

FINAL REPORT

Understanding healthcare provider barriers to prescribing and recommending non-pharmacological sleep interventions for persons diagnosed with dementia

February 2013



CA Brown (PI)¹, P Wielandt¹, D M Wilson², A Jones³, M Bullock¹, K Crick³
(¹Department of Occupational Therapy, ²Faculty of Nursing, ³Department of Physical Therapy,
University of Alberta, Edmonton, Canada)

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This project was completed by the Sleep and Function Interdisciplinary Group (SAFIG) of the Faculty of Rehabilitation Medicine, University of Alberta. This research group was led by Dr Cary Brown, Associate Professor, Department of Occupational Therapy, Faculty of Rehabilitation Medicine, University of Alberta (cary.brown@ualberta.ca). The project was funded through the Addiction & Mental Health Research Partnership Program: Alberta Health Services (AHS) (<http://www.albertahealthservices.ca/2770.asp>).

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Table of contents

	Plain language summary	5
	Executive scientific summary	7
1.0	Introduction	11
	1.1 Sleep and dementia	11
	1.2 The evidence to practice gap	12
	1.3 Objective and research questions	12
2.0	Methods	12
	2.1 Sample	12
	2.2 Survey development	13
	2.3 Ethics	13
	2.4 Analysis	13
3.0	Findings	13
	3.1 Quantitative results	14
	• Question 1: Practice setting	14
	• Question 1: National distribution	14
	• Question 2: Healthcare profession	15
	• Question 3a: Residential setting of PWD	15
	• Question 3b: Perceived prevalence of DS	15
	• Question 3c: How healthcare providers become aware of DS	15
	• Question 4: Factors associated with DS in PWD	16
	• Question 5: Medical conditions and symptoms associated with DS in PWD	18
	• Question 6: Healthcare providers' awareness of sleep assessment tools	19
	• Question 7: Use and assessment of the practicality of NPSI	20
	• Question 10: Knowledge translation preferences	23
	3.2 Qualitative results	24
	• Question 8: Barriers to non-pharmacological sleep interventions	24
	• Question 9: Facilitators of non-pharmacological sleep interventions	26
4.0	Discussion	30
	• 4.1 What is the current level of Canadian healthcare providers' knowledge related to risk factors for DS in PWD?	30
	• 4.2 What is current practice related to screening and interventions for DS in PWD?	32
	• 4.3 What do healthcare providers perceive to be the barriers and facilitators to prescribing/recommending non-pharmacological sleep interventions for PWD?	34

	<ul style="list-style-type: none"> 4.3.1 How do these findings relate to the Knowledge-to-Action cycle? 4.4 What are healthcare providers' preferences for sleep assessment and NPSI KT? 	41
5.0	Limitations	42
6.0	Conclusions & Recommendations	43
7.0	Participant feedback on survey	45
8.0	Dissemination activities	46
9.0	References	47
10.0	Appendices	
	Appendix A: List of contacted organizations	51
	Appendix B: English language survey	56
	Appendix C: French language survey	62

Plain language summary

What do healthcare providers know about sleep problems in older adults living with dementia and how do they recommend researchers should provide them with this information?

A cross-Canada survey

Between 50-70% of older adults with Alzheimer's and other dementias (AOD), have sleep problems. These sleep problems result from, and contribute to, the development of dementia. Sleep disturbances lead to accelerated cognitive and functional decline.

In studies with lab animals sleep deprivation of only three weeks sped up the development of amyloid plaques (which contribute to Alzheimer's disease) in the brain. Other studies show that sleep disturbances are one of the most difficult aspects of caring for a family member with AOD. Anxiety and sleeplessness caused by a family member's disrupted sleep leads to poor health for the caregiver. This emotional and physical caregiver burden increases the probability of institutionalization.

Most people, including healthcare providers, are not aware of the research about how sleep and dementia affect each other. Nor are they aware of research showing us that many sleep problems can be decreased with the use of non-drug types of interventions. For example, promising research has been carried out on non-drug interventions such as massage, bright light therapy, temperature control and other types of environmental modification to promote better sleep. This lack of awareness (also called a 'research-to-practice gap') means that older adults with AOD have an unmet need for healthcare providers to assess sleep problems and make recommendations to help correct these problems.

In 2011 the **Sleep and Function Interdisciplinary Group (SAFIG)** in the Faculty of Rehabilitation Medicine, University of Alberta, was funded by the *Canadian Dementia Knowledge Translation Network (CDKTN)* <http://www.lifeandminds.ca/> to complete a structured review of the evidence for non-drug sleep interventions for persons with AOD. SAFIG then went on in 2012 to carry out a survey (funded by *Addiction & Mental Health: Alberta Health Services*) of healthcare providers' knowledge about

sleep problems in persons with AOD and what types of assessments and interventions are commonly used to address sleep problems. The survey also asked healthcare providers what prevents or helps them to recommend non-drug sleep interventions.

We found that, like similar studies in other countries, healthcare providers had little knowledge about what the risk factors for poor sleep were, what types of health conditions insomnia could make worse, and what types of assessments and non-drug interventions were research tested and available.

Encouragingly, we also found that healthcare providers were concerned about sleep problems and were very eager for more information about assessments and non-drug sleep interventions for older adults with Alzheimer's and other dementias.

