Title: Portrait of driving practice following a mild stroke: a secondary analysis of a chart audit

Running head: Driving practice in acute care

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Abstract

Background: The majority of individuals who have had a stroke are discharged home from acute care. Yet, the proportion who are assessed for their driving ability and given related recommendations is unknown.

Objective: To describe acute care practice related to driving among individuals whose discharge location is home.

Methods: This study consisted of a secondary analysis of data from a chart audit realized in the Province of Quebec, Canada. Data were retrieved from the charts by trained extractors. Evaluation practice was described according to whether the driving assessment was specific or non-specific to driving (cognitive, perceptual and visual functions). Descriptive statistics and analysis of variance (ANOVA) were conducted to describe the practice and investigate the presence of statistically significant relationships between the different variables under study.

Results: The sample consisted of 419 charts of individuals with a mean age of 70.5 ± 13.3 years old. Mean length of hospital stay was 10.3 ± 13.3 days. Driving was documented among 26/419 (6.2%) of the charts. Specific driving prerequisites were screened for seven of these 26, while 92/419 (22.0%) were considered as problematic for driving a vehicle. Individuals who had a documented cognitive, perceptual or visual deficit were more often referred ($p < 0.05$) to outpatient rehabilitation or home care at discharge. Charts were characterized by several missing data relating to driving.

Conclusion: The proportion of charts documenting driving restriction post-stroke in acute care was very low, indicating a gap in actual practice as compared to best practices relating to driving post-stroke.

Introduction

A significant proportion of stroke survivors return home quickly, particularly those with mild strokes, who alone account for nearly 60% of cases (Jones et al., 2000). Length of hospital stay are relatively short leaving modest time for a thorough rehabilitation assessment of potential restrictions in participation of individuals who can manage basic activities of daily living. Indeed, once back home, individuals with few functional deficits at first glance may experience a multitude of restrictions in their participation in several complex activities, such as working, doing leisure, maintaining satisfactory relationships or driving (Rochette, Desrosiers, Bravo, St-Cyr-Tribble, & Bourget, 2007). Driving is one of the key elements of optimal participation, being a prerequisite hierarchically to accomplish other activities and roles outside of the home similarly to walking capacity, mood and social support (Mayo, Bronstein, Scott, Finch, & Miller, 2014). Driving is especially a meaningful activity and questioning one's ability to drive is susceptible to cause strong feelings and reactions (Patomella, Johansson, & Tham, 2009). A prospective study conducted by Finestone and its collaborators (2010) with 53 participants who had had a stroke showed that driving is a productive activity that promotes full participation and integration in the community. However, in terms of body functions, a person who survives a stroke may have several disabilities, including mental, sensory, neuromusculoskeletal and motion-related impairments (Geyh et al., 2004) that may affect driving performance. More specifically, disabilities may be related to visual-spatial perception, attention, sensation, reaction time, vision or muscle strength (Motta, Lee, & Falkmer, 2014). In short, all these factors can have an impact on the ability to drive a car safely and therefore lead to a limitation of activity.

Several pre-driving screening and assessment tools have demonstrated good validity and relevance for clinical use with stroke patients. Devos and collaborators (2011) concluded that the Road Sign Recognition Test, the Compass and the Trail Making Test B (TMT B) identify drivers at risk of failing a road test with an accuracy corresponding to 84%, 85% and 80% respectively. Furthermore, Marshall and colleagues (2007a) demonstrated that Trail Making Test A and B (TMT A and TMT B) and Taylor Complex Figure Design as well as Useful Field of View Test (UFOV) and Motor-Free Visual Perception Test (MVPT) are the most predictive non-specific driving screening and assessment tools, respectively. More specifically, Unsworth and colleagues (2005) examined driving-specific assessment tools that have demonstrated good validity, reliability and ease of use with an older clientele and recommended the Cognitive Behavorial Driver's Inventory (CBDI), DriveABLE Competence Screen, UFOV and Stroke Driver Screening Assessment (SDSA). Finally, the Montreal Cognitive Assessment (Pendlebury, Mariz, Bull, Mehta, & Rothwell, 2012) can be a rapid screening tool to be administered in a clinic to assist professionals in making decisions related to the need for a more thorough driving assessment: the threshold score $\leq$ 11/30 indicates a high risk of failing a road test and a score between 12 and 27 implies a 50% risk of failure on the same test (Esser et al., 2016).

