

# Driver Screening, Assessment and Rehabilitation

## Site Applicability

All VCH & PHC sites

## Practice Level

Profession	Basic Skill	Advanced Skill (Requiring additional education)
<b>Occupational Therapists (OTs)</b>	<b>Tier One</b> – All OTs are able to identify a client who may have difficulty driving and assist clients to access information related to maintaining community mobility and healthy living as part of the normal course of intervention. (Generalist OT: Screen, <a href="#">Appendix A</a> )	<p><b>Tier Two a</b> – Requires OTs to have experience and additional education in assessing the physical, cognitive, visual-perceptual and behavioural aspects of safe driving. The OT will perform clinic-based assessments to determine strengths and challenges for driving, which may require further interventions or extra attention during the on-road evaluation. (Advanced OT: Clinical Evaluation <a href="#">Appendix A</a>)</p> <p><b>Tier Two b</b> – Requires OTs to have experience and additional education with competency to perform on-road assessment if deemed appropriate. The on-road assessment may include training and recommendations for basic adaptive driving equipment (e.g., spinner knob, turn signal extension, adapted mirrors). (Advanced OT: Comprehensive Driving Evaluation <a href="#">Appendix A</a>)</p> <p><b>Tier Three</b> – Requires OTs to achieve the outcomes related in Tier one and two with the addition of performing comprehensive driving evaluations. (Advanced Specialist OT: Comprehensive Driving Evaluation <a href="#">Appendix A</a>) (Korner-Bitensky, Toal-Sullivan &amp; von Zweck, 2007)</p>

[See Appendix A: Algorithm for AHS Occupational Therapy Process for Enabling Participation in Driving](#)

## Need to Know

Occupational therapy supports safe driving through driver evaluation and retraining, novice driver training, cognitive, motor and perceptual remediation, vehicle modification and driving retirement (CAOT Position Statement Occupational Therapy and Driver Rehabilitation, 2009).

The Supreme Court of Canada established the requirement to individually assess a driver's skills and individuals cannot be excluded from driving based on a diagnosis (1999, Grismer vs. BC Council of Human Rights).

Occupational therapists use evidence-based evaluation procedures to identify client skills, strengths and areas of concern, and combine this information with their understanding of the skills and knowledge required to drive safely. Occupational therapists use best-evidence resources related to the environmental influences on driving, including vehicle modification.

The occupational therapist must obtain informed consent from the individual prior to the initiation of any assessment and intervention. Consent is required throughout the assessment process and includes consent for assessment and intervention, as well as to disclose results to the appropriate authorities, such as RoadSafetyBC ([COTBC Practice Guideline: Obtaining Consent to Occupational Therapy Services](#)).

RoadSafetyBC is responsible for ensuring British Columbia's drivers are medically fit to safely operate a motor vehicle. RoadSafetyBC's Driver Fitness Program considers multiple factors (medical condition/history, driving record etc.) when determining fitness to drive. RoadSafetyBC has adopted a functional approach to driver fitness and assesses the impact of a medical condition on the functions necessary for driving when making driver fitness determinations. Where a medical condition results in a persistent impairment of the functions necessary for driving, RoadSafetyBC bases its driver fitness determination on the results of functional assessments that observe or measure the functions necessary for driving ([Driver Medical Fitness Information for Medical Professionals](#)).

## Equipment & Supplies

- Standardized cognitive and visual-perceptual assessments
- Vehicle with dual controls, with or without vehicle modifications (driver instructor vehicle)
- Wheelchair accessible adapted van

## Practice Guideline

All occupational therapists are able to recognize clients who are at risk of unsafe driving, and identify the clients' goals related to driving during the usual course of occupational therapy intervention.

The assessment of skills required to drive safely is multi-factorial and includes psychomotor, cognitive and visual-perceptual components. An in-depth assessment is required to provide information on impairments that may impact an individual's ability to drive safely. No single assessment or screening tool can be used in isolation to determine fitness to drive (Mazer et al., 2004; Vrkljan, McGrath & Letts, 2011, Canadian Council of Motor Transport Administrators, 2015).