Although healthcare providers identified a range of influences that either made it easier or more difficult to use non-drug based sleep interventions, it was striking that few of these influences involved wider socio-political policy and attitudes about health, aging and dementia. This seems to indicate a lack of awareness about the public health and societal implications of untreated sleep problems in older adults with AOD.

People in each healthcare provider category also identified the best ways to get information from research studies to their group so that they could begin to apply it in their daily work. From the survey findings we know that different groups of healthcare providers have different information needs and preferences for how they receive information. Our findings match what we are learning from other knowledge translation (KT) studies and we used the Canadian Institute of Health Research (CIHR) guidelines for KT to help us understand our findings and design recommendations.

The **sixteen specific recommendations** about how best to reduce the sleep and dementia evidence-to-practice gap that came out of the survey findings are summarized below:

- Build sleep problem screening and advocacy capacity in the healthcare providers who spend the most time with PWD.
- Make sleep a higher priority topic for education of healthcare providers.
- Educate healthcare providers about the effect of caregiver beliefs and co-morbid conditions on disordered sleep for PWD.
- Educate healthcare providers about effective non-drug sleep interventions.
- Tailor healthcare providers' education to fill the specific knowledge gaps of each discipline.
- Educate caregivers to facilitate a change in their beliefs and awareness of effective non-drug interventions for disordered sleep.
- Improve sleep screening and assessment by: 1) embedding sleep-related questions in generic elder-care screening tools, and 2) improving access to appropriate sleep assessment tools.
- The priority requirements for delivering effective knowledge translation strategies to reduce the research-to-practice gap are:

- a. Customize to local context.
- b. Incorporate a range of formats for learners' preferences.
- c. Develop strategies based on an awareness of organizational culture.
- d. Respect and build on prior knowledge.
- e. Avoid ageist assumptions of communication methods.
- f. Focus on evidence-based principles for increased health literacy.
- g. Focus on practicality of the information.

These recommendations can now be applied by policy makers and healthcare educators to develop specific educational strategies and care guidelines to improve healthcare providers' ability to provide the best, research informed, care for older adults living with sleep problems and dementia.

If you would like more information or a copy of the full report please contact Dr Cary Brown, Associate Professor, Faculty of Rehabilitation Medicine, University of Alberta (cary.brown@ualberta.ca)

Understanding healthcare providers' barriers to prescribing and recommending non-pharmacological sleep interventions for persons diagnosed with dementia

Executive Summary

For persons with dementia (PWD), sleeping problems are often unrecognized and undertreated. This is a concern for two reasons: disordered sleep may contribute to the onset of their dementia and a lack of restorative sleep can negatively impact the health and functioning of both the person living with dementia and their family caregivers. Early identification and appropriate intervention for sleep problems can help reduce the risk of dementia onset and/or slow the acceleration of the illness.

Presently, the relationship between sleep and dementia is not well understood by most healthcare providers and family caregivers of PWD. Traditionally, sleep problems have been treated with medication, but this can cause a range of side effects. Although there are evidence-based interventions for sleep disorders that are non-pharmacological these interventions are not routinely recommended known to healthcare workers because of a prevalent research-to-action gap. Consequently healthcare providers lack the knowledge required to make recommendations to family members about pragmatic sleep interventions for PWD. Addressing this gap through evidence-based knowledge translation and exchange (KTE) strategies will ultimately contribute to improved health and quality of life for both PWD and their family caregivers. In turn, optimal health and functioning are positive influences supporting the priority goal of PWD and their family caregivers remaining able to live safely and with quality in their own homes.

The first step in addressing this knowledge-to-action gap is to determine the current state of sleep assessment and intervention practice of healthcare providers working with PWD. Knowing this helps lay a strengths-based foundation for more targeted KTE and educational strategies addressing sleep problems

for PWD. This study, *Understanding healthcare provider barriers to prescribing and recommending non-pharmacological sleep interventions for persons diagnosed with dementia* gathered quantitative and qualitative survey data from 2,027 healthcare providers from across Canada. The respondents to the survey represented a wide range of professional groups working in both institutional and community settings. These findings present a clear picture of current knowledge and practices. Additionally, the findings illustrate what healthcare providers perceive to be barriers and facilitators to applying the sleep and dementia evidence-base to their practice. Finally, and very importantly, the survey highlights what KTE strategies healthcare providers identify as being most effective for helping reduce the sleep and dementia research-to-action gap that currently exists.

The full report reviews the background literature highlighting the impact of disordered sleep on dementia, outlines the study design, presents the findings of the survey and discusses the implications of these findings. A series of **sixteen action points** (Table 13 in the full report) emerged to help guide further evidence-based action targeting the sleep and dementia KTE needs of Canadian healthcare providers.

Encouragingly, the study shows healthcare providers want to learn more about disordered sleep and non-pharmacological sleep interventions. This is a key strength upon which efforts to address sleep KTE needs of healthcare providers can move forward and thereby improve health and well-being of PWD and their families.

Key Findings

Current Level of Knowledge Related to Disordered Sleep in PWD

Incidence of Disordered Sleep Experienced by Persons with a Diagnosis of Dementia

On the strength of this large sample from across Canada, it appears that healthcare providers underestimate the extent of disordered sleep in PWD. This is consistent with other research studies.

Bi-directional Relationship

There is a lack of awareness about the reciprocal relationship between disordered sleep and dementia. Disordered sleep can result in changes to a person's appetite, falls, problem solving abilities and caregiver beliefs. Not only do these health variables impact a PWD's ability to function at an optimum level, but also a lack of sleep can contribute to the development of their dementia.

