November 2009. During this collection period, a total of 30,865 valid interviews were conducted. In this study, the main focus is on the 16,369 respondents aged 65 and over who represent 4,366,101 senior Canadians.

Health Utilities Index

The Health Utilities Index (HUI) is a health status classification system based on multiple attributes; it measures generic health status and health-related quality of life.¹ The version used in the Canadian Community Health Survey (CCHS) was adapted from the HUI Mark 3 (HUI3) previously used in the National Population Health Survey. This instrument allows the calculation of a generic health status index based on attributes collected in two different CCHS modules—Health Utilities Index (HUI) and Pain and Discomfort (HUP). The generic health status index is used in the multivariate analysis on social participation.

In Table 2 of this article, four health attributes are used: vision, hearing, cognition and mobility. For more details on the six levels of ability regarding these attributes, see the table below.

	Vision	Hearing	Cognition	Mobility
Level 1	Able to see well enough to read ordinary newsprint and recognize a friend on the other side of the street, without glasses or contact lenses	Able to hear what is said in a group conversation with at least three other people, without a hearing aid	Able to remember most things, think clearly and solve day-to-day problems	Able to walk around the neighbourhood without difficulty and without walking equipment
Level 2	Able to see well enough to read ordinary newsprint and recognize a friend on the other side of the street, but with glasses or contact lenses	Able to hear what is said in a conversation with one other person in a quiet room without a hearing aid, but requires a hearing aid to hear what is said in a group conversation with at least three other people	Able to remember most things, but has a little difficulty when trying to think and solve day-to-day problems	Able to walk around the neighbourhood with difficulty but does not require walking equipment or the help of another person

What you should know about this study (continued)

Level 3	Able to read ordinary newsprint with or without glasses but unable to recognize a friend on the other side of the street, even with glasses	Able to hear what is said in a conversation with one other person in a quiet room with a hearing aid, and able to hear what is said in a group conversation with at least three other people, with a hearing aid	Somewhat forgetful, but able to think clearly and solve day-to-day problems	Able to walk around the neighbourhood with walking equipment but without the help of another person
Level 4	Able to recognize a friend on the other side of the street with or without glasses but unable to read ordinary newsprint, even with glasses	Able to hear what is said in a conversation with one other person in a quiet room, without a hearing aid, but unable to hear what is said in a group conversation with at least three other people even with a hearing aid	Somewhat forgetful, and has a little difficulty when trying to think or solve day-to-day problems	Able to walk only short distances with walking equipment, and requires a wheelchair to get around the neighbourhood
Level 5	Unable to read ordinary newsprint and unable to recognize a friend on the other side of the street, even with glasses	Able to hear what is said in a conversation with one other person in a quiet room with a hearing aid, but unable to hear what is said in a group conversation with at least three other people even with a hearing aid	Very forgetful, and has great difficulty when trying to think or solve day-to-day problems	Unable to walk alone, even with walking equipment. Able to walk short distances with the help of another person and requires a wheelchair to get around the neighbourhood
Level 6	Unable to see at all	Unable to hear at all	Unable to remember anything at all, and unable to think or solve day-to-day problems	Cannot walk at all

What you should know about this study (continued)

Neighbourhood level of dependence on cars

Three categories of neighbourhoods were established using 2006 Census data. Census metropolitan areas and agglomeration areas were divided into census tracts, and neighbourhoods were defined according to census tract boundaries. Outside metropolitan areas, the boundaries for census subdivisions (or municipalities) were used. In each neighbourhood and census subdivision, the proportion of workers with a usual place of work and who commuted to work by car was estimated. The neighbourhoods were then divided into three categories: neighbourhoods with high dependence (more than 85% of workers in the neighbourhood commute to work by car), neighbourhoods with moderate dependence (more than 75% and up to 85% commute by car) and neighbourhoods with the lowest dependence (75% or less commute by car).

For each survey participant, the census tract of residence (or the municipality if they lived outside a metropolitan area) was known. This enabled contextual information about the neighbourhood of residence to be combined with other personal characteristics.

Residential density of neighbourhood of residence

Using the same method as for estimating a neighbourhood's dependence on cars, neighbourhood residential density was measured as the proportion of its residents living in apartments (based on 2006 Census data). Neighbourhoods were divided into six categories. Neighbourhoods with the first level of density (the lowest density) had less than 2% of their population living in apartments. At level 6 (neighbourhoods with the highest density) 57% or more of the population lived in apartments.

1. Feeny, David, William Furlong, George W. Torrance, Charles H. Goldsmith, Zenglong Zhu, Sonja Depauw, Margaret Denton and Michael Boyle. 2002. "Multi-attribute and single-attribute utility functions for the Health Utilities Index Mark 3 system," *Medical Care*. Vol. 40, no. 2.

Where seniors live and how this affects their day-to-day travel

In the coming years, delivering services tailored to an aging population will likely involve more financial and human resources in regions where a large number of seniors live. In 2006, people aged 65 and over made up about 13.7% of the Canadian population, and varying proportions in the provinces. The Atlantic provinces, Quebec, Saskatchewan and British Columbia had the highest proportions of seniors. Saskatchewan ranked first, with a proportion of 15.4%, while the proportion in Alberta was 10.7%.

However, the proportion of seniors in a province's population is not the only factor affecting the cost of delivering services to them. Their type of residence and living environment as well as the form of transportation they require may also play an important role.

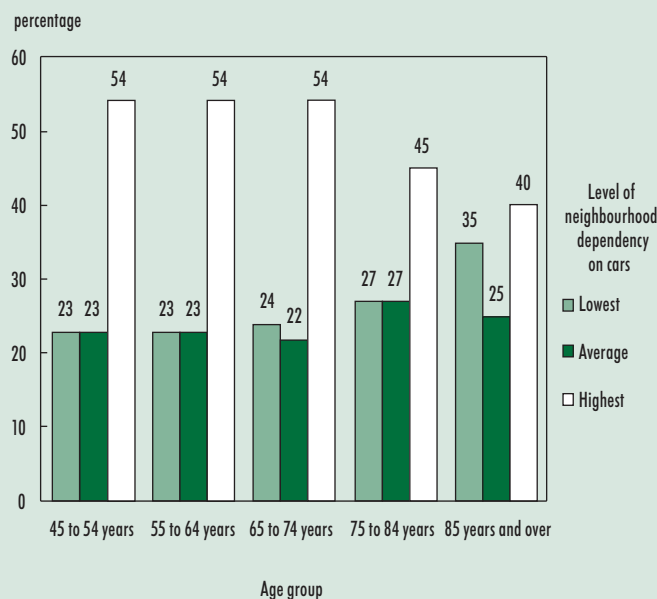
In general, it is easier to provide care and health services at a senior's home in an urban environment than a rural one, in part because professionals and care providers have less

distance to travel. However, people in the 65-to-74 age group are slightly more likely to live outside census metropolitan areas and census agglomerations. In 2009, 22% of people aged 65 and over lived in regions outside census metropolitan areas and census agglomerations, compared with 20% of people aged 45 to 64.