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A Comprehensive Driver Evaluation, also known as a Functional Driving Evaluation, includes both clinic-based assessment and on-road assessment of an individual's ability to safely operate a motor vehicle. The clinic-based assessment is completed by an occupational therapist with Tier 2a, Tier 2b or Tier 3 practice level experience. The on-road assessment is completed by an occupational therapist with Tier 2b or Tier 3 practice level experience, in collaboration with a certified driving instructor.

### Screening

All occupational therapists should perform a screen; which is a "short, easy-to-administer tests that allow the quick identification of drivers who are clearly without impairment and those who need a more in-depth assessment to determine fitness to drive" (Bedard, M and Dickerson, AE. 2014). A driving specific screening tool is not required as the information gathered in the normal course of assessment and intervention will identify functional limitations that may affect the client's ability to drive safely. If the occupational therapist suspects that a client is driving at risk, they should provide the screening results to the physician to contribute to the healthcare team decision-making about recommendations for driving.

### Comprehensive Driver Evaluation (Functional Driver Evaluation)

If a client identifies community mobility as a valued occupation, and the screening results indicate potential driving concerns, with client consent, the occupational therapist may proceed with a clinic-based assessment. The Occupational Therapist In-Clinic Evaluation for Driving (OT-ICED) will be used to facilitate clinical decision making and offer recommendations for safe community mobility.

Comprehensive Driver Evaluations are fee-for-service.

See [Appendix B: Components of a Comprehensive Driving Evaluation](#) for specific details

### Part 1: Clinic Based Assessment:

The clinic based assessment is performed by a Tier 2a, Tier 2b or Tier 3 occupational therapist and typically requires two-three hours to complete and one-two hours to document findings. The following are physical, visual or cognitive components; and possible assessments, that may be used during the clinic-based assessment. The occupational therapist administers assessments that assess components relevant to the individual client.

- **History:** medical history, driving history
- **Physical status:** strength, active range of motion, sensation, endurance and coordination e.g. Rapid Pace Walk Test
- **Cognitive Screen:** e.g. Montreal Cognitive Assessment (MoCA), Repeatable Battery for the Assessment of Neuropsychological Status (RBANS),
- **Executive Function:** e.g. Cognitive Assessment of Minnesota (CAM), Trail Making Test (TMT)
- **Visual Scanning:** e.g. Bells Cancellation Test, Visual Attention Test, Dynamic ScanCourse, Dynavision
- **Attention:** e.g. Trail Making Test (TMT), Color Trails Test (CTT), Symbol Digit Modalities Test (SDMT), Useful Field of View (UFOV), Visual Attention Test (VAT)
- **Perception:** e.g. Motor Free Visual Perceptual Test (MVPT), clock drawing, maze tests

- **Processing Speed:** e.g. Trail Making Test (TMT), Color Trails Test (CTT), Symbol Digit Modalities Test (SDMT), Useful Field of View (UFOV)
- **Visual Acuity:** e.g. Snellen chart, Optec 5000
- **Peripheral Field of Vision:** e.g. gross confrontation test, Optec 5000
- **Visual Contrast Sensitivity:** e.g. Pelli-Robson
- **Insight/Awareness:** e.g. Driving Behavior Questionnaire, Fitness to Drive Screen Measure
- **Knowledge:** e.g. ICBC Practice Knowledge Test

The results of the assessment can be documented on the Driver Rehab Clinical Notes or OT-ICED Summary. A summary of the assessment results and recommendations are documented in the health care record, provided to RoadSafetyBC, the family doctor and may be sent to other relevant medical specialists with appropriate client consent.

The occupational therapist will review the results of the clinic-based assessment with the client and will make the following recommendations:

- If the client has no impairments identified in the clinic-based assessment, the therapist will discuss the impact of the current health status on future driving.
- If the client has impairments that may impact safe driving, but is able to compensate for these impairments, the occupational therapist will refer for an on-road evaluation.
- If the client has impairments that may impact safe driving, and demonstrates the potential to compensate for these impairments, the occupational therapist may refer for on-road driving instruction and/or outpatient rehabilitation. The occupational therapist may recommend alternate transportation in the interim.
- If the client has impairments that may impact safe driving, but does not demonstrate the potential to compensate for these impairments, the occupational therapist may:
  - Monitor client's status and recommend reassessment in six months, recommend alternate transportation and facilitate application for adapted transit.
  - Recommend the client not return to driving, recommend alternate transportation options and facilitate application for adapted transit.