Assessment Tools

Knowledge of sleep related assessment tools is limited to caregiver reports, self-reports and sleep diaries. There is a minimal use of standardized tools or other assessment methods.

Effect on Co-morbid Conditions

The relationship between disordered sleep and co-morbid conditions is not well understood among healthcare providers. Co-morbid conditions can negatively impact sleep and sleep problems appear to be a risk factor for many health conditions (such as cardiac disease and diabetes). In particular, the associations between disordered sleep and conditions such as allergies, sensory deficits, endocrine or renal disorders and rheumatic diseases are under-recognized by healthcare providers.

Current Practice Related to Screening for Disordered Sleep in PWD

Present Practice

Disordered sleep is not specifically nor formally assessed on a routine basis. Rather healthcare providers may informally identify sleep problems

during assessments for other conditions or from the reports of other team members and family/caregivers. Routinely administered standardized assessment tools do not include sleep screening questions.

Standardized Tools

Awareness of standardized sleep assessment tools was low, but respondents saw their relevance and did not perceive assessment tools as being impractical.

Non-pharmacological Sleep Interventions (NPSI)

The three most common strategies endorsed by respondents were: have a regular bedtime routine, increase daytime activity and restrict caffeine. Other interventions less frequently endorsed included: have a regular exercise routine, decrease daytime naps and evening noise levels, as well as cut down on evening fluids. Education about sleep surfaces and positions, white noise at night and reduced ambient nighttime light were not well endorsed.

Professional Variability in Awareness of Sleep Interventions

Awareness of different non-pharmacological sleep interventions varied widely between different professions.

Barriers and Facilitators to Recommending NPSI

Barriers

Resource limitations and restrictions in the environment were identified as the most common impediments to utilizing NPSI. Other barriers included characteristics of PWD and their caregivers, knowledge of NPSI and a societal trend to medicalize sleep problems and discount them in older adults.

Facilitators

Characteristics and practice of the healthcare provider (including their education) were identified as the most common facilitators to recommending NPSI. Additionally, but with less impact, identified the facilitators of available resources, family/caregiver characteristics,

environment, access to interventions available other than medications.

Of particular interest is that, although healthcare providers identified a range of influences that facilitated or hindered their use of non-pharmacological sleep interventions, few of these influences involved wider socio-political policy and attitudes about health, aging and dementia. This seems to indicate a lack of awareness about the public health and societal implications of untreated sleep problems in older adults with AOD.

Preferences for Assessment and NPSI Knowledge Translation

Flexible Formats

Respondents' preferences were for printed reports and handouts for knowledge translation. Among the different groups of healthcare workers, there was a high degree of variability of preferences for different types of formats. This indicates that targeted, as opposed to generic, knowledge translation strategies are indicated.

Targeted Topics

Respondents' comments indicated that information should be relevant to the healthcare provider's local work context. Clear, specific knowledge gaps should be targeted.

Implications of the Study:

- There is a research-to-knowledge gap regarding how interventions for disordered sleep can reduce the risk or lessen the severity of dementia, possibly leading to greater independent living in the community.
- Healthcare providers are not well informed about the risk factors of disordered sleep in PWD.
- The present practice for assessment is not routine, sleep related issues may be followed up if they emerge in other assessments but little awareness of existing, standardized assessment exists.

- Barriers and facilitators exist to incorporating assessment and treatment of disordered sleep into the daily practice of healthcare providers. With knowledge of the range of facilitators and barriers KTE strategies can be selected and modified within the parameters of local context so as to increase the likelihood of meaningful change.
- Healthcare providers lack awareness about the public health and societal implications of untreated sleep problems in older adults with AOD.
- Learning new information regarding disordered sleep needs to be contextualized and reflect individual learning preferences.
- Healthcare providers are eager to learn about assessment and treatment of disordered sleep in PWD with non-pharmacological methods.

This study can inform the topic by:

1. *Targeting specific areas within and across healthcare professions where information is significantly lacking.*
2. *Linking the recommendations to build on the existing strengths of healthcare providers.*

Our findings align with the Canadian Institute for Health Research (CIHR) Knowledge-to-Action Cycle and particularly the taxonomy of barriers and facilitators for knowledge use that Légaré developed based on his review of the extant KT conceptual models. These foundational works helped us identify the key findings from our survey as they relate to the goal of recommendations to increase healthcare providers' knowledge and use of NPSI for persons with dementia.

Summary of Action Points to Improve Sleep and Dementia KTE Outcomes:

- Build sleep problem screening and advocacy capacity in the healthcare providers who spend the most time with PWD.
- Make sleep a higher priority topic for education of healthcare providers.

- Educate healthcare providers about the effect of caregiver beliefs and co-morbid conditions on disordered sleep for PWD.
- Educate healthcare providers about effective non-drug sleep interventions.
- Tailor healthcare providers' education to fill the specific knowledge gaps of each discipline.
- Educate caregivers to facilitate a change in their beliefs and awareness of effective non-drug interventions for disordered sleep.
- Improve sleep screening and assessment by: 1) embedding sleep-related questions in generic elder-care screening tools, and 2) improving access to appropriate sleep assessment tools.
- The priority requirements for delivering effective knowledge translation strategies to reduce the research-to-practice gap are:
 - a. Customize to local context.
 - b. Incorporate a range of formats for learners' preferences.
 - c. Develop strategies based on an awareness of organizational culture.
 - d. Respect and build on prior knowledge.
 - e. Avoid ageist assumptions of communication methods.
 - f. Focus on evidence-based principles for increased health literacy.
 - g. Focus on practicality of the information.

