National Blueprint for Injury Prevention in Drivers with Arthritis

CAOT · ACE
Canadian Association of Occupational Therapists
Association canadienne des ergothérapeutes

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Preface

The Canadian Association of Occupational Therapists (CAOT) is pleased to release the *National Blueprint for Injury Prevention in Drivers with Arthritis*. The purpose of this resource, partly funded through a planning and dissemination grant from the Canadian Institutes of Health Research (CIHR) Institute of Musculoskeletal Health and Arthritis, was to build on previous successful work and offer directions for action to better support drivers with arthritis.

In 2009, CAOT released the *National Blueprint for Injury Prevention in Older Drivers* (Canadian Association of Occupational Therapists, 2009). This publication was the result of a collaborative effort with several key stakeholders to promote and prolong safe driving practices among older adults (Craik, 2011). The initiative garnered success in many forms. It fostered partnerships that supported the Candrive research consortium and AUTO21 projects (Candrive). It has provided direction for the realization of three systematic reviews (Kagan, Hashemi, & Korner-Bitensky; Korner-Bitensky, Kua, von Zweck, & Van Benthem, 2009; Perrier, Korner-Bitensky, Petzold, & Mayo, 2010) and two Canada-wide surveys (Korner-Bitensky, Menon, von Zweck, & Van Benthem, 2010a, 2010b), the content of which informed the development of several knowledge translation tools. Among these tools is a series of five brochures, produced by CAOT with support from the Public Health Agency of Canada (Canadian Association of Occupational Therapist, 2017b), designed to support older drivers and their families as well as drivers who have had a stroke or who are living with Alzheimer's disease or diabetes. To ensure optimal reach, the brochures are available in English, French, Chinese, Punjabi and Italian. They are available online in an open access format to provide the best available evidence to support safe driving and raise awareness about different types of driving-related interventions. Tapping into a membership of more than 9,000 occupational therapists and associate partners, CAOT disseminated these tools throughout the entire country as well as internationally. CAOT's press releases on this particular initiative generated more than 50 publications, three radio interviews and one eight-minute television interview (Lapointe, Baptiste, von Zweck, & Craik, 2013). The *National Blueprint for Injury Prevention in Older Drivers* has also influenced policies; it supported the decision of the Seniors Health Knowledge Network to hire two knowledge brokers to initiate the Medically At-Risk Older Drivers Community of Practice in collaboration with academics, practitioners and multiple other interested parties such as Ontario's Driver Assessment Centres (DAC) and the Canadian Association of Retired Persons (CARP; (Seniors Health Knowledge Network, 2013). Additionally, CAOT has created a webpage to serve as a repository for all of the resources related to the *National Blueprint for Injury Prevention in Older Drivers* so they can be accessed by professionals and the public (Canadian Association of Occupational Therapist, 2017a).

It became time to build on these successes, expand the scope of the first National Blueprint to address the specific unmet needs of drivers with arthritis and develop the *National Blueprint for Injury Prevention in Drivers with Arthritis*, a concerted strategy to enhance on-road safety.

Who will be interested in the Blueprint?

Arthritis affects over 4.6 million of Canadians of all ages (The Arthritis Society, 2016). The *National Blueprint for Injury Prevention in Drivers with Arthritis* is aimed at numerous stakeholders who are interested in the safety and well-being of this considerable population of drivers. These stakeholders include professionals involved in the care of people with an arthritic condition (e.g., family doctors, rheumatologists, pharmacists, occupational therapists, physiotherapists, nurses, kinesiologists, etc.), community and charity associations, decision- and policy-makers, researchers and, most of all, drivers with arthritis and their family members.

How was the Blueprint developed?

CAOT worked with a representative group of stakeholders that included drivers with arthritis, their families, health-care professionals, driving rehabilitation specialists, researchers, policy-makers and representatives of not-for-profit associations. The focus of the Blueprint is on the proposal of strategic and sustainable actions that will promote safe driving practices and injury prevention among drivers with arthritis. The Blueprint includes a vision, guiding principles, priority goals and directions for action.