National and International practice guidelines recommend stopping driving for a minimum of one month following a stroke given the risk of recurrence during this period (Cameron et al., 2016; Frith, Warren-Forward, Hubbard, & James, 2017; Lindsay, Gubitz, Bayley, Phillips, & Smith, 2010). In fact, following a stroke, even a mild one, the person may overestimate their driving abilities and may not be fully aware of the impact of early re-driving, thus not reducing their exposure to driving after the incident (Frith, Warren-Forward, Hubbard, & James, 2017). Following this one-month period, it is recommended that people who wish to

drive again take part in screening, preferably by an occupational therapist, using a valid and reliable method, for any residual sensory, motor or cognitive deficits (Cameron et al., 2016). It is therefore essential for clinicians to inform patients and make them aware of the recommendations.

According to a retrospective study of medical records on physicians' compliance with regulations and carried out in typical medium to large-sized hospital in Sweden (n=342 stroke incidents in one year), only 19% of medical records had a journal entry about driving cessation post-stroke (Mardh, Mardh, & Anund, 2017). Similarly, only 9% (15/166) of patients surveyed in United Kingdom reported that they had been informed of contraindications to driving before being assessed (McCarron, Loftus, & McCarron, 2008). According to a telephone survey of 480 Canadian occupational therapists providing rehabilitation services to stroke patients, 20% of clinicians who practice inpatient and 34% who work in the community would see driving as problematic following a stroke and those who reported on typically using a driver-specific assessments would be in the order of 12% (Petzold et al., 2010). In an attempt to explain this phenomenon, the authors make the assumption that setting priorities relating to what to assess, along with lack of time and pressure to free beds in acute care settings might partially explain that low prevalence. Finally, it is important to consider that although all patients receive medical care following a stroke, not all are seen by an occupational therapist before discharge. This can therefore influence the management and transmission of significant driving information given to patients (Frith et al., 2017).

In the wake of a lack of precision in clinical practice and insufficient evidence regarding driving for stroke patients (Lindsay, Gubitz, Bayley, Phillips, & Smith, 2010), it is therefore essential to document practice patterns in order to understand the extent to which clinicians

screen, assess and recommend pre-driving conditions, particularly those who return home directly.

Objectives

The objectives of this study are as follows:

1) Describe acute care practice in Quebec, Canada related to the screening and assessment of driving prerequisites for clients with mild strokes whose discharge location is home.
2) Document the proportion of charts with a reference for post-discharge outpatient services and driving recommendations consistent with patient needs and the Best practices guidelines.
3) Describe the impact of contextual factors (personal and environmental) that may explain the differences observed in terms of screening and assessment related to driving.

Methods

Study design

This study consists of a secondary analysis of data. These are the result of a file audit that was conducted for a major research project entitled *Partnerships for Health System Improvement (PHSI) - Towards a Continuum of Services for Stroke: Evaluation of Rehabilitation Services Structures, Processes and Performance Indicators*. The objective of this larger study was to assess the structures, processes and performance indicators of interdisciplinary services as well as the gap between the quality of care provided and the Canadian Stroke Recommendations. First, an audit of data from medical records of patients from various hospitals and rehabilitation centres in the province of Quebec, Canada was conducted. The target population for this research project was the stroke population. The inclusion criteria for this project were as follows: participants had to be adults and have had a primary diagnosis of stroke between April 1st, 2012

and March 31st, 2013. To compile this list of patients, it was requested that the health insurance number be indicated, considering that it is a unique number for each of them. This made it easier to identify the destination at discharge to document the service trajectories. A total of 1 698 patient files meeting the inclusion criteria were audited, listed across 12 administrative regions and 53 organizations representing health professionals working in interdisciplinary teams.

Population

The results of the actual study focused on sub-sample PHSI audit. The main inclusion criteria under study are as follows: a user who transits from a hospital centre to the home or has a score greater than 8.5/11.5 on the Canadian Neurological Scale (CNS) or a score less than 8/42 on the National Institute of Health Stroke Scale (NIHSS). In fact, since this study focused exclusively on stroke cases returning home, all these cases were studied, regardless of age, gender or location of the stroke.