These recommendations can be applied by policy makers and healthcare educators to develop specific educational strategies and care guidelines to improve healthcare providers' ability to provide the best, research informed, care for older adults living with sleep problems and dementia.

If you would like more information or a copy of the full report please contact Dr Cary Brown, Associate Professor, Faculty of Rehabilitation Medicine, University of Alberta (cary.brown@ualberta.ca)

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Full report

Introduction

This report presented the findings from a research study that was funded through the Alberta Health Services/Alberta Addiction and Mental Health Research Partnership program - Collaborative Research Grant Initiative: Mental Wellness in Seniors and Persons with Disabilities. Canadian healthcare providers who work with persons diagnosed with dementia were surveyed to examine their current knowledge, practices and any perceived barriers or facilitators to the use of non-pharmacological interventions to address disordered sleep in persons with dementia (PWD). The survey also collected information on healthcare provider preferences for sleep knowledge translation approaches.

1.1 Sleep and dementia: *Why are we concerned about the sleep of persons living with dementia?*

Disordered sleep (DS) [1] in older persons is a common but largely overlooked problem. It is a major contributing factor for psycho-social dysfunction, risk-taking behaviors and numerous other health problems [2]. The relationship between disordered sleep and decreased cognitive, emotional, and physical functioning; substance misuse; and a number of mental health problems are well documented [3, 4]. Research suggests that this may be a bi-directional relationship such that poor sleep influences health and dementia, and, dementia reduces restorative sleep. This is an exciting possibility then that interventions for disordered sleep may reduce the risk for, or lessen the severity of, mental and physical health problems. This, in turn, will facilitate the priority goal of continued independent community living for PWD.

In April 2009, the Government of Alberta released "A Profile of Alberta Seniors" [5] to clearly highlight that in Alberta the number of older adults in general, and consequently the number of PWD and family caregivers, is rapidly growing. This presents unique challenges. The first challenge is to provide resources and services where no need previously existed. The second challenge is the speed at which healthcare providers must develop the requisite skills and capacity to respond to these new needs with best

practice and evidence-based interventions. Disordered sleep is one such important, but largely overlooked, unmet need.

Older adults, and particularly those persons who are diagnosed with dementias, are at significant risk for altered sleep patterns and sleep disorders [6, 7]. Disordered sleep is not only a consequence poor health; it is also a health risk factor, contributing to the onset of mental and physical health conditions. Basic science research has demonstrated a relationship between sleep deprivation in lab mice of as little duration as three weeks and the accelerated development of the amyloid plaques that are associated with Alzheimer's disease [8]. Other researchers have revealed a clear link between insomnia and cognitive tasks such as vigilance [9], concentration, memory, and executive function [10]. Cricco et al [11] concluded from a study of 6,400 community-dwelling persons over age 64 that found 'chronic insomnia independently predicts incidence of increased cognitive decline in older men' (p. 1187).

A growing literature demonstrates a relationship between DS and many different health conditions that are common in older persons – for example, traumatic brain injury [12], multiple sclerosis [13], Parkinson's disease [14], stroke/CVA[15], and dementia [8]- that impact the cognitive functioning and incidence of dementia in older Canadians. A key commonality across these conditions is the contribution of DS to increased risk for cognitive impairment, depression, reduced independence, deteriorated quality of life, and increased caregiver/family burden. Functional problems that may precipitate institutionalization are significantly compounded when DS occurs in concert with other psycho-emotional and cognitive health conditions (such as dementia). Disordered sleep has been shown to be a significant predictor of future depression among well older community-dwelling adults [16]. In turn, depression has also been demonstrated as a risk factor for dementia [16]. DS is not only an issue for the PWD but also for their caregivers. Providing care to PWD can result in DS for the caregiver themselves and significantly affect

health and ability to cope with the emotional and physical demands of the caregiver role [6]. Caregiver support is important to maintain the ability of PWD to remain living in the community and also to be able to engage in social and physical activities outside of the home [17]. Caregivers who are sleep deprived experience decreased physical, cognitive, and psychological well-being, all to the detriment of their continued ability to maintain a person with dementia in the community and to prevent premature institutionalization.

1.2 The evidence to practice gap: *Why don't we know lack of sleep is a problem?*

Currently there are barriers to treatment and a lack of awareness among the clinical healthcare community, organizations, and individual providers regarding sleep disorders, and sleep interventions for both those persons with dementia and for their sleep-deprived caregivers [18-20]. Although non-pharmacological sleep interventions (NPSI) have been repeatedly demonstrated as effective for improving restorative sleep among older persons [21-25], the inaccurate belief that reduced hours of sleep are common among older persons and also that the decreased ability to sleep well in old age is a 'normal' aspect of aging is pervasive [26]. These mistaken beliefs on the part of both healthcare providers and the general public, coupled with decreased help seeking behaviors from both PWD and their family members, contributes to the under-diagnosis and non-treatment of DS. Not only are there many persons now with DS, but this is a rapidly growing number of Canadians.