Thoughts on the National Blueprint for Injury Prevention in Drivers with Arthritis

From Nicola MacNaughton, President, Canadian Association of Occupational Therapists

Occupational therapists take a leadership position in regards to driving rehabilitation services because of their expertise in assessing the interaction between the person, the environment and the occupation – in this case the occupation of driving. This blueprint will be instrumental in disseminating information for the injury prevention of drivers with arthritis. Creating client-centred solutions that help Canadians participate more fully in activities that are important to their everyday lives is what fuels the body of knowledge that occupational therapists draw upon and aspire to. Whether a generalist or specialist, the role of occupational therapist will only be enhanced by the stated outcomes of this project - the research, policy focus, training and resources. Occupational therapy addresses the whole person, and so constantly looks to integrate new learning into both preventive and treatment-based practices, especially as an aging population presents multiple chronic conditions overlaid with the desired goal of living well at home and staying active in the community. To support the health and wellness needs of the over 4.6 million Canadians who want to maintain their occupation of driving, occupational therapists are perfectly positioned to add evidence related to the outcome of this Blueprint project to their everyday practice.

Background and statement of concern

People with arthritis and musculoskeletal diseases are at higher risk than the general population for involvement in motor vehicle accidents (Marshall, 2008). When operating a motor vehicle, these drivers may experience pain, fatigue, decreased mobility, joint stiffness and decreased reaction time (Busteed, Daly, Silke, & Molloy, 2004). Specifically, they may have problems with sitting, transferring in and out of the car and doing shoulder checks while reversing or changing lanes (Fan et al., 2012). A large Canadian survey reported that 50% of people with rheumatoid arthritis experience difficulties with driving, including with gripping the steering wheel and turning corners (Cranney et al., 2005).

The input of several professionals and stakeholders is instrumental in addressing the needs of members of this specific population of drivers. For instance, an occupational therapist can help with finding an ideal sitting position and implementing car adaptations (Canadian Association of Occupational Therapists, 2009), a physiotherapist can help with regaining the physical strength to get in and out of the car and a pharmacist can assist with ensuring the optimal use of prescribed pharmacological treatment (Sabatowski, Scharnagel, Gyllensvard, & Steigerwald, 2014).

Driving-related issues affecting people living with arthritis have been largely overlooked. To our knowledge, no guidelines are available to support the activity of driving for people with arthritis. Consequently, practitioners feel unprepared to address this important area and clients do not know where to find resources and are afraid to ask for help for fear of losing their licences (Vrkljan et al., 2010).

Objective

- Engage key Canadian stakeholders in the creation and dissemination of a comprehensive and sustainable strategic action plan, the *National Blueprint for Injury Prevention in Drivers with Arthritis.*

Blueprint development

The *National Blueprint for Injury Prevention in Drivers with Arthritis* is the result of collaborative efforts of a Project Team and a National Advisory Team. The Project Team consisted of a postdoctoral researcher, one project coordinator and the CAOT executive director. The National Advisory Team comprised representatives from relevant stakeholder groups and from across the country, including drivers with arthritis, occupational therapists, physiotherapists, pharmacists, physicians, academic researchers,

and community and not-for-profit organizations supporting drivers and people with arthritis.

The ultimate outcome of this project was the identification of strategic priorities and the development of a comprehensive and sustainable action plan to advance research, education, practice and policy. The main activities undertaken to achieve this result were the gathering of the relevant evidence (i.e., the data-gathering phase) and the development of the directions for action through seeking consensus among stakeholder perspectives (i.e., the consensus-building phase).

For the data gathering phase, the Project Team produced a scoping review to map the current landscape of research initiatives, training opportunities, clinical programs and policies that are supporting drivers with musculoskeletal disorders. This review charted the evidence published in the last 25 years on the activity of driving for people with musculoskeletal conditions and/or arthritis. More details regarding the review methodology are provided in the Appendix of this document. In summary, a total of 111 articles were selected and synthesized in an extraction table. These articles were categorized into five themes, namely safe return to driving after a musculoskeletal surgery, musculoskeletal health issues of professional drivers, medical conditions or deficits predicting unsafe drivers, driving for people with arthritis or musculoskeletal conditions and ergonomic evaluation of car equipment and seating posture.

The data-gathering phase also encompassed the collection of input from the members of the National Advisory Team. The 15 representatives individually consulted the extraction table of the scoping review and answered six open-ended questions related to their appraisal of the body of evidence in light of their clinical and personal experience in supporting drivers with arthritis.