See [Appendix C: Clinic Based Driving Assessment Decision Tree](#)

## Part 2: On-Road Evaluation

This is performed by a Tier 2b or Tier 3 occupational therapist and typically takes up to an hour and a half to complete and an hour to document findings.

This is completed with both the occupational therapist and driver instructor present. A standard driving route is used which graduates from residential areas to main roads to highway.

The results are reviewed with the client with three possible outcomes:

1. If the client successfully completes the on-road evaluation the occupational therapist may:
  - Provide education on poor driving habits
  - Recommend a graduated return to driving schedule
  - Discuss the impact of impairments and compensatory techniques
  - Discuss future transportation needs
2. If the client is not successful, but has insight and potential for rehabilitation:
  - Recommend on-road rehabilitation consisting of driving sessions conducted by the driver instructor under the direction of an occupational therapist. The occupational therapist will set the goals, review the client's progress periodically (typically every 5 sessions), and re-evaluate the client's driving ability at the end of rehabilitation prior to discharging the client. The occupational therapist will provide information to the client on the costs of on-road rehabilitation.
  - Provide equipment recommendations and a list of qualified vendors if adaptive driving equipment or vehicle modifications are required. The occupational therapist will consult with the equipment vendor as indicated. Vehicle modifications may be reviewed with the client once they have been installed.
3. If the client is not successful and does not demonstrate potential for rehabilitation:
  - Provide education on transportation options and facilitate application for adapted transit.
  - Review recommendations on potential for recovery and timeframe for re-assessment.

See [Appendix D: Interventions for Drivers](#)

### Expected Client Outcomes

To determine the client's potential to safely return to driving and facilitate community access and mobility.

### Patient/Client/Resident Education

- [Learn To Drive Smart – ICBC Manual](#)
- [We Need To Talk – Hartford Brochure For Families Of Older Drivers](#)
- [At The Crossroads – Hartford Brochures On Dementia And Driving](#)
- [CarFit Checklist](#)
- [National Blueprint For Older Drivers \(Client Brochures\) – CAOT](#)
- [Tips for Seniors and Their Loved Ones – BCAA](#)
- [Association for Driver Rehabilitation Specialists](#)
- [Driving After Stroke – Heart and Stroke Foundation of Ontario](#)

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## Evaluation

- Satisfaction surveys of clients and family members, and referral sources
- Access and timeliness metrics
- Consistency in occupational therapy clinical practice

## Site Specific Practices

### Holy Family Hospital Driver Rehab Program:

Admission Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• Older adult (55 and older);</li> <li>• Clients with physical, visual or cognitive impairments that may impact functional activities;</li> <li>• Diagnoses may include, but are not limited to: CVA, MS, ABI, amputation, Parkinson's Disease;</li> <li>• Clients who have received inpatient or outpatient services at HFH in the past 2 years;</li> <li>• Class 5 (personal vehicles) or class 7 (new driver) driver licenses.</li> </ul>	<ul style="list-style-type: none"> <li>• Clients with dementia should be referred to RoadSafetyBC;</li> <li>• Clients who require more than supervision to transfer to a car;</li> <li>• Clients with third-party funding, such as WorkSafe or ICBC;</li> <li>• Class 1,2,3 or 4 (commercial vehicle driving) or class 6 (motorcycle) license evaluations.</li> </ul>

### GF Strong Rehab Driver Rehab Program:

Admission Criteria	Exclusion Criteria
<ul style="list-style-type: none"> <li>• Adult, age 16 and older with a valid driver's license;</li> <li>• Clients with physical, visual or cognitive impairments that may impact functional activities;</li> <li>• Diagnoses may include, but are not limited to SCI, CVA, ABI, amputation, multiple sclerosis, muscular dystrophy, spina bifida, cerebral palsy;</li> <li>• Clients who have received inpatient or outpatient services at GFS in the past 2 years;</li> <li>• All clients who require wheelchair accessible van regardless of age or diagnosis.</li> </ul>	<ul style="list-style-type: none"> <li>• Class 1, 2, 3 or 4 (commercial vehicle driving) license evaluations or class 6 (motorcycle);</li> <li>• Clients with 3rd party insurance who require no or minimal adaptive equipment and who have not been previously treated at GF Strong.</li> </ul>

**Documentation**

Assessments, treatment plans and ongoing progress notes related to the client's ability to safely drive will be documented in the health record. Clinic Based Driving Assessment Interview and Driver Assessment results templates may be used.