The extent to which people use a car as their primary means of travel varies widely from one type of environment to another. One way of classifying neighbourhoods and municipalities is to estimate the proportion of workers living there who commute to work by car (see "What you should know about this study"). Even though most seniors no longer work, the proportion of their working neighbours who commute to work by car is an indicator of the neighbourhood's general level of dependence on the car. The chart below shows population distribution by age group in three types of neighbourhood. People aged 65 to 74

Where seniors live and how this affects their day-to-day travel (continued)

Elderly people aged 75 and over are slightly less likely to live in a highly car-dependant neighbourhood



Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009 and Census of Population, 2006.

were as likely as people aged 45 to 54 and 55 to 64 to live in neighbourhoods with the highest level of dependence on cars. The picture was slightly different among people aged 75 and over, as they were less likely to live in highly car-dependant neighbourhoods.

In Canada, the majority of people live in a single-family home, and this is also the case for seniors. However, the proportion of seniors living in this type of dwelling is substantially lower among older age groups. In 2009, 53% of people aged 85 and over lived in a single-family home, compared with 71% of people aged 75 to 84, 70% of people aged 65 to 74 and 75% of people aged 55 to 64.

These statistics are reflected in the residential density of the neighbourhoods where the oldest seniors live. The proportion of people aged 85 or older who lived in a high residential density neighbourhood—that is, the neighbourhood category with the highest proportion of apartment dwellers—was 31%. By comparison, the proportion was 21% in the 65-to-74 age group.

had driven a vehicle in the previous month, compared with 11% of women.

Senior women in Quebec and Newfoundland and Labrador drive less

The proportion of seniors who had a driver's licence varied widely according to province of residence. Saskatchewan and Alberta had the highest proportions (84% and 83% respectively) (Table 1). In contrast, the lowest proportions of seniors who had a driver's licence were in Newfoundland and Labrador and Quebec (69% and 71% respectively). These lower proportions are due to the fact that senior women in these two provinces are less likely to have a licence (55% of senior women in

Newfoundland and Labrador and 58% in Quebec had their licence).

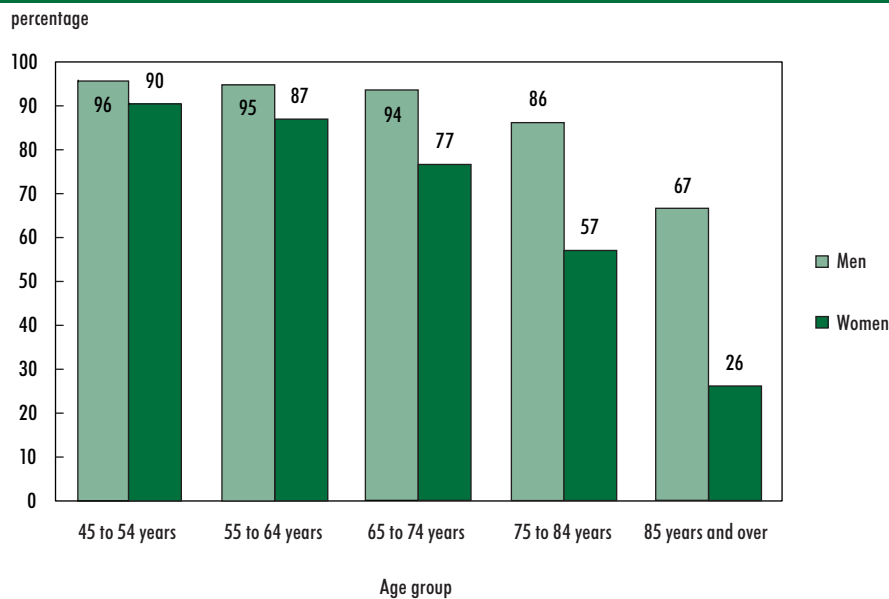
Among the oldest seniors (aged 85 and over), the majority of men in every province had a driver's licence. The highest proportions were in New Brunswick (81%), Manitoba (77%) and Saskatchewan (77%) (Chart 2). The proportion of women aged 85 and over with a driver's licence varied by province, from 14% in Quebec to 44% in Saskatchewan.

Possession of a driver's licence also varied across census metropolitan areas (CMA). The lowest proportions of seniors with a driver's licence were in Toronto (63%) and Montréal (64%), the most populous CMAs in Canada. In both these CMAs, less than one-half of senior women had a licence.

Even in the most densely populated neighbourhoods, senior men prefer to drive

The type of neighbourhood people live in is related to whether they drive a car or have a driver's licence and the number of trips they make by car, by public transit or by foot.⁴ In general, people of all ages who live in higher residential density neighbourhoods are more likely to walk or take public transit when they go out; stores are more likely to be within walking distance, and public transit service is better. Nevertheless, even in neighbourhoods with some of the highest residential density levels in Canada (the central neighbourhoods of the largest CMAs), the majority of men reported that their primary form

Chart 1 The difference between men and women with a driver's licence is greatest among those 85 and over



Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

of transportation was the car (56% of men, compared with 26% of women). In addition, 67% of senior men living in the neighbourhoods with the highest residential density reported that they had driven their vehicle in the previous month, compared with 36% of senior women (Table 1). In short, for senior men, living in a neighbourhood that offers other transportation options does not mean giving up their car.⁵