The consensus-building phase for the creation of directions for action was then initiated by the conduct of a survey using the Delphi method (Hasson, Keeney, & McKenna, 2000; Sumsion, 1998) and completed by a public engagement activity, an in-person meeting and rounds of email exchanges. The goal of this multi-stage process was to generate a group synergy, achieve a high level of strategic thinking and refine opinions. Concretely, the Project Team compiled an anonymized summary document of the National Advisory Team's responses to the six open-ended questions and invited its members to provide further comments and additions. A free public conference was held in Ottawa, Ontario on May 17, 2016. Members of the Project Team and the National Advisory Team presented the goals and potential outcomes of the *National Blueprint for Injury Prevention in Drivers with Arthritis* and answered the public's questions. This public engagement activity was useful in many ways. It allowed team members to be exposed to the perspectives of members of the target population and it set the tone regarding the crucial need for more guidance on how to better support drivers with arthritis. The one-day in-person meeting to produce a draft of the outline took place in Ottawa on May 18, 2016. The outline and full document were further developed and refined through rounds of email exchanges. Finally, a total of 11 external reviewers provided comments and suggestions that enhanced the document.

An important word of caution: The following work is not meant to be used as a practice guideline. The Institute of Medicine (2011) defined clinical practice guidelines as:

> … statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options. (p. 25)

This National Blueprint has been developed with the intent to be used as a guiding document for teams interested in or positioned to advance research, training curricula, practices and policies to support drivers with arthritis. Its intent was not to focus on patient care nor to weigh the benefits and harms of alternative care options. In formulating the directions for action, members of the National Advisory Team were informed by the results of a scoping review as opposed to a systematic review. In an area in which the literature available is scarce, scoping reviews that include studies with different types of design have been found to be particularly relevant (Levac, Colquhoun, & O'Brien, 2010). However, in a scoping review, the methodological qualities of each study are not typically assessed; this assessment is one of the distinctive features of a systematic review. Without this methodological assessment, it is not possible to ascertain the level of evidence or to make specific practice recommendations with confidence.

Figure 1

Outline of the National Blueprint for Injury Prevention in Drivers with Arthritis

Vision: Adults with arthritis will be aware of driving practices and have access to services poised to prevent injury and promote health, well-being and public safety.

Guiding Principles	Priority Goals	Directions for Action
i. Community mobility is integral to health and well-being – it is considered a right. ii. Driving is a privilege; individual's privileges must not compromise public safety. iii. Drivers with arthritis are involved stakeholders. iv. National and regional needs and considerations are respected. v. Safe driving strategies are integrated throughout the lifespan. vi. Services and resources are evidence-based and accessible. vii. Innovation is fostered and supported. viii. Knowledge translation is integral to promoting safe driving practices for persons with arthritis. ix. Driving retirement is a life transition that should be proactively planned for.	1. Advance knowledge and research.	1a. Develop and strengthen an interdisciplinary research network on safe driving practices with arthritis that include all relevant disciplines. 1b. Encourage each discipline to conduct an analysis of current evidence on driving with arthritis and produce a report that answers key questions: • What do we know? • What don't we know? • What are the priorities 1c. Address the knowledge gaps and research priorities to support drivers with arthritis through innovative and collaborative efforts and partnerships.
	2. Identify and propose best practices.	2a. Define the generalist and specialist scope of practice in the context of driving with arthritis. 2b. Appraise existing practice guidelines and service delivery models in order to tailor an approach that would support drivers with arthritis.
	3. Build capacity.	3a. Sensitize all professionals to the importance of the activity of driving in daily life and the need to include this consideration in their services to persons with arthritis. 3b. Develop, implement and evaluate generalist and specialist training curricula, standards and requirements for professionals to address fitness to drive for persons with arthritis. 3c. Design and distribute resources that can be used by professionals in the delivery of interventions to drivers with arthritis.
	4. Monitor and advance policies.	4a. Stay informed on policies, task forces, budgetary decisions or other developments that may affect services offered to drivers with arthritis. 4b. Provide current and timely information to decision-makers regarding safe driving with arthritis. 4c. Ensure representation and collaboration with decision-makers and advocacy groups for the advancement of policies that impact community mobility for persons with arthritis.
	5. Enhance awareness.	5a. Raise public awareness related to the impact of arthritis on driving. 5b. Inform target audiences about the effective strategies that may prolong safe driving for individuals with arthritis.
	6. Monitor uptake and ensure relevancy.	6a. Monitor the reach, uptake and impact of the National Blueprint for Injury Prevention in Drivers with Arthritis. 6b. Assess the relevance of the *National Blueprint for Injury Prevention in Drivers with Arthritis*. 6c. Plan and lead actions to update the *National Blueprint for Injury Prevention in Drivers with Arthritis* in accordance with emerging evidence.