1.3 Study objective and research questions: *What do we need to know to move forward?*

Although a considerable body of knowledge exists, little of it is known or used to help older people with DS avoid the use of sleeping pills and other pharmacologic measures for their DS. This study's primary objective was to identify knowledge translation and exchange (KTE) strategies to reduce the evidence-to-practice gap and thereby facilitate better treatment for DS in person with dementia. To best identify where the most prevalent gaps between the extant evidence and current practice existed we surveyed Canadian healthcare providers working with PWD to address the following questions:

1. What is the current level of knowledge related to risk factors for DS in PWD?

2. What is current practice related to screening for DS in PWD?
3. What do healthcare providers perceive to be the barriers and facilitators to prescribing/recommending non-pharmacological sleep interventions (NPSI) for PWD?
4. What are healthcare provider preferences for sleep assessment and NPSI knowledge translation?

Answers to these questions will help target specific areas where information is lacking and also to link recommendations for action in a manner that builds on healthcare providers' existing strengths and awareness.

2.0 METHODS

2.1 Sample

We identified 318 national and provincial Canadian healthcare providers' professional organizations (see Appendix A for list of the contacted organizations). As there is no national clearinghouse of professional organizations, we searched manually on the Internet and used a snowball technique to identify stakeholder groups. Some organizations provided lists of members on their websites and we attempted to make phone or mail contact with these persons. Most organizations sent us their contact lists or offered to distribute the survey invitation (and URL link to the online survey) to their members either through a newsletter or electronic announcement. Some organizations did not respond to our request and some were unable to because of their organizational policies. Several organizations forwarded the request to other groups, ones we were unaware of. This snow ball technique was highly effective for sharing the news of our study, but it meant we were unable to tally exactly the number of organizations that forwarded information to their members. We estimate that 65 to 80 organizations participated in distributing the survey invitation.

We received requests for a French-language survey. In response to these queries the survey was translated and the translation verified by two people fluent in the French language. Because we lacked on-going bilingual project staff the French language findings where thematic, text driven interpretation was required have not yet been analyzed. We were able to combine the French and English language descriptive data. The sub-sections of the Findings

section (3.0) are labeled as either English and French responses (EFR) or English responses (ER) for clarity.

2.2 Survey development

We had previously identified the existing evidence for NPSIs from a critical literature review [1] and used this information to develop questions to determine what healthcare providers knew about risk factors for DS in PWD, consequences of DS, sleep assessment methods, and NPSI for PWD. We also gathered background demographics related to prevalence of PWD in the practice, estimated number of PWD and caregivers who experience DS, and the postal code of participant work places. This postal code data allowed us to determine if we had national representation in the survey responses. We also collected participant perceptions through open-ended qualitative questions about current barriers and facilitators to their prescribing or recommending NPSI to patients.

We used Canadian based survey software (FluidSurveys (version 4.0 – S1. © 2012), to develop an online self-report survey comprised of closed-ended (checkboxes, multiple choice grids) and open-ended qualitative (text responses) questions. We selected this format to reduce participant burden and facilitate ease of data entry into an SPSS ® database and the subsequent descriptive analysis. The survey was pilot tested with the interdisciplinary members of the Special Interest Group in Aging (SIGA) in the Faculty of Rehabilitation Medicine, and with two geriatricians from the Faculty of Medicine, University of Alberta. Appendix B contains the English language version of the survey and Appendix C the French translation.

2.3 Ethics

The survey received Human Research Ethics Approval from the University of Alberta. Beyond the postal code information, we did not gather any identifying data so that individual respondents remained anonymous. Respondents had the option of providing an email address at the end of the survey if they personally wished to receive a final copy of the report. Postal codes were represented by only the first 3 characters or fully anonymized in any reports so respondents could not be identified through this mechanism.

2.4 Analysis

2.4.1 Quantitative

All of the English language survey data were converted to SPSS (Version 19.0). We performed 2-tailed statistical testing at a .01 level of significance unless otherwise stated. The sample of psychologists, respiratory technicians and care assistants was too small for chi-square analysis and were removed from the data set for questions 4-7, and 10. Postal code data was matched to Canada Post data which allowed us to break the responses into provincial categories.

2.4.2 Qualitative analysis

The data for the open-ended Questions 8 (facilitators of NPSI recommendations) and 9 (barriers of NPSI recommendation) were analyzed following the category formation (open coding) process outlined by Bowlings and Sim et al. [27, 28]. It was possible to record up to 6 separate facilitators in response to Question 8. For preliminary coding both “member-generated” (expressed in the survey respondent’s response) or “observer-generated” (generated by the researcher) [28] categories were assigned. The categories themselves were either “descriptive” or “interpretive” [28]. After all responses to Question 9-facilitator 1- were coded, two researchers independently generated themes and assigned individual categories to each theme accordingly (axial coding) [28]. Then, the research team discussed and reviewed the emergent themes and categories. The occurrence of each category in facilitator 1 was calculated and those that were indicated infrequently (by fewer than 10 participants) were reviewed and discussed. A revised coding scheme was created where categories were joined and divided [28] for a final list of categories. The coding scheme was then applied to the responses for all the remaining 4 opportunities to identify facilitators, and some slight revision was made in order to accurately reflect the nuance in the data set. It was evident that some categories were relevant to more than one theme and so we followed Bowling’s [27] process of multi-coding. The same process was followed for Question 9- Barriers.