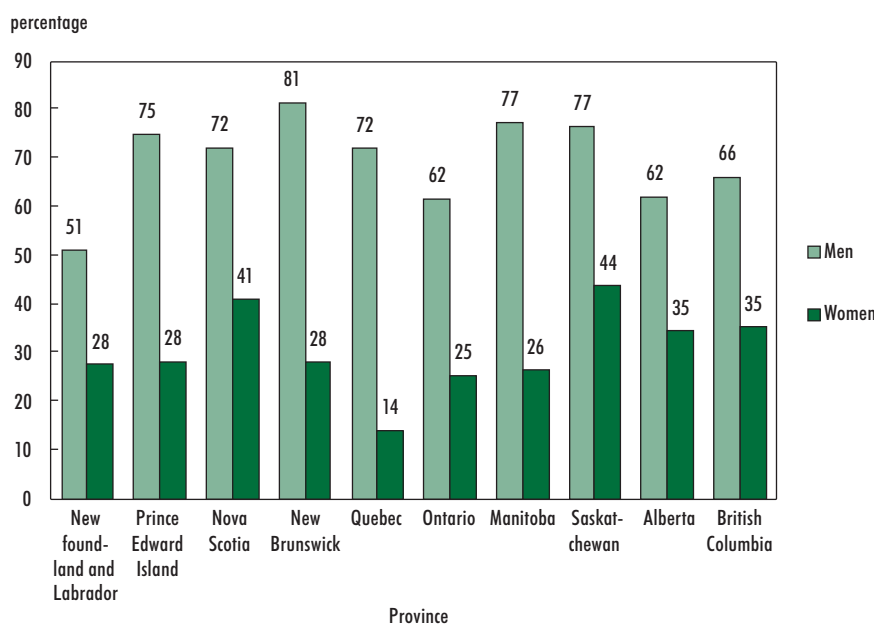
The association between income level and having a driver's licence, as well as the likelihood of having driven a car in the past month, was clearer among senior women than men. Among women, each increase in income quintile was associated with a substantial increase in the likelihood of having driven. Among men, only those in the lowest income quintile were slightly different from the rest, though even in their case, almost 80% had a licence (Table 1). In all the other income quintiles, driving a car was extremely common.

Having visual limitations does not always mean an end to driving

It is not seniors' more advanced age that increases the risks of traffic accidents, but rather certain medical conditions that they are more likely to have. Driving a vehicle safely requires good vision, good hearing, adequate cognitive abilities and adequate motor skills—functions that deteriorate naturally with age.

The majority of seniors see well enough to read the newspaper and recognize a friend on the other side of the street with glasses or contact lenses (Level 2 vision) (Table 2). Among seniors with Level 2 vision, 77% had a driver's licence. The proportion of people with a driver's licence obviously decreased among those with more limited vision. It was 43% at Level 3, that is, among people who saw well enough to read the newspaper with or without glasses but could not recognize a friend on the other side of the street, even with

Chart 2 In New Brunswick, Manitoba and Saskatchewan, about 4 out of 5 men aged 85 and over have a driver's licence



Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

glasses. At Levels 5 and 6 (people who did not see well enough to read the newspaper or recognize a friend on the other side of the street, even with glasses), 19% had a driver's licence. The proportion of people at these levels (5 or 6) who had driven in the previous month was somewhat lower (9%).

Hearing had less influence than vision on having a driver's licence and driving a car. Among seniors who had the most serious hearing problems (Levels 5 and 6), 53% had a licence, and about one-half had driven a vehicle in the previous month.

To drive a car, one has to be able to make quick decisions, remember the rules of the road, the directions to one's destination, and so on. Most seniors (72%) are at Level 1 with regard to their cognitive abilities, which means they are able to remember most things, think clearly and solve everyday problems. Among seniors at Level 1, 79% had a driver's licence. At Levels 5 and 6, people are very likely to forget things and have a great deal of difficulty thinking clearly and solving everyday problems. Of this group, 36%, or about 38,000 seniors, had a driver's

licence (Table 2). The number of seniors at Levels 5 and 6 who had driven in the previous month was lower (28,500).

More than one-quarter of seniors with Alzheimer's disease or another form of dementia had a licence

People who are diagnosed with Alzheimer's disease or any other form of dementia (senility) will eventually have to stop driving. Although driving a car is not necessarily a problem for everyone who is diagnosed (especially in the early stages of the

Table 1 Proportion of people aged 65 and over with a driver's licence, who drove a vehicle in the previous month and for whom driving was the main form of transportation, by selected characteristics, 2009

	Total population number	Had a valid driver's licence			Drove in the previous month		Driving was the main form of transportation		
		Both sexes	Men	Women	Men	Women	Men	Women	
		percentage			percentage		percentage		
Total	4,344,500	3,254,500	74.9	88.8	63.4	86.3	56.1	79.2	43.8
Men	1,962,500	1,743,200	88.8*	...	...	...	...	...	...
Women †	2,381,900	1,511,300	63.4	...	...	...	...	...	...
Age group									
65 to 74 years †	2,396,500	2,032,600	84.8	93.6	76.8	91.6	69.2‡	83.7	53.3‡
75 to 79 years	865,900	659,100	76.1*	90.1*	64.9*‡	86.9	54.4*‡	80.0	41.9*‡
80 to 84 years	596,700	365,500	61.3*	80.7*	46.3*‡	78.0*	42.2*‡	73.4*	34.7*‡
85 to 89 years	375,800	169,600	45.1*	72.0*	29.6*‡	68.2*	23.9*‡	61.9*	20.1*‡
90 years and over	109,600	27,800	25.3*	45.5*	16.0*‡	36.8*	11.3*‡	31.7*	8.8*‡
Province									
Newfoundland and Labrador	70,400	48,800	69.3	86.4	54.8*‡	84.4	49.5‡	77.5	37.6*‡
Prince Edward Island	19,500	15,800	80.9*	91.3	72.3*‡	87.4	65.2*‡	81.7	49.4‡
Nova Scotia	136,800	104,900	76.7	90.7	65.4‡	87.6	56.3‡	77.5	44.2‡
New Brunswick	106,900	84,600	79.2*	92.2*	68.8*‡	87.7	62.0*‡	83.3	46.3‡
Quebec	1,088,400	776,000	71.3	88.7	57.5*‡	86.7	50.4*‡	80.1	39.7*‡
Ontario †	1,673,000	1,226,000	73.3	86.9	62.1‡	84.9	55.4‡	78.8	45.0‡
Manitoba	149,400	116,100	77.7*	92.7*	65.7‡	90.4*	55.3‡	82.7	41.8‡
Saskatchewan	137,200	115,200	84.0*	94.8*	75.2*‡	92.4*	64.3*‡	86.8*	48.9‡
Alberta	349,900	290,500	83.0*	91.1*	76.0*‡	88.4	68.8*‡	77.8	44.5‡
British Columbia	613,100	476,600	77.7*	90.0	67.0‡	85.5	58.8‡	77.1	47.0‡
Census metropolitan area or census agglomeration of residence									
Toronto †	618,100	388,700	62.9	79.5	48.9‡	76.5	42.3‡	67.3	33.3‡
Montréal	492,700	313,700	63.7	83.2	49.1‡	80.6	41.1‡	70.7	32.0‡
Vancouver	303,000	219,800	72.5*	88.1*	59.8*‡	81.9	50.9*‡	72.6	42.0*‡
Ottawa–Gatineau	132,200 ^E	105,200 ^E	79.6*	88.6	72.1*‡	87.0*	65.3*‡	73.7	49.7*‡
Calgary	99,200	78,400	79.0*	85.2	72.6*‡	81.8	64.2*‡	75.8	49.9*‡