Vision: **Adults with arthritis will be aware of driving practices and have access to services poised to prevent injury and promote health, well-being and public safety.**

The vision statement from the 2009 National Blueprint for Injury Prevention in Older Drivers, "Older adults in Canada will utilize driving practices that prevent injury and promote health, well-being and public safety," was presented to the National Advisory Team for review and adaptation. "Older adults" was replaced by "Adults with arthritis." Also, the members of the team suggested that the concept of utilization should be replaced by those of awareness and access.

The meaning of each component of this vision is briefly defined here:

Adults with arthritis…

Refers to any adults (≥18 years of age) diagnosed with an arthritic condition. There are more than 100 types of arthritic conditions, which may include, but are not limited to, osteoarthritis, gout, rheumatoid arthritis or systemic lupus erythematosus. Arthritis is an inflammation of the joints often occurring in the hips, knees, spine or fingers (The Arthritis Society, 2016). Its symptoms include pain, swelling, stiffness and functional limitations.

…will be aware of driving practices…

Awareness is a logical and necessary first step toward spurring changes at the individual and societal levels. "Driving practices" is a broad term selected to include assessment of fitness to drive, simple and/or sophisticated car adaptations, vehicle modifications and/or technologies, driving techniques and refresher courses, as well as the management of medication effects on driving safety.

…have access to services…

Following building awareness, ensuring access to services is crucial, so that drivers can use and benefit from the driving practices such as the ones described above. In the current health-care context, innovative solutions are needed to ensure equitable access to timely and quality services. The directions for action proposed in this Blueprint are meant to foster the generation of such innovative solutions and key partnerships to improve access to timely and optimal services.

…poised to prevent injury…

Injury prevention is a key concept and a prominent element of strategies to support drivers with arthritis. The term "injury" encompasses morbidity and mortality resulting from collisions involving drivers with arthritis. Injury prevention also encompasses other road users, including passengers and/or pedestrians, who may be impacted by a collision involving a driver experiencing arthritis. Activities to promote on-road safety and prevent injury include, but are not be limited to, implementing public awareness campaigns about the impact of arthritis on driving and available resources to support drivers with arthritis; providing effective screening and assessment of drivers with arthritis; ensuring the availability of access to competent, timely and affordable professional services; and supporting policies that enhance driving safety in the presence of arthritis.

…promote health, well-being…

The health and well-being of drivers with arthritis and the public are concrete outcomes of promoting safe driving practices. Well-being is also fostered by the provision of community mobility options that enable people to do the things they want to do and need to do—allowing them to actively contribute to their societies.

…public safety…

As stated in the National Blueprint for Injury Prevention in Older Drivers (Canadian Association of Occupational Therapists, 2009), public safety is a natural consequence of raising awareness about and ensuring access to safe driving practices, as fewer collisions by drivers will also benefit the general public. This Blueprint also proposes solutions to increase public safety through its 16 directions for action (see Figure 1).

Guiding principles

i. **Community mobility is integral to health and well-being—it is considered a right.**

As mentioned in the National Blueprint for Injury Prevention in Older Drivers (Canadian Association of Occupational Therapists, 2009), "community mobility is encompassing all forms of transportation that allow an individual to attend events, appointments and any activity taking place outside of the home." Community mobility is required for people to engage in many of the activities that enable them to develop and maintain their social participation and full potential. Occupational science has developed a body of evidence supporting the links between optimal social participation, engagement in meaningful and satisfying activities, and the achievement of lifestyle balance (Christiansen & Matuska, 2006; Matuska, 2016; Matuska & Christiansen, 2008). Finally, by identifying community mobility as a human right, the principle of justice is brought into focus, along with the inherent value that should be placed on fostering a just and inclusive society (Polatajko et al., 2013).

ii. **Driving is a privilege; individuals' privileges must not compromise public safety.**

Driving is a privilege granted by society that comes with an individual and a public responsibility. In this document, it is recognized that supporting individuals to drive safely for as long as possible or to find the best alternate transportation options is crucial so as to not compromise their own safety and the safety of others.