Data collection

A file containing all the audit data organised according to the International Classification of Functioning, Disability and Health (ICF), was made available for purposeful sampling (Lamoureux, 2000) to select the variables to be used to constitute the sample for statistical analysis. The variables were chosen to represent as accurately as possible the study population and the personal and contextual factors that may explain variations in terms of the services provided. The dependent variable, which makes it possible to meet objective 1, corresponds to data related directly or indirectly to driving, i.e. the presence of a note in the chart regarding screening and/or driving assessment, the assessment and management of cognitive, perceptual, sensory functions (visual and muscle functions and those related to movement) and the professional involved in each case. The independent variables under study, which made it

possible to meet objective 2, are as follows: references made at discharge, recommendations and education on resuming driving, as well as the sending of a notice to the driving regulatory body, if applicable. The independent variables that were used to meet Objective 3 are: all the socio-demographic characteristics (age, gender, administrative region, marital status, presence or not of a caregiver at home); their main pre-stroke occupation; the type and location of stroke and the pre-stroke lifestyle. Finally, ethical approval was obtained by the team of researchers in charge of the initial file audit.

Statistical analyses

IBM SPSS Statistics version 25 for MAC software was used. Descriptive statistics were generated to describe the characteristics of the study population. The results were reported in terms of frequencies and percentages, i.e. the proportion of users meeting the inclusion criteria who were screened or assessed for driving conditions. Means and standard deviations were also calculated for the continuous variables. A two-level distinction was considered, namely, identifying those who have undergone driver-specific screening / assessment and those who have undergone screening / assessment of perceptual and visual cognitive skills, not specific to driving. To this end, the three most frequently documented assessments mentioned above were used for analysis purposes to create three interest groups: cognitive, perceptual and visual function assessment. Analyses of variance (ANOVA) were conducted to investigate the presence of relationships between categorical variables using chi-square tests and between categorical variables and a continuous variable (age) using a Student *t* test. Thus, the development of cross-tabulations has made it possible to illustrate the differences between the socio-demographic characteristics of users who are subjected to either a specific screening or evaluation or a non-specific driving assessment. Several comparisons were made, including whether the care

provided varied according to the type or location of the injury, age and gender, the presence of a caregiver, or the administrative region where one was living. In order to ensure statistical rigour, files with undocumented data were recoded as missing data. The results are considered statistically significant according to a p value ≤ 0.05.

Results

Sociodemographic characteristics of the sample under study

The sample consisted of 419 of the 1 698 files that were audited. The average age was 70.5 years, ranging from 20 to 96 years, of which 59.4% (249/419) were male and 43.0% (180/419) were retired before stroke (see Table 1). More than half, or 58% (243/419) were either married, civil union or in a couple (common-law partner) and 42.0% (176/419) lived in a house. With respect to their arrival in acute care, most were referred by ambulance services (39.4%; 165/419) or presented themselves to the emergency room (35.3%; 148/419). Ischemic stroke was most commonly found in the study sample (77.1%; 323/419) and was left in 47.0% (197/419) of cases and right in 40.3% (169/419). Finally, with respect to driving, more than half (52.0%; 218/419) of the files had missing information regarding the pre-stroke driving habit, while 41.1% (172/419) of users were considered independent drivers without technical assistance and 6.9% (29/419) of users were described as non-drivers before the stroke (Table 1).

(Insert Table 1 about here)

Continuum of care; from hospitalization to return home

The average length of stay in acute care was 10.3 ± 13.3 days with a mode and median of 2 and 7 days respectively and a range from 0 days (a person only went through the emergency room without being hospitalized) to 133 days. An outlier of 734 days (total length of stay) was excluded from the analyses. Residence prior to stroke was predominantly outside the

metropolitan area (Table 2). In 93.8% of cases, the discharge destination recommended by the health care team was the home, in line with the destination chosen by the user on discharge. However, a small proportion of cases seen in acute care still returned home, while a transfer to an inpatient rehabilitation facility (2.6%) or to long term care (0.7%) was recommended (Table 2).

(Insert Table 2 about here)

Portrait of practice regarding screening and assessment of driving skills

In response to the first objective under study, driver-specific assessments were documented for 26/419 users (6.2%). Seven of them (26.9%) were screened for driving skills (Table 3). In 6 out of 7 cases (85.7%), the occupational therapist was the professional who completed this screening. The use of more in-depth assessments, other than screening, was not mentioned in the files reviewed. The most frequently completed assessments in full for the three categories not specific to driving were the Mini Mental State Examination (MMSE or Folstein Test), the Bell's Test and the Visual Field Assessment (Table 3). Perceptual and cognitive functions were assessed by an occupational therapist in 42/43 cases (97.7%) and 64/70 cases (91.4%) respectively. Visual functions (visual field evaluation) were evaluated mainly by specialist physicians (17/33; 51.5%) and physiotherapists (13/33; 39.4%).