Table 1 Proportion of people aged 65 and over with a driver's licence, who drove a vehicle in the previous month and for whom driving was the main form of transportation, by selected characteristics, 2009 (continued)

	Total population number	Had a valid driver's licence			Drove in the previous month		Driving was the main form of transportation		
		Both sexes	Men	Women	Men	Women	Men	Women	
					percentage				
Edmonton	104,800	83,600	79.8*	92.6*	68.0*‡	89.9*	64.9*‡	76.5	42.6‡
Québec	84,900 ^E	64,200 ^E	75.7*	91.1*	63.4*‡	88.3*	53.9‡	83.0*	39.0 ^E ‡
Winnipeg	97,600	74,100	75.9*	91.6*	62.7*‡	88.4*	50.6‡	81.0*	40.1‡
Other census metropolitan area (CMA)	793,200	621,000	78.3*	90.5*	68.8*‡	88.9*	61.1*‡	84.7*	50.9*‡
Census agglomeration (CA)	674,600	535,100	79.3*	91.2*	70.0*‡	89.1*	61.2*‡	82.5*	47.6*‡
Outside CMAs and CAs	937,700	765,800	81.7*	94.2*	70.2*‡	92.2*	64.9*‡	87.3*	48.3*‡
Income quintile									
Lowest quintile †	1,186,200	705,200	59.5	78.3	47.8‡	75.2	41.1‡	68.5	33.6‡
Second quintile	968,800	767,400	79.2*	91.3*	68.5*‡	88.3*	60.4*‡	82.5*	45.3*‡
Third quintile	615,300	526,700	85.6*	93.5*	77.1*‡	91.8*	69.6*‡	85.7*	50.3*‡
Forth and fifth quintiles	727,800	656,800	90.2*	95.3*	82.9*‡	93.2*	76.6*‡	85.9*	62.1*‡
Residential density of neighbourhood of residence¹									
Lowest level †	801,900	659,400	82.2	92.4	71.2‡	90.0	65.9‡	83.6	47.5‡
Level 2	736,900	596,800	81.0	92.3	70.7‡	90.9	62.9‡	83.7	47.7‡
Level 3	867,300	686,200	79.1	90.9	69.8‡	88.7	62.8‡	80.9	49.3‡
Level 4	933,500	697,500	74.7*	88.2*	63.8*‡	85.6*	55.6*‡	79.7	47.0‡
Level 5	507,900	339,100	66.8*	87.4*	51.8*‡	84.8*	45.3*‡	78.5	38.3*‡
Highest level	494,000	273,000	55.3*	72.5*	45.6*‡	66.9*	36.1*‡	56.3*	25.8*‡
Type of housing									
Single-detached house †	2,825,300	2,282,200	80.8	92.1	69.6‡	90.2	63.0‡	83.9	48.8‡
Semi-detached or row house	389,100	284,700	73.2*	84.3*	63.7*‡	81.9*	56.3*‡	73.0*	44.2‡
Apartment or duplex	1,128,600	687,600	60.9*	78.9*	51.6*‡	74.2*	42.7*‡	65.2*	34.1*‡

† reference group

* statistically significant difference from the reference group at $p < 0.05$

‡ statistically significant difference between men and women at $p < 0.05$

1. Residential density of a neighbourhood is calculated according to the percentage of people living in apartments. The neighbourhood corresponds to the census tract for people living in a census metropolitan area or a census agglomeration. For the others, the neighbourhood corresponds to the municipality.

Note: The total of each characteristic may not equal the total population due to missing values.

Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

disease), experts say that driving ability should be assessed regularly.⁶ In 2009, 28% of people aged 65 and over who had been diagnosed with Alzheimer's disease or some other form of dementia had a driver's licence. In numerical terms, this is about 20,000 people, including 13,000 men. It should be noted that of these 20,000 seniors, a smaller

number, 14,600, had actually driven in the month preceding the survey (Table 2).

Moreover, among seniors who had been diagnosed and whose cognitive ability was at Level 5 or 6 (people at a more advanced stage of the disease), the number with a licence was only about 7,000.

Driving a car usually requires the use of one's legs and a degree of mobility. A minority of seniors are unable to walk (mobility Levels 5 and 6). They can only move around their neighbourhood with the aid of a person, a device or a wheelchair. Nevertheless, just over one-quarter (28%) of seniors with reduced mobility had a driver's licence.