iii. **Drivers with arthritis are involved stakeholders.**

This guiding principle mirrors one that guided the work of the National Blueprint for Injury Prevention in Older Drivers (Canadian Association of Occupational Therapists, 2009), and it is critically important. Keeping drivers with arthritis as central stakeholders ensures that the selected strategies address their real and most important needs. Drivers with arthritis and those who are no longer driving due to this medical condition should be included at all stages of the development of strategies and recommendations in the relevant areas of research, training, practice and policy.

iv. **National and regional needs and considerations are respected.**

This principle is a recognition that one "size" does not fit all and that different regions will have to address different driving safety needs and realities. The proposed directions for action have been elaborated upon with this guiding principle in mind and do not prescribe how the actions should be implemented.

v. **Safe driving strategies are integrated throughout the lifespan.**

Arthritis is a chronic health condition and those affected by it are likely to drive for many years. To ensure their safety, these drivers need to be informed and supported in implementing the strategies required at each stage of the condition. For example, the first stages of arthritis might require only the planning of rest periods during a long commute. However, for someone with severe joint deformities of the hand, an adequate strategy might be to adapt the steering wheel and ensure sufficient practice time for the integration of this adaptation into the activity of driving.

vi. **Services and resources are evidence-based and accessible.**

Developing and implementing services and resources that are based on the best available knowledge has become extremely valued. The body of evidence is constantly increasing and new knowledge should be serving the population as quickly as possible. For this reason, this guiding principle also incorporates the concept of access to services and resources. However, ensuring access to services and resources also requires that adequate considerations and measures are in place to address or prevent physical, cultural, financial, language or literacy barriers.

vii. **Innovation is fostered and supported.**

Strategies and research specifically designed to support drivers with arthritis are still scarce. Innovative activities and research projects that include outcome measures and proposals for implementation in different settings are encouraged in order to advance knowledge and driving safety.

viii. Knowledge translation is integral to promoting safe driving practices for persons with arthritis.

Efficient means of translating the knowledge gained from research settings to clinical settings or the knowledge gained from one specific region to other regions are a vital part of a successful pan-Canadian initiative for injury prevention in drivers with arthritis and optimal on-road public safety. Knowledge translation can include strategies as varied as organizing a public health campaign, publishing practice guidelines or offering professional training.

ix. Driving retirement is a life transition that should be proactively planned.

"All drivers must consider that their ability to drive may not continue throughout the lifespan" (Canadian Association of Occupational Therapist, 2010). This life transition should be carefully and proactively planned for, with coordination of resources that may support community mobility (returning to the first guiding principle). Ideally, this transition should start before the effects of aging or illness impact the ability to drive safely (Canadian Association of Occupational Therapists, 2009), and it should ensure individuals can engage in activities they need to do (e.g., going to medical appointments) and want to do (e.g., social outings and leisure activities). Educational programs can assist older adults in understanding the implications of driving retirement and the benefits of taking a proactive approach, as well as provide practical information regarding alternative means of transportation (Whitehead, Howie, & Lovell, 2006).

Priority goals and directions for action

1. Advance knowledge and research.

1a. Develop and strengthen an interdisciplinary research network on safe driving practices with arthritis that includes all relevant disciplines.

To support drivers with arthritis, the input of several research disciplines is needed. These disciplines may include, but are not limited to, medicine, rehabilitation and pharmacy. In this specific area (i.e., driving safety for people with arthritis) there is a paucity of evidence available and no cohesive core group of dedicated researchers. For example, the Canadian Council of Motor Transport Administrators (CCMTA) (2013) underlined the lack of evidence related to the effect of car adaptations and new technologies in preventing adverse driving outcomes. To generate evidence related to this issue, researchers from the disciplines of rehabilitation and design could collaborate with the auto industry to measure the long-term effects of car adaptations on collision risk. Developing and strengthening an interdisciplinary research network is thus considered a primary direction for action.

1b. Encourage each discipline to conduct an analysis of current evidence on driving with arthritis and produce a report that answers key questions:

- What do we know?
- What don't we know?
- What are the priorities?

Within each discipline, there is a need for a thorough assessment of the status of available evidence and the most pressing needs. The scoping review that supported the work of this National Blueprint encompassed all disciplines and was not intended to provide an in-depth analysis of the methodological quality of current publications. Such analysis should be conducted within disciplines, as each discipline will individually be best able to assess and appraise the extent of knowledge and priorities.

1c. Address the knowledge gaps and research priorities to support drivers with arthritis through innovative, collaborative efforts and partnerships.