(Insert Table 3 about here)

References and recommendations following discharge

In response to the second objective under study, the main references at discharge, as shown in Table 2, were external rehabilitation (26.5%) and home support services (24.3%). Four out of 419 charts (1.0%) had a note indicating that a reference had been made specifically for a more thorough assessment of driving.

Of the 419 files, 92 (22.0%) explicitly mentioned a problem concerning driving, while 284/419 (67.8%) did not include any comments on this subject (Table 4). Majority of files, 340/419 (81.1%) were missing information regarding driving ability. The proportion of files with comments and/or recommendations on driving was 78/419 (18.6%). In addition, 23/419 files (5.5%) mentioned providing information on driving following stroke, transmitted in 69.6% of cases by an occupational therapist. Finally, a notice was sent to the provincial driving regulatory body for 21/419 users (5.0%), by a physician or specialist in 63.6% of cases (see Table 4).

(Insert Table 4 about here)

The data reported in Table 5 illustrate the relationship between the type of reference made and the type of assessments/tests used. With regard to non-specific driving assessments, 31/70 users (44.3%) who were administered the MMSE were referred to home care services. A rehabilitation reference was completed for 16/33 users (48.5%) who were assessed for visual fields. Moreover, a statistically significant association ($p<0.05$) was found between users who have been administered the MMSE who were more often referred to home care services and those who have been assessed in terms of visual fields were more often referred to outpatient rehabilitation.

(Insert Table 5 about here)

A statistically significant relationship (p value ≤ 0.05) was found between a reference for home care services and the presence of cognitive, perceptual and visual problems. Indeed, on discharge, users who showed disorientation (13/419; 3.1%), decreased attention (11/419; 2.6%), decreased memory (17/419; 4.1%), impaired executive functions (15/419; 3.6%) and hemineglect (7/419; 1.7%) were referred more often to home care services. In addition, users with decreased attention (13/419; 3.1%), decreased memory (15/419; 3.6%), hemineglect (7/419;

1.7%) and hemianopia (9/419; 2.1%) were referred more often to outpatient rehabilitation at discharge from acute care. Only one user (0.2%) with hemineglect was formally referred for a more thorough assessment of driving upon discharge.

Relationship between contextual factors and assessments used in acute care

In response to the third objective, it was not possible to study the contextual factors that could influence the use of a specific driving assessment given the insufficient number of cases to conduct statistical analyses (n = 26). Nevertheless, regarding non-specific driving assessments, a significant relationship was found between advanced age associated with more frequent MMSE use (Table 6). Those whose marital situation was being married or in union law were also assessed less frequently using the MMSE [no=101/246 (41.1%) versus yes=28/246 (11.4%); $p \leq 0,05$], but the use of visual field assessment was more frequent in this subgroup [no=17/69 (24.6%) versus yes=22/69(31.9%); $p \leq 0,05$]. In addition, the Bell's test was more frequently used among men [no=9/58 (15.5%) versus yes=32/58 (55.2%); p value $\leq 0,05$] and retirees [no=4/58 (6.9%) versus yes=25/58 (43.1%); $p \leq 0,05$].

(Insert Table 6 about here)

Discussion

The objective of this study was to describe acute care practice in Quebec, Canada in relation to screening and assessment of driving prerequisites for clients with mild stroke who are discharged home, to document the proportion of cases with a reference for post-discharge outpatient services and recommendations related to driving, and to describe the impact of contextual factors that may explain the differences observed. First, the results indicate that driving was very poorly documented in acute care settings among mildly stroke patients who are returned home quickly after discharge. In addition, only half of the files mentioned a reference to

post-discharge outpatient services upon return home. The best practices guidelines recommend early detection of driving issues following a mild stroke (Institut national d'excellence en santé et en services sociaux (INESSS), 2012). However, since only half of the users are referred to outpatient rehabilitation or home care services, it is legitimate to wonder about the screening actually carried out for the second half. Since driving is contraindicated for at least one month following a stroke (Cameron et al., 2016), this may explain why driving is not addressed outright, at least in an acute care setting. In so doing, there is also reason to wonder whether users who return home without a reference have access to medical follow-up to discuss driving at some point (Mardh et al., 2017). The avoidance of medically addressing the driving issue might partially be explained by a lack of confidence. Indeed, 45% of family physicians in Canada (n = 205/448) said they are not very confident in administering driver-specific assessments and 88.6% (n = 400/452) perceive that they would benefit from additional training in the field (Jang et al., 2007).