Assessments and progress reports will be distributed to the team with the client's consent. Team may include:

- RoadSafetyBC
- Physicians, healthcare team
- Third-party funders
- Patient

**Related Documents**

VCH/PHC: [Cognitive Evaluation and Intervention Guideline \(for Occupational Therapy\) for the Adult Population](#)

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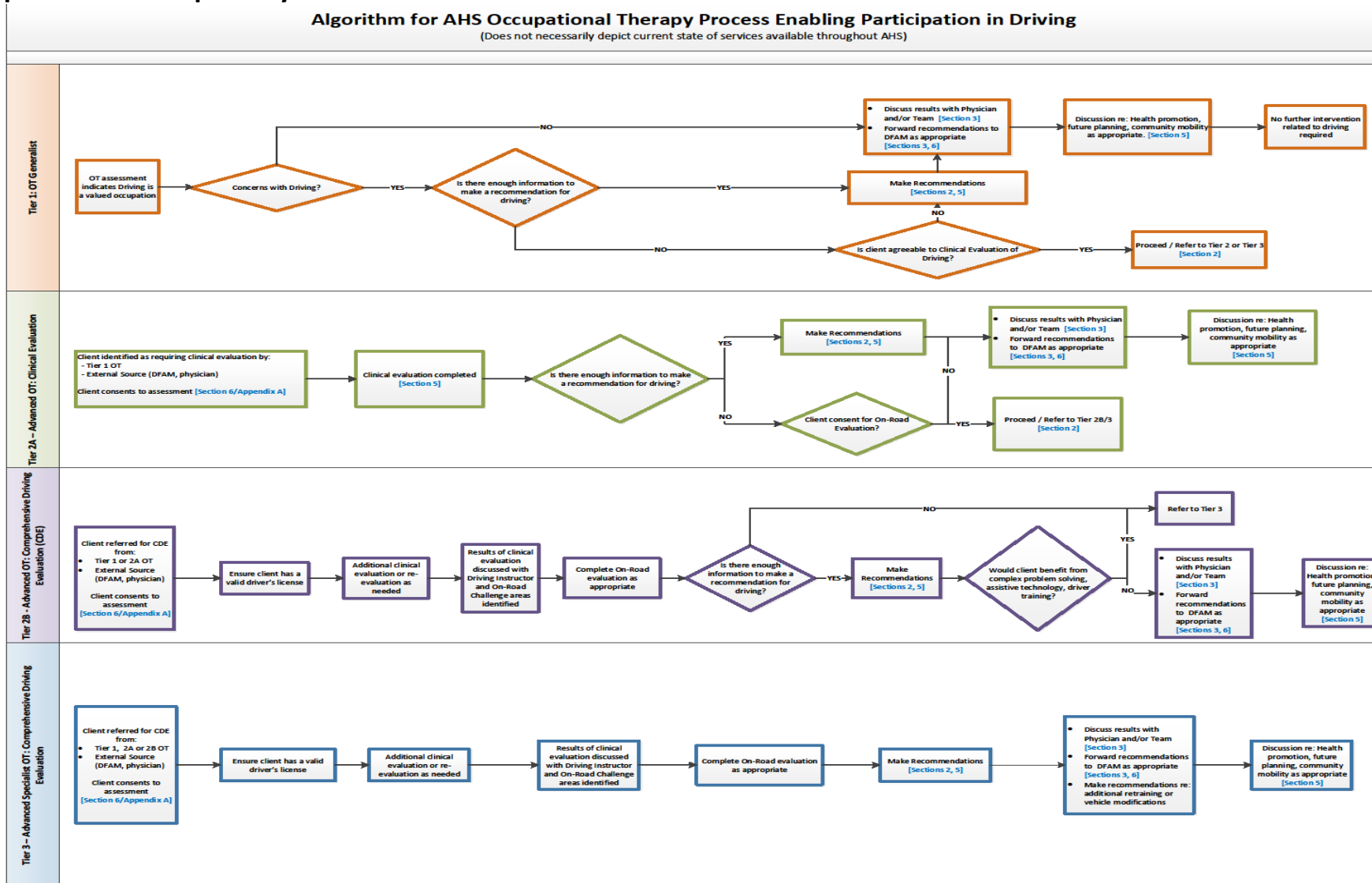