Innovations, collaborative efforts and partnerships are seen as key elements in advancing knowledge on safe driving practices. Knowledge gaps have been recognized in the areas of the driving behaviours of people with arthritis (Carr, Flood, Steger-May, Schechtman, & Binder, 2006), the effectiveness of self-regulation strategies (Charlton, Oxley, Fildes, Oxley, & Newstead, 2003), the impact of medication on fitness to drive (Classen et al., 2008) and the effectiveness of interventions and resources to support driving safety for people with arthritis (Vrkljan et al., 2010).

2. Identify and propose best practices.

2a. Define the generalist and specialist scope of practice in the context of driving with arthritis.

Some professionals may be better positioned to act as generalists and others as specialists in addressing the needs of drivers with arthritis. An example may include the physician who is oftentimes the first point of contact and who would be the one to screen for the need to pursue more advanced assessments and interventions. In such a situation, this screening might be in the scope of practice of a generalist, while more advanced assessments and interventions would fall under the scope of practice of a specialist. In the field of driving rehabilitation and assessment, an approach involving three tiers of expertise and training has been proposed to build capacity and increase access to adequate professional services (Korner-Bitensky, Toal-Sullivan, & von Zweck, 2007). Defining these scopes of practice will shed light on the roles of different professionals.

2b. Appraise existing practice guidelines and service delivery models in order to tailor approaches that would support drivers with arthritis.

It is recognized that practice guidelines and service delivery models do exist in the field of driving rehabilitation and assessment. The scoping review identified four documents that aim to provide guidance for action and in which people with arthritis and/or musculoskeletal conditions are mentioned (Canadian Council of Motor Transport Administrators, 2013; Canadian Medical Association, 2012; National Highway Traffic Safety Administration & American Association of Motor Vehicle Administrators, 2009; Staplin & Lococo, 2003). The problem is that these documents were not developed specifically for the population of drivers with arthritis and they may not provide adequate recommendations for the delivery of efficient services. It would be important to appraise and, if possible, to tailor such resources to address the specific needs of drivers with arthritis.

3. Building capacity.

3a. Sensitize all professionals to the importance of the activity of driving in daily life and the need to include this consideration in their services to persons with arthritis.

Community mobility is crucial for engaging in a variety of satisfying and meaningful activities. At the same time, the safety of drivers as well as the safety of the community (i.e., public safety) are paramount. Sensitizing all professionals and professionals in training (e.g., family doctors, rheumatologists, pharmacists, occupational therapists, physiotherapists, nurses, kinesiologists, etc.) to the importance of and ways to address this issue is proposed here as a first step in building capacity. Addressing driving and community mobility needs might entail having a conversation with the client and/or referring the client to a specialist who will assist in optimizing driving safety or help plan for the use of alternate means of transportation.

3b. Develop, implement and evaluate generalist and specialist training curricula, standards and requirements for professionals to address fitness to drive for persons with arthritis.

Different levels of training exist in the field of driving rehabilitation and assessment. These may range from the generalist health professional to the therapist with advanced/specialized training (Korner-Bitensky et al., 2007). To support drivers with arthritis, there is a need to delineate the role of the generalist and the specialist and to define what constitutes appropriate training at each of these levels for addressing issues specific to this health condition.

3c. Design and distribute resources that can be used by professionals in the delivery of interventions to drivers with arthritis.

To deliver efficient and impactful services, professionals need to be supported by evidence-based resources (Vrkljan et al., 2010). The design and means of dissemination of these evidence-based resources require consideration, to ensure maximum accessibility and uptake. For instance, the chosen language level should enable clients' understanding and demonstrate inclusiveness of people with varying literacy levels (Canadian Association of Occupational Therapists, 2013). These tools also need to be distributed widely by organizations and stakeholders that have a genuine interest in supporting drivers with arthritis.

4. Monitor and advance policies

4a. Stay informed on policies, task forces, budgetary decisions or other developments that may affect services offered to drivers with arthritis.

To appropriately monitor policies related to supporting safe driving for people with arthritis, there is a need to stay informed about all standards, directives and procedures that are put into place by national and regional government agencies.

4b. Provide current and timely information to decision-makers regarding safe driving with arthritis.

Providing information to decision-makers, particularly to the ones involved in licensing, road safety and/or healthcare services, is an important way to initiate and strengthen a critical dialogue on policies affecting drivers with arthritis.