Table 2 Proportion of people aged 65 and over with a driver's licence, who drove a vehicle in the previous month and for whom driving was the main form of transportation, by level of functional capacity, 2009

	Had a valid driver's licence		Drove in the previous month		Driving was the main form of transportation	
	percentage	number	percentage	number	percentage	number
Vision						
Level 1: Able to see well enough to read ordinary newsprint and recognize a friend on the other side of the street, without glasses or contact lenses †	76.5	612,500	71.9	575,700	63.8	504,100
Level 2	76.9	2,568,500	71.8	2,395,700*	61.0*	2,017,600*
Level 3	43.5*	19,900 ^E	36.2*	16,600 ^{E*}	26.7 ^{E*}	11,400 ^{E*}
Level 4	32.5*	14,900	21.0*	9,500 ^{E*}	18.9 ^{E*}	7,800 ^{E*}
Level 5 or 6: Unable to read ordinary newsprint and unable to recognize a friend on the other side of the street, even with glasses ¹	19.5 ^{E*}	13,600 ^E	9.2 ^{E*}	6,500 ^{E*}	7.1 ^{E*}	4,700 ^{E*}
Hearing						
Level 1: Able to hear what is said in a group conversation with at least three other people, without a hearing aid †	76.3	2,784,600	70.9	2,586,700	60.5	2,181,100
Level 2	75.1	222,400	71.0	210,000*	64.9*	188,800*
Level 3	62.1*	89,400	58.9*	84,700*	53.8*	76,200*
Level 4	65.8*	93,100	61.2*	86,300*	51.7*	70,500*
Level 5 or 6: Unable to hear what is said in a group conversation with at least three other people even with a hearing aid ²	53.3*	26,400	50.4*	25,000*	42.2*	20,500 ^{E*}
Cognition						
Level 1: Able to remember most things, think clearly and solve day-to-day problems †	78.7	2,347,900	73.8	2,202,300	63.5	1,877,900
Level 2	62.1*	67,300	55.9*	60,500*	46.6*	47,800*
Level 3	76.1*	638,200	70.8*	592,700*	60.1*	497,600*
Level 4	53.7*	161,500	47.1*	141,700*	40.8*	120,900*
Level 5 or 6: Very forgetful, and has great difficulty when trying to think or solve day-to-day problems ³	36.1*	37,900	27.1*	28,500*	20.0*	19,300*
Mobility						
Level 1: Able to walk around the neighbourhood without difficulty and without walking equipment †	79.3	2,953,600	74.8	2,783,400	64.0	2,370,400
Level 2	69.9*	54,900	64.1*	50,300*	56.4	44,000*
Level 3	51.3*	191,300	42.7*	159,200*	35.9*	131,900*
Level 4	52.9*	13,200 ^E	28.5 ^{E*}	7,100 ^{E*}	F	F
Level 5 or 6: Unable to walk alone, even with walking equipment. Able to walk short distances with the help of another person, and requires a wheelchair to get around the neighbourhood ⁴	27.7*	39,500	17.6*	25,000*	11.8 ^{E*}	13,900 ^{E*}
Has been diagnosed with Alzheimer's Disease or any other sort of dementia (senility)						
No †	75.7	3,232,300	70.5	3,010,100	60.5	2,551,700
Yes	28.3*	19,800	20.8 ^{E*}	14,600 ^{E*}	17.3 ^{E*}	10,900 ^{E*}

† reference group

* statistically significant difference from the reference group at $p < 0.05$

1. At Level 6 of vision, people are unable to see at all. Among people at Level 5 or 6, 19% were at Level 6.

2. At Level 6 of hearing, people are unable to hear at all. Among those at Level 5 or 6, 32% were at Level 6.

3. At Level 6 of cognition, people are unable to remember anything at all, and unable to think or solve day-to-day problems. Among those at Level 5 or 6, 18% were at Level 6.

4. At Level 6 of mobility, people cannot walk at all. Among those at Level 5 or 6, 22% were at Level 6.

Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

A small number of seniors had a driver's licence but had not used it in the previous month. Consequently, there were similar associations between having a driver's licence by health status and having actually used it in the past month (Table 2). For seniors whose health is deteriorating but who want or need to continue driving if they wish to remain in their homes, various options can minimize the risks of accidents (urban and road design, signage, intelligent transportation systems, vehicle modification and changes in driving habits, etc.).⁷ The fact remains that aging at home can be very difficult for someone whose disabilities become very severe if a car is their only available means of transportation.

Relatively few seniors use public transit

Given the statistics on having a driver's licence, it is not surprising that for all age groups and for both sexes, a minority of people used a primary means of transportation other than a car (public transit, walking, accessible transit or taxi). Among men aged 65 to 74, 84% got around mainly by driving their car, and 9% by being a passenger in a car (Table 3). That left 4% using public transit, 3% walking or bicycling, and the rest using accessible transit or taxis.

As people get older, travelling as a passenger in a private vehicle becomes their main form of transportation; this was the case for about one-half of seniors aged 85 and over (with or without a licence). This was even more common among women of this age group, as 52% travelled primarily as passengers and had no licence while another 7% had a licence but travelled mainly as passengers (Table 3).

Seniors do not use public transit more often as their main form of transportation as they get older. Nor does occasional use increase with age. Rather, the proportion who had used public transit at least once in the previous month declined with

increasing age (Table 3). For example, 25% of women aged 55 to 64 had used public transit at least once in the previous month, compared with 18% of women aged 85 and over.

Part of the decline in the use of public transit with age is due to the fact that on average, the elderly go out less often.⁸ The relatively infrequent use of public transit compared with other means of transportation is possibly also attributable to the fact that seniors, like the rest of the population, tend to live in low residential density neighbourhoods. In those neighbourhoods, public transit, if any, is designed primarily to meet the needs of workers (rush-hour service to key destinations such as the downtown core or main work areas).⁹ In addition, being unable to drive may mean being unable to use regular public transit. Some seniors with reduced mobility could use accessible transit services, but these are not available in every city or every neighbourhood (for example, kneeling buses that are comfortable and safe, and with travel routes that meet their needs).¹⁰

As with the population as a whole, public transit was used more frequently by seniors living in the largest census metropolitan areas (CMAs). More than one-sixth (16%) of seniors in the Montréal CMA used public transit as their primary means of transportation, a higher proportion than in any other CMA. And many seniors in major centres occasionally used public transit, even though it was not their primary mode of transportation (roughly 1 in 3 seniors in Montréal, Toronto and Vancouver had used public transit in the previous month).