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## Appendix A: Competency Levels Alberta Health Services Model



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## Appendix B: Components of a Comprehensive Driving Evaluation

### Clinic Assessment:

#### Interview:

1. Obtain consent for evaluation/treatment and to disclose results as follows:
  - a. RoadSafetyBC. If client does not agree to disclose results to RoadSafetyBC, the assessment is discontinued.
  - b. General practitioner
  - c. Psychiatrist, geriatrician, ophthalmologist or other physician specialist
  - d. Referring healthcare professional
  - e. Third-party funders
  - f. Family members
2. Review background information and obtain further reports as needed with client's consent (e.g. ophthalmology).
3. Interview and obtain further information on medical condition, including insight, driving history, driving goals and needs and vehicle information.
4. Verify status of client's license.
5. Obtain family information re: concerns related to driving.

#### Physical Status

The following physical components are required for safe operation of a motor vehicle: reach, strength and range of motion, endurance, speed of movement, coordination, stability and postural control and mobility (Mazer et al., 2004).

- General upper extremity active range of motion, endurance, and coordination as it relates to controlling originally installed equipment (OEM) steering wheel, secondary controls, gear shift, ignition key, seatbelt
  - Shoulder flexion, abduction, internal & external rotation, elbow flexion & extension, wrist flexion & extension, functional grasp
- General head, neck and trunk rotation to appropriately blindspot check
- General trunk stability to maintain appropriate posture while driving
- General lower extremity active range of motion, sensation, endurance, and coordination to operate OEM gas/brake pedals
- Ability to transfer in and out of the vehicle
- Positioning considerations for driving
- Vericom Reaction Timer

#### Visual:

The following visual skills may affect driving: static and dynamic visual acuity, visual field impairments, saccades, nystagmus and contrast sensitivity. Hemianopsia and reduced dynamic visual acuity can be correlated with poor on-road performance (Elgin et al., 2010). The ability to attend and process visual information are vital skills in driving (Mazer et al., 2004). Visual diagnoses that may impact driving include low vision, hemianopsia, diabetic retinopathy, cataracts, glaucoma, macular degeneration and retinitis

pigmentosa. (RoadSafetyBC, CCMTA Medical Standards for Drivers with BC Specific Guidelines, 2016)).

- **Visual field:** The minimum required visual field for driving is 120 continuous degrees along the horizontal meridian and 15 continuous degrees above and below fixation (CCMTA, 2015). If the screen indicates decreased visual fields a binocular visual field test from an ophthalmologist may be recommended.
- **Visual acuity:** Snellen Eye Chart-minimum standard is 20/50 daytime vision with both eyes (2016 CCMTA Medical Standards for Drivers with BC Specific Guidelines).
- **VAT Test:** The test yields scores of the patient's ability to identify objects on the vertical right, middle and left as well as the horizontal upper, middle and lower. It also produces separate scores for the four visual quadrants: left upper, left lower, right upper and right lower.

### Cognitive:

According to current research based evidence there is no single cognitive or visuo-perceptual tool that can reliably predict moving violations, crashes or the need for further testing (Askan et al., 2012; Carr et al., 2011; O'Connor, Kapust, Lin, Hollis & Jones, 2010; Zook, Bennet & Lane, 2009).

Research suggests it is important to evaluate certain skills, such as visuo-constructional, executive function, visual search and attention, as these appear to have more predictive value for on-road performance (Ball et al., 2006; Carr et al., 2001; Devos et al., 2007; DeRaedt & Ponjaert-Kristoffersen, 2001; Zook et al., 2009).