3.0 FINDINGS

The survey started Nov 2011 and was closed March 31 2012. The findings will be presented in two sections; quantitative findings in section 3.1, followed by the qualitative findings in section 3.2.

3.1 Quantitative results

There were 1846 and 208 respondents to the English and French language surveys respectively of which 1822 (English) and 205 (French) were complete. Participants were not required to answer all of the questions and could make more than one selection for many of the questions and so the total responses and participants for each question is varied.

3.1.1a Question #1: Practice setting (EFR)

Participants were able to select multiple areas of practice so as to best reflect their actual working patterns. A number of participants indicated they worked both in long-term care (LTC) and in acute care facilities. Consequently the participants' distribution by practice setting equals more than 100% (Table 1). Long term care (33.6 % (n=680), followed by acute care (32.2% (n=652), accounted for the majority of participants. Healthcare providers who were working in the community appeared to be under-represented (17.4% (n=351).

Table 1: Practice setting* (EFR)

Response	English language participant (n)	French language participant (n)	Total participants
Long-term care facility/ Établissement de soins de longue durée	33.9% (616)	30.9% (64)	33.6%(680)
Acute care facility/ Établissement de soins aigus	33.1% (602)	24.2% (50)	32.2% (652)
Community/ Homecare service/ Communauté/Services à domicile	16.3% (295)	27.1% (56)	17.4% (351)
Family practice/ Primary care/ Pratique familiale/Soins de santé primaire	8.8% (159)	7.2% (15)	8.6% (174)
Rehabilitation service/ Services de réhabilitation	8.5% (154)	4.8% (10)	8.1% (164)
Geriatric clinic/ Clinique gériatrique	6.9% (125)	7.2% (15)	6.9% (140)
Supported living facility/ Installation aide à la vie	7.3% (133)	0% (0)	6.6% (133)
Private practice/ Pratique privée	5.6% (101)	2.4% (5)	5.2% (106)
Research centre/ University/ Centre du recherche/Université	2.4% (44)	3.4% (7)	2.5% (51)
Other/Autre (please write in)	14.4% (261)	19.3% (40)	14.9% (301)

(*note: participants could select >1 category therefore the total exceeds 100%)

3.1.1b Question #1: National distribution (EFR)

In total, 57.9% (n=1051) of the English speaking and 67.6% (n=140) of the French speaking participants provided a postal code. The participants were distributed across Canada with the exception of the Northwest Territories where the time frame and costs of acquiring a research license exceeded project resources (Table 2 and Figure 1). The highest response rate was 38.7% from Alberta (n=407), followed by 19.7% from New Brunswick (n=235) and 16.9% from Ontario (n=201).

Table 2: National distribution (based on participants who responded to this question)

Province	English language participant (N)	French language participant (N)	Total participants reporting a postal code
Alberta	38.7% (407)	0% (0)	34.1% (407)
New Brunswick	14.6% (154)	57.9% (81)	19.7% (235)
Ontario	18.9% (199)	1.4% (2)	16.9% (201)
British Columbia	8.6% (90)	0% (0)	7.6% (90)
Saskatchewan	7.7% (81)	0% (0)	6.8% (81)
Quebec	0.5% (5)	40.7% (57)	5.2% (62)
Manitoba	4.9% (52)	0% (0)	4.4% (52)
Nova Scotia	4.3% (45)	0% (0)	3.8% (45)
Newfoundland	1.0% (11)	0% (0)	0.9% (11)
Prince Edward Island	0.4% (4)	0% (0)	0.3% (4)
Yukon	0.3% (3)	0% (0)	0.3% (3)
Nunavut	0.1% (1)	0% (0)	0.1% (1)

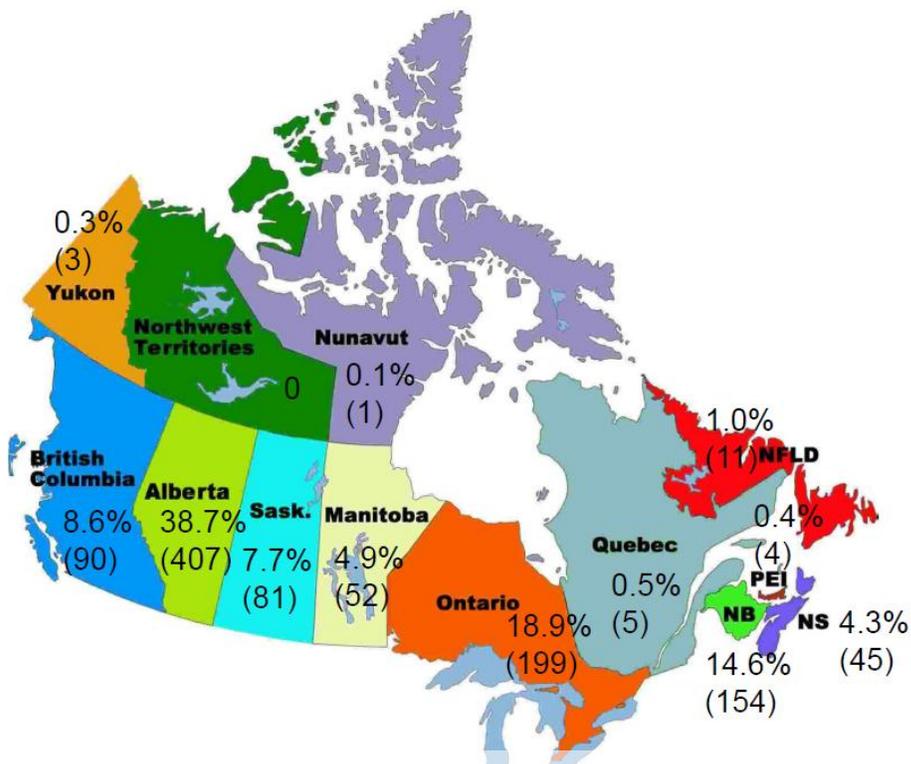


Figure 1: Map of English language national distribution (1051 declared postal codes)