Walking and cycling were considerably more popular than public transit as occasional means of transportation. More widespread in large metropolitan areas, these flexible forms of transportation were also relatively common outside these areas (Table 3). Even though walking is good for the environment and

urban air quality, it is not danger-free for seniors, since in the five-year period from 1996 to 2001, 34% of fatally injured pedestrians were seniors, nearly triple their proportion in the population.¹¹

Accessible transit and taxis are seldom used before age 85

Most people probably consider accessible transit and taxis as options of last resort, and people who depend on such forms of transportation may have reduced mobility. On the other hand, accessible transit and taxis may be very important to people who cannot drive and whose relatives do not live nearby or are not always available. The data show that before the age of 85, a very small minority of seniors use either of these types of transportation. The picture is different for people aged 85 and over, especially women: 9% of them used accessible transit or taxis as their primary means of transportation.

Outside census metropolitan areas and census agglomerations, alternatives to the car are virtually non-existent as primary means of travel. In addition, data show that accessible transit services seem to be less available in those areas. Only 1% of seniors living outside census metropolitan areas and census agglomerations reported that their primary form of transportation was accessible transit or taxis, compared with 3% in Toronto.

The reasons given by seniors for not using accessible transit illustrate the lack of these services outside major centres (Chart 3). Only 5% of seniors living in a CMA or a CA and needing help to get around reported that they did not use accessible transit because it was unavailable in their area, compared with 49% of those who did not live in a CMA or a CA.

The inability to get around on one's own makes it difficult to age at home. In 2009, 14% of women aged 65 and over reported that they needed help getting to places to which they could not walk (Table 4).

Table 3 Main form of transportation, by age and sex, 2009

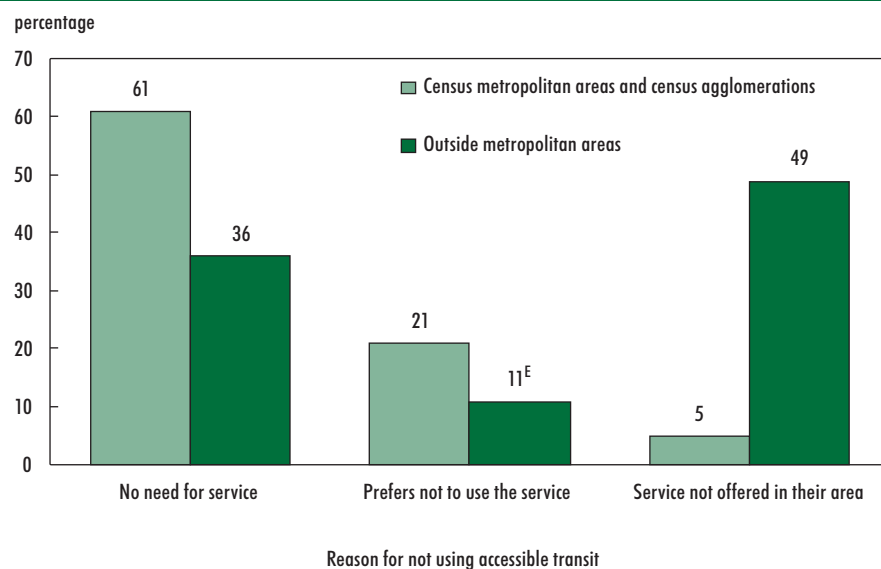
	Main form of transportation (in general)						Had used this form of transportation at least once in the previous month		
	Driving one's vehicle	Passenger in a vehicle (with driver's licence)	Passenger in a vehicle (without driver's licence)	Public transit	Walking or bicycling	Taxi or accessible transit	Public transit	Walking or bicycling	Accessible transit
	percentage								
Age group - Both sexes									
45 to 54 years	79.2*	7.9*	2.8 ^{E*}	6.7	3.2 ^E	F	23.2*	41.5*	F
55 to 64 years	75.2*	10.2	4.0*	5.8	4.0 ^E	0.8 ^{E*}	21.9	41.1*	0.8 ^{E*}
65 to 74 years	67.9*	13.3	9.0*	5.5	3.2	1.2 ^{E*}	18.7	35.2	1.3 ^{E*}
75 to 84 years †	55.9	11.5	19.5	6.8	3.6 ^E	2.6 ^{E*}	18.5	31.1	2.7
85 years and over	31.2*	8.6	40.6*	7.5 ^E	4.6 ^E	7.4*	16.5	25.1	8.0 ^{E*}
Age group - Men									
45 to 54 years	85.1*	4.6 ^E	F	5.3 ^E	3.4 ^E	F	22.6	40.0*	F
55 to 64 years	84.6*	5.6 ^E	1.4 ^{E*}	4.2 ^E	3.6 ^E	F	18.9	39.2*	F
65 to 74 years	83.7*	6.4 ^E	2.4 ^{E*}	3.7 ^E	2.8 ^E	F	16.5	33.6	F
75 to 84 years †	77.3	6.1 ^E	7.1	5.6 ^E	2.7 ^E	F	17.1	31.7	F
85 years and over	55.9*	11.2 ^E	19.5*	F	F	4.0 ^{E*}	13.8 ^E	28.3	F
Age group - Women									
45 to 54 years	73.2*	11.1	4.2 ^{E*}	8.0 ^E	3.1 ^E	F	23.9	43.0*	F
55 to 64 years	66.3*	14.6	6.5 ^{E*}	7.3	4.3 ^E	1.0 ^{E*}	24.8*	42.9*	F
65 to 74 years	53.3*	19.6	15.0*	7.2	3.5 ^E	1.4 ^{E*}	20.7	36.8*	1.5 ^{E*}
75 to 84 years †	39.0	15.8	29.3	7.8	4.4 ^E	3.8 ^{E*}	19.6	30.6	3.4
85 years and over	17.5*	7.1 ^{E*}	52.4*	8.4 ^E	5.2 ^E	9.3 ^{E*}	18.0	23.3*	9.8 ^{E*}
Area of residence (people aged 65 and over)									
Toronto †	48.8	10.5 ^E	21.4	11.7 ^E	F	2.8 ^E	32.8	40.1	3.3 ^E
Montréal	48.5	10.6 ^E	17.1	15.7 ^E	4.9 ^E	F	32.2	31.4	F
Vancouver	56.0	9.4 ^E	14.7	12.8 ^E	F	F	35.5	50.3	F
Census metropolitan area of 1,000,000 to 2,000,000 residents	60.8*	14.4 ^E	11.6 ^{E*}	7.0 ^E	F	F	25.2	46.8	F
Other census metropolitan area (CMA)	64.5*	11.0	15.3	4.4 ^{E*}	2.7 ^E	2.2 ^E	15.7*	31.2	2.5 ^E
Census agglomeration (CA)	62.9*	14.1	15.0	F	3.5 ^E	3.0 ^E	8.7 ^{E*}	27.2*	1.6 ^E
Outside CMA or CA	67.0*	14.1	15.0	F	2.4 ^E	1.2 ^{E*}	3.5 ^{E*}	23.5*	1.3 ^{E*}
Type of housing (people aged 65 and over)									
Men									
Single-detached, semi-detached or row house †	82.7	6.6	5.3	2.5	2.2 ^E	0.8	13.7	31.2	1.0 ^E
Apartment or duplex	65.2*	7.4 ^E	6.0 ^E	12.7 ^{E*}	5.6 ^{E*}	3.2 ^{E*}	27.8*	37.8	3.6 ^{E*}
Women									
Single-detached, semi-detached or row house †	48.2	19.1	24.6	3.7 ^E	2.6 ^E	1.8 ^E	14.8	30.0	1.7 ^E
Apartment or duplex	34.1*	11.4*	24.8	16.1*	7.2 ^{E*}	6.5 ^{E*}	31.4*	39.4*	6.7 ^{E*}