Not all assessment tools currently utilized have been researched to determine their predictive validity for driving safely. [The Occupational Therapy In-Clinic Evaluation for Driving \(ICED\)](#) was designed to be a clinical reasoning tool to assist with decision making regarding return to driving. It also serves to enhance consistency amongst occupational therapists (OTs) that complete in-clinic assessments. The development of this tool is based on the best available evidence including the Heart and Stroke Foundation Best Practice Recommendations (2015), RoadSafetyBC requirements (Canadian Council of Motor Transport Administrators, 2015), and regional expert consensus. The tool consists of a series of standardized assessments that a therapist uses to evaluate a client's vision, cognition/perception, physical abilities, psychosocial function, and other aspects of function (i.e. driving history) and then provides a scoring system to aid decision making. The standardized assessments used in this tool are the Clock Drawing Test; Dynavision; Montreal Cognitive Assessment (MoCA); Motor Free Visual Perception Test (MVPT); Trail Making A and B; and Useful Field of View (UFOV).

### On-Road Evaluation

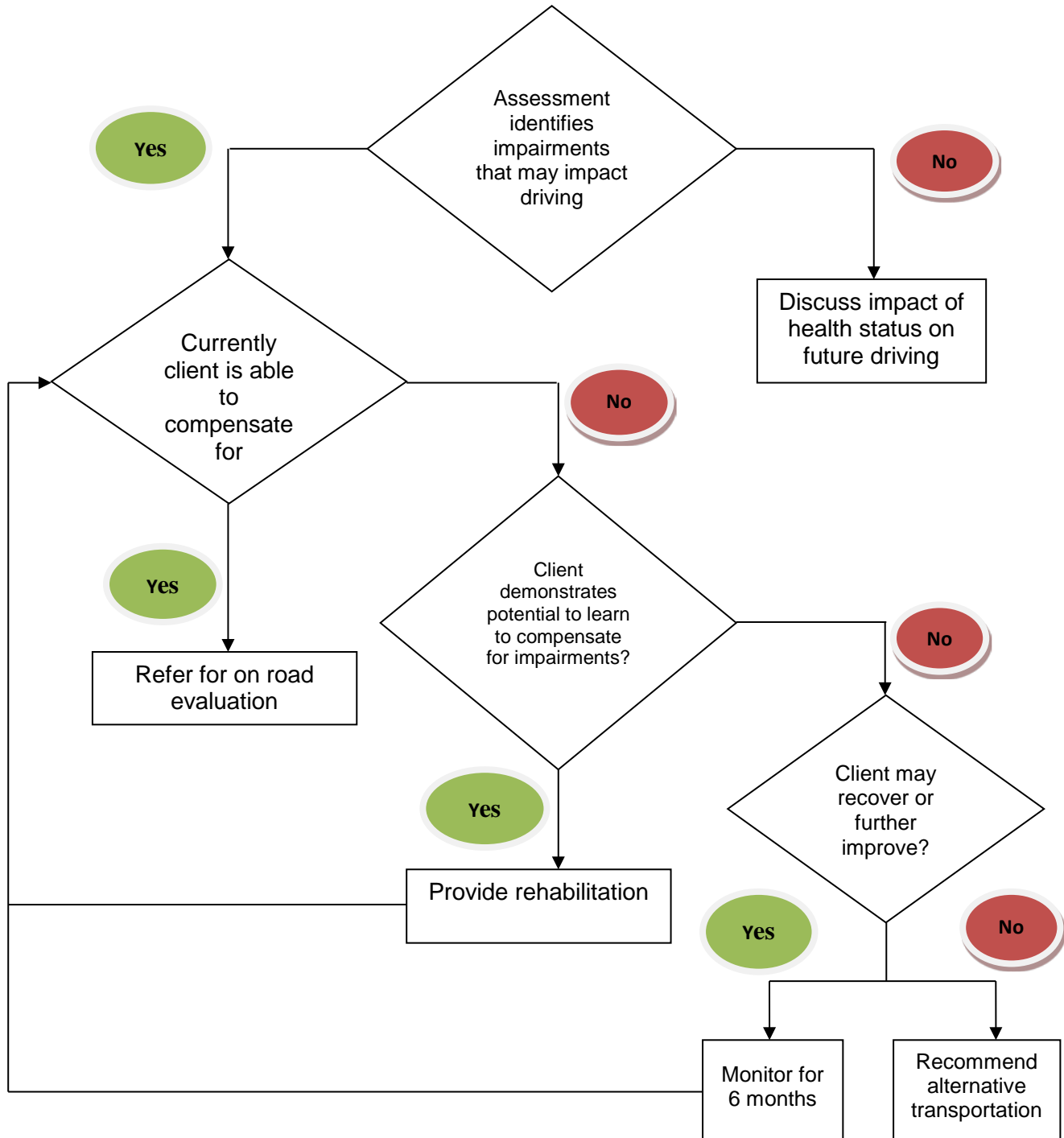
A standard driving route is used with both the occupational therapist and driver instructor present.