4c. Ensure representation and collaboration with decision-makers and advocacy groups for the advancement of policies that impact community mobility for persons with arthritis.

Being present and collaborating with decision-makers and advocacy groups is the ultimate means of advancing policies. Such collaboration may involve the development of a range of policies related to building public awareness, reporting unsafe drivers, assessing the fitness to drive of people with arthritis, using car adaptations/modifications/technologies and monitoring the direct and indirect impacts of existing policies. Advancing policies also includes developing and improving funding options to optimize access to driving rehabilitation and assessment services, as well as the installation of vehicle adaptations/modifications.

5. Enhance awareness.

5a. Raise public awareness related to the impact of arthritis on driving.

The public needs to be aware of the multiple possible impacts of arthritis (its symptoms as well as its medical management) on the activity of driving. The public should also be informed that support is available and solutions exist that may improve comfort and safety while driving for individuals with arthritis. This is an important step to decrease the feelings of isolation that may be experienced by people who deal with the symptoms of arthritis. A public awareness campaign for drivers with arthritis should emphasize the benefits of assessment and early intervention.

5b. Inform target audiences about the effective strategies that may prolong safe driving for individuals with arthritis.

Target audiences need to be aware of strategies, services and resources that can prolong safe driving for individuals with arthritis. This will help address the issue of individuals' fear of losing a licence if difficulties are reported. People with arthritis need to know which professionals can support them and what these professionals can provide. The goal is of disseminating such information is to avoid too-early and unnecessary driving retirement, as well as ensure timely action when services and resources are needed to address the serious effects of this prevalent chronic health condition on road safety.

6. Monitor uptake and ensure relevancy.

6a. Monitor the reach, uptake and impact of the *National Blueprint for Injury Prevention in Drivers with Arthritis*.

"Reach" refers to the extent the National Blueprint has been consulted, read, downloaded, discussed and referred to among the public and relevant stakeholders. "Uptake" refers to the extent that it is used as a guiding document for spearheading initiatives and decisions. Finally, "impact" includes all the tangible outcomes in the areas of research, training, practice and policy as a result of initiatives to support driving safety in the presence of arthritis.

6b. Assess the relevance of the *National Blueprint for Injury Prevention in Drivers with Arthritis*.

Engaging in extensive monitoring as described above will lead to this next step—assessing the relevance of the *National Blueprint for Injury Prevention in Drivers with Arthritis*. Assessment of relevance is especially required in the context of innovative strategies for which no comparative gold standard or benchmark is available. This National Blueprint is an innovation; no document such as this has been elaborated specifically to support drivers with arthritis. Timely assessment of relevance will allow for the continuing improvement of its quality and usefulness.

6c. Plan and lead actions to update the *National Blueprint for Injury Prevention in Drivers with Arthritis* in accordance with emerging evidence.

Actions to update this document should be planned and led on a minimal three-year cycle in order to keep up with the changing context and the growing body of evidence.

Closing Statement

The objective was to create a Blueprint that is directed towards preventing injury by promoting safety amongst drivers with arthritis. The intent is that this document will be used by many stakeholders and will inform future policy, practice, education and research regarding driver safety. Readers are welcome to disseminate and use this document broadly with proper acknowledgment of CAOT. The document can be retrieved in French and English at www.caot.ca/driving

When citing this document, please use the following reference: Canadian Association of Occupational Therapists. (2017). *National Blueprint for Injury Prevention in Drivers with Arthritis.* Ottawa, ON: CAOT. Retrieved from www.caot.ca/driving.

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Appendix A

Methodology of the scoping review in support of the development of the *National Blueprint for Injury Prevention in Drivers with Arthritis*

Methodology

A scoping review framework was chosen to allow for broad research questions to be addressed and a wide range of literature examined (Arksey & O'Malley, 2005). This framework is a flexible and comprehensive approach for charting existing evidence and, in this case, collecting all that has been published in the areas of clients' needs, best practices, professional training and policies. The charting process allowed for the identification of gaps in current evidence and the making of recommendations for future work. We followed the six steps suggested by Arksey & O'Malley (Arksey & O'Malley, 2005), including the optional one that involves both the consultation with experts though a Delphi methodology and an in-person meeting.

Identification of the research question

The following questions guided the work:

"What is the evidence published in the last 25 years on the activity of driving for people with musculoskeletal conditions and/or arthritis?"