According to our results, driving recommendations were documented in few cases. Moreover, this result cannot be attributed solely to an under-documentation of actual practice since, in a survey, only 9% (15/166) of users reported having obtained information about driving a vehicle following a mild stroke (McCarron et al., 2008). Knowing that driving allows full participation in the community but can likely be influenced by the presence of post-stroke deficits, it is therefore essential to address it as a priority with users who see themselves back home and who may be inclined to drive again, not being aware of the contraindications in this regard. In fact, in a mixed-methods study of participation after a mild stroke, participants mentioned that they self-exposed themselves to driving shortly after leaving acute care in order to provide concrete proof of their own ability to drive a vehicle (Rochette et al., 2007).

Therefore, there is reason to be concerned about the insufficient level of knowledge of users regarding compliance with the recommendations and their needs if they have simply not been informed about them.

Secondly, although the assessment specific to driving has been carried out in the majority of cases by an occupational therapist, it is not surprising to note that it is limited exclusively to the screening of skills, at least in this context of care. In fact, occupational therapists are the health professionals mostly involved, in addition to doctors, in terms of screening and assessment of driving. Indeed, the regulatory bodies maintains that an occupational therapist is a professional who is particularly well suited to assess the functional skills of a driver or passenger who requires a professional opinion on his or her ability to use a vehicle (OEQ, 2008). However, it should be noted that in Quebec, there is a four-level hierarchy of driving activities that can be performed by the occupational therapist. This may explain why, in an acute care setting, the professionals involved would have only screened since they probably did not have additional training in driving that would allow them to investigate further. On the other hand, occupational therapists with a terminal diploma are able to screen and evaluate prerequisites for driving (OEQ, 2008). They can therefore use off-road tests to predict patient performance, such as the Road Sign Recognition (Devos et al., 2011), Trail Making Test (TMT) A and B (Devos et al., 2011; Marshall et al., 2007b) or the Montreal Cognitive Assessment (MoCA) (Esser et al., 2016), to assess the risk of failure if they were subjected to an on-road assessment. This method, considered valid, rapid and inexpensive, can significantly reduce the costs associated with a more comprehensive on-road driving assessment (Klavora, Heslegrave, & Young, 2000) and can therefore be performed at the primary care level, upon admission of a patient. However, it must

be noted that only 7 of the 419 users were exposed to a screening of driving skills, at least documented for this specific purpose.

As such, the results obtained can also be explained by various factors such as the practice context specific to acute care and the rigour of record keeping. In fact, the low proportion of documented cases, both in specific and non-specific driving assessments, therefore supports the current state of knowledge that the urgency of bed release may explain why assessment priorities focus more on a sufficient level of autonomy in activities essential to a safe return home rather than on further investigating the presence of potentially invisible deficits (Petzold et al., 2010). Driving, as an integral part of travel and mobility, should therefore be addressed from the outset, with a view to prioritizing what has a direct influence on home safety. In addition, the use of systematic acute care screening in stroke patients was found to be more effective in detecting the presence of cognitive and sensory deficits affecting performance in a real environment than what was documented in charts (Edwards et al., 2006). The best practices guidelines also recommend that professionals assess, in a multi-dimensional approach, the capacities that can affect the resumption of driving, including standardized assessments that document motor, visual, perceptual and cognitive functions and subjective functioning (Aufman, Bland, Barco, Carr, & Lang, 2013; Bergsma, Leenders, Verster, van der Wildt, & van den Berg, 2011; Devos, Tant, & Akinwuntan, 2014). Finally, it is possible that non-specific driving assessments were administered to document both organic functions and driving skills, but that the way it is documented in the charts does not allow to clearly discriminate between those two.