3.1.2 Question #2: Healthcare profession (EFR)

When English and French surveys were combined, the most frequent participants were those worked in nursing (60.3%). Physiotherapy was the next most common area of practice (9.0%), followed by occupational therapists (8.9%) (Table 3). In contrast to the English language participants, very few physiotherapists participated in the French language survey. Nurses and occupational therapists dominated the French language sample, with the other professions represented by less < 3% of all respondents. It is possible that this finding was a sampling artifact from approaching national organizations to distribute the survey, but we have insufficient information to inform any speculation.

Table 3: Respondent profession (total n =2040 [1825 + 215])

Profession		English language respondents (n)	French language participants (n)	Total participants (n)
Nurse	Infirmière	61.1% (1127)	47.9% (103)	60.3% (1230)
Physiotherapist	Physiothérapeute	10.8% (199)	1.4% (3)	9.0% (202)
Occupational Therapist	Ergothérapeute	6.2% (113)	32.1% (69)	8.9% (182)
Physician	Médecin	4.4% (81)	2.8% (6)	4.2% (87)
Psychiatrist	Psychiatre	4.6%(84)	.9% (2)	4.1% (86)
Pharmacist	Pharmacien	3.7%(67)	1.4% (3)	3.4% (70)
Recreation therapist	Ludothérapeute	3.2%(59)	0	2.9% (59)
Social Worker	Travailleur social	2.0%(37)	0	1.8% (37)
Psychologist	Psychologue	0.9%(16)	1.4% (3)	.9% (19)
Care assistant	Assistant de soins	0.8%(12)	0	<.0 (12)
Respiratory therapist	Inhalothérapeute	0.1%(2)	.4% (1)	<.0 (3)
Rehabilitation Assistant	Assistant de réhabilitation	0.1%(1)	0	<.0 (1)
Other? - please write in	Autre? –s'il vous plaît précisez ici	1.2% (27)	11.6 (25)	11.6% (52)

3.1.3a Question #3a: Residential setting of PWD (EO)

Responses to this question were nearly equally distributed. Thirty-nine percent (38.8%) of participants reported that “50% or greater of their patients with dementia resided in the community”. Similarly, 37.9% reported that “50% or greater of their patients with dementia resided in institutional settings”.

3.1.3b Question #3b: Perceived prevalence of DS (EO)

A slight majority of the 1526 participants who responded to this question reported that they believed less than 50% of their patients experienced sleep problems:

- Less than 25% have sleep problems 10.7 %(164)
- 25-50% have sleep problems 42.9 %(655)
- 51-75% have sleep problems 35.0 %(534)
- 76-100% have sleep problems 11.3% (173)

3.1.3c Question #3c: How do healthcare providers become aware of DS? (EO)

In total, 32.3% (n=837) of healthcare providers who completed this question reported that they became aware of sleep problems through their usual assessment practices and 26.9% (n=699) became aware when a member of the healthcare team told them. Very few reported that family reports or patient reports (18.6% and 15.8%% respectively) were the most frequent way that they became aware of sleep problems. Many participants selected more than one option for this question and so the findings must be viewed only as suggesting a trend as opposed to being conclusive.

Table 4: How do healthcare providers become aware of DS? (N)

Response:	
Most often, I become aware of sleep problems through my usual assessment practices	32.3% (837)
Most often, I become aware of sleep problems when a member of the healthcare team tells me	26.9 % (699)
Most often, I become aware of sleep problems when a member of the family tells me	18.6% (482)
Most often, I become aware of sleep problems when the patient tells me	15.8% (410)
OTHER- Most often, I become aware of sleep problems when (please write in):	6.4% (166)

3.1.4 Question #4: Factors associated with DS in PWD (EO)

Question 4 explored respondents' awareness of the relationship between selected factors and DS as identified in the literature. This awareness varied across professional groups, although overall knowledge was low. None of the risk factors were identified by 80% or greater of the respondents within each professional group. Table 5 illustrates the highest and lowest endorsement rate by professional group for each of the risk factors for DS. For ease of viewing other data has been omitted.