What are the implications and/or gaps in terms of knowledge, practice, professional training and policies?

Identification of relevant studies and study selection

Articles were identified through different electronic databases including Medline, Embase, CINAHL, Cochrane, PsychInfo and Google Scholar. The selected search terms were: [musculoskelet* OR arthritis*] AND [automobile driving OR driving OR driver* OR automobile, car]. Reference lists of relevant articles were also consulted. A total of 537 articles were identified in these databases. The last steps of the search involved asking members of the National Advisory Team for their input regarding references that could be included, as well as reviewing the reference lists of relevant documents, the tables of contents of key journals and resource lists of existing practice networks, conferences and relevant organizations. We also completed an environmental scan using the Google search engine, as the goal was to map existing training, community, policy and advocacy initiatives and not just research activity. These actions led to the inclusion of 28 additional documents. One researcher conducted the search and the selection process.

Selection criteria

There was no limit related to the study design. Selected articles had to be published in French or English no earlier than 1990. Articles had to address the activity of driving. Articles irrelevant to the subject, for example those addressing musculoskeletal issues of workers in the auto industry, were excluded. After review of all titles and the abstracts, 152 articles were left to be reviewed in full, after which 111 were found to be relevant.

Charting the data

The extraction table included information about each document's author, year of publication, country of origin, goal, study design, population size, outcomes and implications for practice. As suggested by Levac and colleagues (2010), the preliminary findings collected in the extraction table were used to inform and initiate reflections and discussions, creating a platform for knowledge exchange. A total of 15 experts and key stakeholders were consulted regarding the analysis and interpretation of these documentsThese experts were occupational therapists with knowledge and experience in driving rehabilitation and assessment (n=4), representatives of not-for-profit organizations (n=2), a physiotherapist (n=1), a physician (n=1) and researchers in occupational therapy, kinesiology and pharmacy (n=7). Most of these individuals had multiple roles, such as being decision- and policy-makers, trainers and members of special task forces and committees that support driving and community mobility. Their role was to provide their comments and reactions following their consultation of the scoping review extraction table. The consultation process followed a Delphi methodology to collect insights, information, perspectives, meanings and view on applicability (Levac et al., 2010). The Delphi method was followed by a one-day in-person meeting to develop the outline of the *National Blueprint for Injury Prevention in Drivers with Arthritis.*

Collating, summarizing and reporting the results

We used both a numerical and a thematic analysis to examine and combine findings (Arksey & O'Malley, 2005). The numerical analysis highlighted the frequency and distribution of the documents, related to the year of publication, the study design and the number of participants included in studies. For the thematic analysis, studies were further classified according to five broad categories (i.e., safe return to driving after a musculoskeletal surgery, musculoskeletal health issues of professional drivers, medical conditions or deficits predicting unsafe drivers, driving for people with arthritis or musculoskeletal conditions and ergonomic evaluation of car equipment and seating posture). These categories or themes were developed while completing the data extraction phase. Experts and stakeholders involved in this project have provided feedback on the precision/clarity of wording and its congruence with the documents' topics. The categories were meant to classify documents according to their overall aims or perspectives in addressing the issue of driving with musculoskeletal conditions and/or arthritis; they have helped in analyzing what is published and what is missing. The categories selected allowed the classification of all studies, suggesting a comprehensive coverage of issues. An extraction table was compiled.

Consultation of experts and key stakeholders

For the consultation, the Delphi methodology approach was chosen, as it supports the development of consensus among knowledgeable individuals through an iterative process of successive rounds. Our Delphi procedure comprised two rounds of surveys sent through email. In the first round, participants were asked to respond to the following prompts:

Provide your comments and reactions following the consultation of the scoping review extraction table.

Based on scientific evidence, based on your clinical expertise and/or based on your personal experience, what are the needs of individuals with musculoskeletal disorders and/or arthritis to support their driving safety?

What are concrete actions needed to advance

research?

practice?

training of professionals?

policies?

Open-ended questions were used and no ranking of ideas was requested, as the goal was to generate a comprehensive set of suggestions before the in-person meeting, in which the selection and ranking would take place. In the second round of emails, participants were asked to enhance or develop the provided compilation of anonymized answers. The goal at this time was to generate a higher level of precision in the collected ideas and to ascertain the comprehensiveness of the suggestions. For each round, a period of two weeks was given to complete the task. At the end of this process, a document was produced that comprised the input of all members of the National Advisory Team.