Strengths and limitations

This study has some strengths and limitations that deserve to be addressed. First, the sample under study is composed of hundreds of files, which are large enough to be representative

of the target population. Then, the use of several statistical tests helped to increase understanding in terms of differences in the use of the assessments, although the analyses were bi-varied in nature. It would have been interesting to carry out multivariate analyses for more precision. This study improves the state of knowledge, particularly on driving practices in Quebec, among the population with a mild stroke, which is still poorly documented. However, the data were collected between 2012 and 2013, i.e. during the period preceding the gradual deployment of early supported discharge services in Quebec. Current practice may therefore be improved and hopefully better addresses the reality of mild stroke survivors. Finally, the large number of missing data could be due to the lack of rigour in record keeping, but also be explained by inter-variability of auditors, despite training and monitoring by the research team.

Conclusion

One of the main objectives of this study was to document current practice in screening and assessment of pre-driving conditions and recommendations for discharge for clients with mild stroke who are discharge home from acute care. The results show that driving is still a major issue today following a mild stroke. Given best practices guidelines recommending screening for residual disabilities that may affect driving and the context of mild stroke that may lead to "invisible" sequelae that potentially influence this complex activity and the rapid discharge from acute care, it is important to be concerned about current practice in caring for this population. Thus, with a view to harmonizing future practice and delivering care and services consistent with stroke recommendations, this project identified gaps and the need to move towards more systematic management of driving, so that clients who do not go through rehabilitation services after acute care can still benefit from essential information they need to safely return home.

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Table 1. Socio-demographic characteristics (n=419)	
Continuous variable	**Mean (standard deviation)**
Age at stroke (years)	70.5 (13.3)
Categorical variables	**Frequency (%)**
Gender	
• Man	249 (59.4)
• Woman	170 (40.6)
Marital status	
• Married, civil union or in a couple (common-law partner)	243 (58.0)
• Widowed	66 (15.8)
• Single	38 (9.1)
• Divorced or separated	35 (8.4)
• Missing	37 (8.8)
Type of stroke	
• Ischemic	323 (77.1)
• Intracerebral hemorrhage	31 (7.4)
• Subarachnoid hemorrhage	17 (4.1)
• Missing	48 (11.4)
Stroke location	
• Left	197 (47.0)
• Right	169 (40.3)
• Bilateral	10 (2.4)
• Missing	43 (10.3)
Type of residence before stroke	
• Single-family house, semi-detached, town house	176 (42.0)
• Apartment/Condominium	101 (24.1)
• Private residence for the elderly	59 (14.1)
• Other	11 (2.6)
• Low-cost housing	2 (0.5)
• Missing	70 (16.7)
Provenance	
• Ambulance services	165 (39.4)
• Ambulant (by himself)	148 (35.3)
• Hospital or rehabilitation centre	74 (17.7)
• Other	12 (2.9)
• Missing	20 (4.8)
Main occupation before stroke	
• Retired	180 (43.0)
• At work	83 (19.8)
• Unemployed	21 (5.0)
• Other (e.g. volunteer, schooling, sick leave)	24 (5.7)
• Missing	111 (26.5)
Pre-stroke Driving habit	
• Driving a car (independent without technical assistance)	172 (41.1)
• Did not drive a car (dependent on others)	29 (6.9)
• Missing	218 (52.0)

Table 2. Continuum of care from admission to discharge (n=419)	
Place of residence	**Frequency (%)**
• Western and Northern Quebec	186 (44.4)
• Eastern Quebec	123 (29.4)
• Montreal Metropolitan Area	110 (26.3)
Recommended destination at discharge	
Home address of origin	393 (93.8)
• with outpatient rehabilitation	116 (27.7)
• with homecare services	56 (13.4)
Transfer to an institution for internal rehabilitation	11 (2.6)
Other residence (moving)	4 (1.0)
• with outpatient rehabilitation	1 (0.2)
• with homecare services	2 (0.5)
Long term care	3 (0.7)
Other	8 (2.0)
References at discharge	
Outpatient rehabilitation	111 (26.5)
Home care	102 (24.3)
• Occupational therapy	29 (6.9)
• Physiotherapy	23 (5.5)
• Nursing care	39 (9.3)
• Social worker	26 (6.2)
• Other	18 (4.3)
Other	32 (7.6)
Driving assessment	4 (1.0)
Community resources	2 (0.5)
Smoking Cessation Program	-
Conditioning program	-
Self-management/empowerment program	-
Secondary Prevention Clinic	-
Centre for Visual Rehabilitation	-