† reference group

* statistically significant difference from the reference group at $p < 0.05$

Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

Chart 3 Outside urban centres, the reasons given for not using accessible transit illustrate the lack of such a service



Note: Includes only people who need help to get to places out of walking distance and don't use accessible transit.
Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

The same was true for 5% of men aged 65 and over. For both men and women, the proportion needing help getting around increased rapidly with more advanced age (28% of men and 54% of women aged 90 and over). This may be a problem, since the size of seniors' social networks tends to shrink as they age,¹² while their need for assistance with transportation tends to grow.

People living alone are particularly likely to need help. In 2009, 14% of senior women living alone (136,000) and 6% of senior men in the same situation (24,000) required assistance with transportation (Table 4). These are some of the people who face the greatest obstacles to transportation. In fact, this was one of the groups most likely to have used accessible transit; 13% of seniors who were living alone and had mobility problems had used accessible transit in the previous month. By comparison, this was the case for 3% of seniors who needed help with transportation but were living with their children or other people.

There is substantial interprovincial variation in the need for assistance with transportation. Saskatchewan and Alberta had the lowest proportions of senior women who needed help with transportation (9% in both provinces). This proportion was about double in Nova Scotia (18%) and Prince Edward Island (19%). In Toronto, 1 in 5 senior women stated that they were unable to use transportation without assistance; that equates to 66,000 women in that CMA alone.

Access to transportation and seniors' social participation

There is growing acceptance of the idea that leading an active life and participating in social activities promotes good health and successful aging.¹³ Consequently, governments and various international organizations are encouraging such behaviours and activities, and are also developing policies to eliminate barriers to participation. At least one study has demonstrated the link between seniors' access to

transportation and their social participation, but it was based on a small sample.¹⁴ The CCHS – Healthy Aging collected data on participation in various social activities (family activities, physical activities with other people, community activities, volunteer work, etc.). According to the data, inadequate access to transportation or difficulty getting around may be a barrier to social participation.

Seniors whose main form of transportation was driving their car were the most likely to have taken part in a social activity during the previous week (73%), with passengers who had a driver's licence close behind (69%). Public transit users and seniors who walked were a little less likely to participate (61% and 66% respectively). People who were mainly passengers and did not have a licence (53%) and people who used accessible transit or taxis (46%) had the lowest participation rates. Women, particularly those 85 and over, were much more likely to be in the last two groups. When all other factors affecting social participation were kept constant (age, health status, sex, income level, household status, mental health, type of place of residence in a CMA or non-CMA), the conclusion was the same: seniors who travelled mostly by driving their car were more likely to participate than those who used any other form of transportation (except passengers with a licence, who were not significantly different from drivers). According to studies, people who depend on others for transportation have a greater tendency to be reluctant to ask for assistance in getting to leisure activities compared with activities perceived as more essential.¹⁵

Respondents were asked if they had felt a desire to participate in more social, recreational or group activities in the past 12 months. Those who answered yes were asked whether one or more of eight possible reasons accounted for the fact that they had not participated as much

Table 4 Number and percentage of people needing assistance with transportation, 2009

	Needs assistance to get to places out of walking distance			
	Men		Women	
	number	percentage	number	percentage
Total	99,100	5.0	331,800	13.9‡
Age group				
65 to 74 years †	26,100 ^E	2.3 ^E	70,400	5.6‡
75 to 84 years	41,800 ^E	6.5 ^{E*}	131,600	16.0*‡
85 to 89 years	21,500 ^E	15.6 ^{E*}	88,400	36.6*‡
90 years and over	9,800 ^E	28.2 ^{E*}	41,400	54.2*‡
Household living arrangement				
Lives alone †	24,100 ^E	6.4 ^E	136,200	13.6‡
Lives in a couple	62,800 ^E	4.3 ^E	102,700	9.4*‡
Lives with children	F	F	36,700 ^E	28.5*‡
Lives with others	F	F	56,100 ^E	32.4*‡
Income quintile				
Lowest quintile †	34,600 ^E	7.6 ^E	125,700	17.1‡
Second quintile	26,900 ^E	5.9 ^E	58,600 ^E	11.4 ^{E*} ‡
Third quintile	F	F	32,600 ^E	11.0 ^{E‡}
Forth and fifth quintiles	7,900 ^E	1.8 ^E	23,200 ^E	7.9 ^{E*} ‡
Province				
Newfoundland and Labrador	2,200 ^E	6.8 ^E	5,900 ^E	15.4 ^{E‡}
Prince Edward Island	F	F	2,100 ^E	19.2 ^{E‡}
Nova Scotia	4,000 ^E	6.6 ^E	14,000	18.4‡
New Brunswick	3,700 ^E	7.8 ^E	9,900 ^E	16.7 ^{E‡}
Quebec	23,300 ^E	4.8 ^E	85,200	14.0‡
Ontario †	34,600 ^E	4.6 ^E	137,200	14.9‡
Manitoba	F	F	14,800 ^E	17.5 ^{E‡}
Saskatchewan	F	F	6,500 ^E	8.5 ^{E*}
Alberta	F	F	17,400 ^E	9.1 ^{E*} ‡
British Columbia	18,500 ^E	6.5 ^E	38,800 ^E	11.9 ^E

† reference group

* statistically significant difference from the reference group at $p < 0.05$

‡ statistically significant difference between men and women at $p < 0.05$

Source: Statistics Canada, Canadian Community Health Survey – Healthy Aging, 2009.

as they would have liked. Health problems were the most common reason given by men and women aged 75 and over. Elderly men seldom cited transportation problems as the reason for limited participation. For women aged 85 and over however, transportation problems were the second most common reason after health problems for not participating in more social, recreational or group activities (24%). Transportation problems were mentioned by 10% of women aged 75 to 84.