- The occupational therapist evaluates functional driving skills and integrates the clinical and background information to assess how driving may be affected by impairments in the different performance components.
- The driver instructor provides a safe testing environment with a vehicle that has instructor controls and evaluates driving skills as per ICBC guidelines.

- If the client demonstrates reasonable skills to progress through the route, feedback is provided after each section (residential, main traffic area, highway). If client is unsafe, the evaluation is discontinued at the appropriate level.
- Consistent with the ICBC Enhanced Road Assessment (ERA), the occupational therapist may require the driver to complete tasks that increase the cognitive workload.
- Education and coaching may be provided as appropriate and the client's ability to learn and benefit from on-road rehabilitation is determined as part of the evaluation.

Appendix C:

## Clinic Based Driving Assessment Decision Guide



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## Appendix D: Interventions for Drivers

1. **Provide Impairment Based Treatment:** Clinic based intervention for specific deficits such as upper or lower extremity coordination or cognitive remediation. This treatment is usually performed by a Tier 2a OT, but falls within the scope of a Tier 1 OT.
2. **Recommend Adaptive Driving Equipment:** Modifications to the vehicle may minimize the impact of fatigue, reduced coordination, sensation, increased muscle tone or spasms, weakness or tremors. This intervention is typically provided by Tier 2b and Tier 3 occupational therapists. Common 'low tech' adapted equipment includes the following:

Low Tech Equipment	Indication
Spinner knob	Not able to complete hand-over-hand or hand-to-hand steering
Turn signal switch extension	Difficulty operating the turn signal accurately and in a timely manner
Left foot accelerator	Difficulty with right foot movement, sensation and/or coordination
Hand controls	Difficulty with leg movement. Should be used in conjunction with spinner knob, as one hand will be on hand controls and only one hand on the steering wheel

For some clients, a comprehensive driving evaluation with a Tier 2 or Tier 3 occupational therapist is beneficial to determine what equipment is appropriate, whether the client has the capacity to learn how to use new equipment, and/or to provide an opportunity for training.

More complex adapted equipment, such as electronic gas and brake, and low effort or no effort steering, is very expensive and requires extensive training. Evaluation and retraining for this level of equipment is available only at GF Strong.

Clients who drive with adaptive driving equipment must have this documented on their license. The occupational therapist must submit to RoadSafetyBC that the client is able to drive with this equipment safely. RoadSafetyBC may also require an ICBC road test.

Once the client has a license approving use of adaptive driving equipment, he may obtain the equipment from mobility vendor. The National Mobility Equipment Dealers Association (NMEDA) regulates such vendors and members must uphold standards for installation, education, and service. A list of approved NMEDA vendors can be found at: <https://nmeda.com/>.

3. **Recommend retraining or refresher lessons:** The Canadian Association of Occupational Therapists National Blueprint for Older Drivers has a [Fact Sheet](#) for Driver Retraining Programs and states "that there is increasing evidence that older driver retraining can lead to improvements in general driving knowledge and driving-specific skills". For older drivers, a combination of classroom and on-road training programs maybe a useful option for healthy drivers looking to improve or maintain their skills as they age.



4. **Practice on Driving Simulators:** Currently, there is limited evidence that driver simulators directly correlate to on road driving performance; however, they may be useful for domain specific training such as strengthening, visual scanning, or to trial simple adapted equipment. Ongoing research is needed in this field.