Table 3. Screening and assessments specific and not specific to driving (n=419)	
	Completed in full
Specific to driving	**Frequency (%)**
• Screening of driving skills	7 (1.7)
• Dynavision	-
• Colour Trails Test	-
• Useful Field of View Test (UFOV)	-
• DriveABLE	-
• Elemental Driving Simulator (EDS)	-
Not specific to driving	
Cognitive	
• Canadian Neurological Scale (CNS)	15 (3.6)
• National Institutes of Health Stroke Scale (NIHSS)	2 (0.5)
• Loewenstein Occupational Therapy Cognitive Assessment (LOTCA)	-
• Mini Mental State Examination (MMSE) or Folstein Test	70 (16.7)
• Modified Mini Mental State Examination (3MS)	5 (1.2)
• Montreal Cognitive Assessment (MoCA)	46 (11.0)
• Elderly Cognitive Testing Protocol (PECPA-2r)	12 (2.9)
• Rivermead Behavioral Memory Test (RBMT)	1 (0.2)
• Clock drawing test	37 (8.8)
• Trail Making Test (TMT A and B)	11 (2.6)
• Wisconsin Card Sorting Test (WCST)	-
• Profile of ADLs - Task 14: Driving a Vehicle	-
Perceptual	
• Interview with patient/family	15 (3.6)
• Albert's test	-
• Behavioral Inattention Test (BIT)	-
• Line Bisection test	3 (0.7)
• Motor-Free Visual Perception Test (MVPT)	17 (4.1)
• Rivermead Perceptual Assessment Battery	-
• Single Letter Cancellation Test (SLCT)	3 (0.7)
• Bell test	43 (10.3)
• Comb and razor test	-
Visual	
• Interview with patient/family	29 (6.9)
• Snellen scale	-
• Visual extinction assessment	1 (0.2)
• Visual field evaluation	33 (7.9)

Table 4. Documented driving data (n=419)	
Driving a vehicle - Limitations	**Frequency (%)**
• Problematic issues	92 (22.0)
• Not-problematic	43 (10.3)
• Missing	284 (67.8)
Driving ability	
• Temporary restriction	32 (7.6)
• Doubt as to ability to drive	28 (6.7)
• Driving restriction	6 (1.4)
• Other	6 (1.4)
• Missing	340 (82.8)
Interventions specific to driving	
• Documented	26 (6.2)
• Missing	393 (93.8)
Discussion about driving with patient/family	
Yes, by	23 (5.5)
• Occupational therapist	16 (69.6)
• Physician	7 (30.4)
Notice sent to regulatory body on driving restrictions	
Yes, by	21 (5.0)
• Physician	13 (63.6)
• Occupational therapist	7 (31.8)
• Not specified	1 (4.5)
No	3 (0.7)

Table 5. Association between acute care assessments/tests used and referrals at discharge					
	Referred to at discharge				
Assessments/tests	Home care	Driving assessment	Community resources	Other	Outpatient rehabilitation
Specific to driving	**Frequency (%)**				
Driving screening (n=7)	2 (28.6)	-	-	-	1 (14.3)
Not specific to driving					
MMSE (cognitive) (n=70)	**31 (44.3)***	1 (1.4)	1 (1.4)	4 (5.7)	20 (28.6)
Bell test (perceptual) (n=43)	16 (37.2)	1 (2.3)	-	4 (9.3)	15 (34.9)
Visual field test (visual) (n=33)	10 (30.3)	-	-	3 (9.1)	**16 (48.5)***
The n varies according to the number of users who were assessed with each test. *significant when $p \leq 0.05$ according to the Chi2 test					

Table 6. Associations between assessments/tests used and age at stroke onset (n=418)		
	Frequency (%)	**Mean age (standard deviation)**
Specific screening of driving		
• Yes	7 (1.7)	76.9 (12.4)
• No	411 (98.3)	70.4 (13.3)
Not specific to driving		
MMSE (cognitive)		
• Completed in full	**70 (16.7)***	**74.9 (13.6)***
• Not completed	348 (83.3)	69.7 (13.1)
Bell test (perceptual)		
• Completed in full	43 (10.3)	70.6 (12.3)
• Not completed	375 (89.7)	70.5 (13.4)
Visual field evaluation (visual)		
• Completed in full	33 (7.9)	68.7 (15.5)
• Not completed	385 (92.1)	70.7 (13.1)
N varies from the initial sample as age is missing for a user; *significant when p value ≤ 0.05 according to T-test for independent samples		