Summary

A majority of seniors live in areas where the car is the primary form of transportation. Thus, it is not surprising to find that the majority of seniors, even those of more advanced ages, travel mostly by car. According to various sources,¹⁶ the majority of seniors have no intention of moving and plan to remain where they live as long as possible. The number and proportion of seniors who drive can therefore be expected to increase over the coming years.

In 2009, three-quarters of all seniors had a driver's licence. For men, being an older senior is not an obstacle to driving. In the 85-and-over age group, 67% of men and 26% of women had a licence. This large gap between men and women aged 85 and over is expected to diminish in the future, since almost as many women as men aged 55 to 64 had a driver's licence.

A majority of seniors have adequate visual, cognitive and auditory functions and most seniors

drive their cars to get around. However, some 14,000 seniors who had very limited sight (they were unable to read the newspaper or recognize a friend on the other side of the street, even with glasses) still had a licence. That is also the case for 40,000 seniors who had a driver's licence but were very likely to forget things and had considerable difficulty thinking clearly and solving everyday problems. In addition, about 20,000 people who had been diagnosed with Alzheimer's disease or some other form of dementia had a driver's licence.

Given the popularity of the car as the main form of transportation, only a minority of seniors used other forms of transportation. For example, 7% of people aged 75 to 84 got around principally by public transit, while 4% mainly walked or cycled. The proportions using these alternative forms of transportation were the same for seniors as for 45-to 54-year-olds.

A very small minority of seniors aged 65 to 84 used accessible transit or taxis as their primary means of transportation. This changed, however, among seniors aged 85 and over where these were the main forms of transportation for 9% of women and 4% of men.

Older senior women are most likely to be limited in their day-to-day travel, either because they are passengers who have no driver's licence or, for those aged 85 and over, because they have to use accessible transit. Furthermore, 54% of women aged 90 and over needed assistance with transportation.

Seniors' main form of transportation is linked to their level of participation in social activities—such as family, educational or cultural activities done with others. In fact, seniors who mainly got around by driving their car or as a passenger with their own driver's licence were more likely to participate in such activities. Seniors who mainly travelled as a passenger without a

licence or by using accessible transit or taxis were less likely to participate.



Martin Turcotte is a senior analyst in Statistics Canada's Social and Aboriginal Statistics Division.

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2. According to the most recent statistics on traffic collisions in Canada, people aged 65 and over accounted for about 17% of collision fatalities in 2009, even though they make up about 14% of the population and travel fewer kilometres per year on average. See also Ramage-Morin, Pamela L. 2008. "Motor vehicle accident deaths, 1979 to 2004." *Health Reports*. Vol. 19, no. 3. Statistics Canada Catalogue no. 82-003.
3. Statistics Canada. 2010. *Population Projections for Canada, Provinces and Territories, 2009 to 2036*. Statistics Canada Catalogue no. 91-520-X. According to this report, there were 1.3 million people aged 80 and over in Canada in 2009. According to demographic projections (medium-growth scenario), the 80-and-over population will increase by a factor of 2.6, to 3.3 million, between now and 2036 and by a factor of 3.9, to 5.1 million, between now and 2061.
4. Turcotte, Martin. 2008. "Dependence on cars in urban neighbourhoods," *Canadian Social Trends*. No. 85. Statistics Canada Catalogue no. 11-008-XPE.
5. In the 45-to-64 age group, the car remained the main form of transportation of 55% of men living in the highest residential density neighbourhoods, compared with 43% of women. Among seniors, the gender gap was even wider.
6. For example, see Hunt, Linda A. 2003. "Driving and Dementia," *Generations*. Vol. 27, no. 2.
7. For a review of these options and their effectiveness, see the following in particular: Anne E. Dickerson, Lisa J. Molnar, David W. Eby, Geri Adler, Michel Bédard, Marla Berg-Weger, Sherrilene Classen, Daniel Foley, Amy Horowitz, Helen Kerschner, Oliver Page, Nina M. Silverstein, Loren Staplin and Leonard Trujillo. 2007. "Transportation and aging: a research agenda for advancing safe mobility." *The Gerontologist*. Vol. 47, no. 5.
8. Turcotte, Martin. 2006. "Seniors' access to transportation," *Canadian Social Trends*. No. 82. Statistics Canada Catalogue no. 11-008-XPE. This study showed in particular that people aged 85 and over were more than twice as likely not to have gone out on survey day as people aged 65 to 74.
9. Studies in which seniors were asked their opinions on various transportation options also raised this issue. For example, see Glasgow, Nina and Robin M. Blakely. 2000. "Older nonmetropolitan residents' evaluations of their transportation arrangements," *The Journal of Applied Gerontology*. Vol. 19, no. 1.
10. Transport Canada. 2010. *Bus Routes for the Elderly*. Urban Transportation Showcase Program. Issue paper no. 81.
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13. World Health Organization. 2002. *Active ageing: a policy framework*. Geneva.
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15. Bendixen, Roxanna M., William C. Mann and Machiko Tomita. 2005. "The relationship of home range to functional status and cognitive status of frail elders," *Physical and Occupational Therapy in Geriatrics*. Vol. 23, no. 2; Taylor, Brian D. and Sophia Tripodes. 2001. "The effects of driving cessation on the elderly with dementia and their caregivers," *Accident Analysis and Prevention*. Vol. 33, no. 4.
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