Table 5: Awareness of relationship between risk factors and disordered sleep (reported by % of responses within professional category, p value calculated for relationship between highest/lowest endorsers)

Related factor	Psychiatrist	Physician	Social Worker	OT	PT	Nursing	Pharmacist	RT	Stat sig.
Appetite	*11.9%					^33.0%			p<.001
Falls		^51.2%					*26.9%		.006
Social withdrawal			*37.8%					^57.6%	
Problem solving				*39.8%				^54.2%	
Aggression					*29.3%			^61.0%	p<.001
Depression	^81.0%		*23.3%						.003
Daytime sleepiness		^88.9%	*70.3%						
Night wakefulness	^82.1%						*62.7%		
Napping	^76.2%				*58.8%				.008
Medication		^69.1%				*42.7%			p<.001
Cognitive decline	^79.0%							*40.6%	p<.001
Co-morbidity	^67.9%							*25.4%	p<.001
Decreased mobility			*51.4%		^69.8%				
Alcohol use		^38.3%						*5.1%	p<.001
Smoking	^14.3%						*1.5%		
Caregiver beliefs		^21.0%	*3.4%						.011

Key: ^=highest endorsement, * lowest endorsement, OT = occupational therapist, PT= physical therapist, RT=Recreation therapist, Note: insufficient sample of psychologists, respiratory technicians and assistants for analysis

3.1.5 Question #5: Awareness of the relationship between health conditions and disordered sleep

This question explored respondent awareness of the relationship between health conditions and disordered sleep. All of the health conditions listed on the survey have an existing evidence based relationship to disordered sleep. None of the variables in the list were intended as distractors. As such the respondents' overall poor endorsement of most conditions is concerning. These findings are discussed in depth in the Discussion section 4.1. The highest and lowest endorsement of NPSI related health conditions across professional groups is illustrated in Table 6. For easy of viewing other data has been omitted.

Table 6: Awareness of relationship between health conditions and disordered sleep (reported by % of responses within professional category, p value calculated for relationship between highest/lowest endorsers)
Condition

	Psychiatrist	Physician	Social Worker	OT	PT	Nursing	Pharmacist	RT	Stat sig.
Allergies			^8.1%					*1.7%	
Cardiovascular	^61.9%							*30.5%	<i>p</i> <.001
Substance abuse	^55.4%							*11.9%	<i>p</i> <.001
Endocrine disorder		^16.0%						*1.7%	<i>p</i> <.001
Obesity	^50.0%			*19.6%					<i>p</i> <.001
GI disorders	*19.0%					^32.1%			
Infection							*9.0%	^35.6%	<i>p</i> <.001
Pain	^85.7%		*64.9%						0.011
Neurological		^60.5%						*35.6%	
Skin condition		^25.9%			*4.0%				<i>p</i> <.001
Mental health	^92.9%				*63.8%				<i>p</i> <.001
Pulmonary	^50.0%						*28.4%		0.006
Renal disorder	*2.4%		^16.2%						0.003
Rheumatic disease		^24.7%						*10.2%	
Sensory deficit					*7.5%			^23.7%	<i>p</i> <.001
Urological cond.		^74.1%						*47.5%	<i>p</i> <.001

Key: ^=highest endorsement, * lowest endorsement, OT = occupational therapist, PT= physical therapist, RT=Recreation therapist, Note: insufficient sample of psychologists, respiratory technicians and assistants for analysis

3.1.5 Question #6: Experience and awareness of standardized sleep assessment tools

Participants were asked to identify tools they had experience with (labeled 'used' in Table 7), ones they were aware of but had not used ('A-NU'), and ones they felt were not appropriate in or practical for their practice setting ('Not practical'). The findings show that overall, healthcare professionals have limited experience with assessment tools outside of caregiver report, self-report and sleep diaries. More detailed discussion is in section 4.1.

Table 7: Percentage within group experience and awareness of standardized sleep assessment tools (N)

Assessment tool	Psychiatrist (80)	Physician (79)	Social Worker (35)	OT (108)	PT (181)	Nursing (1048)	Pharmacist (61)	RT (53)
Actigraph- Used	5.0*	2.6	0.0	0.0	0.5	0.3	1.6	1.9
• A-NU	27.5^	20.5	5.9	1.9	12.0	9.8	1.6	7.4
• Not practical	7.5	5.1	8.8	6.5	9.3	10.4	15.6	20.4
Caregiver report- Used	90.2	85.5	97.2*	88.2	65.9	82.4	70.3	66.7
• A-NU	7.3	6.6	0.0	8.2	10.1	4.9	12.5	14.8^
• Not practical	0.0	2.6	0.0	1.8	4.5	3.8	9.4	3.7
Epsworth – Used	26.6	28.6*	0.0	1.9	1.6	3.5	1.7	0.0
• A- NU	30.4^	29.9	14.3	4.7	10.9	15.7	13.6	18.5
• Not practical	2.5	3.9	5.7	0.9	4.9	8.3	8.5	14.8
GSA- Used	8.8	6.3	5.7	3.7	1.1	5.1	11.5*	0.0
• A-NU	31.2	31.6^	22.9	13.0	16.6	20.2	31.1	22.6
• Not practical	3.8	1.3	11.4	0.9	5.5	8.5	11.5	17.0
MOS-SS- Used	1.3	2.6	2.9	0.9	0.5	3.3	1.7	3.7*
• A-NU	17.7^	16.7	8.6	2.8	12.6	15.3	11.7	14.8
• Not practical	3.8	2.6	14.3	0.9	5.5	9.1	8.3	13.0
PDSS – Used	2.5	3.9*	0.0	0.0	0.6	3.2	3.3	3.8
• A-NU	23.8	19.5	17.1	10.2	16.8	19.76	18.9	18.8
• Not practical	3.8	1.3	11.4	0.9	6.1	9.4	9.8	13.2
PSQI – Used	6.2*	5.2	0.0	0.0	0.0	2.2	0.0	1.9
• A-NU	22.5^	16.9	11.8	8.4	9.9	12.1	8.6	13.2
• Not practical	5.0	0.0	5.9	0.9	5.0	8.7	10.3	13.2
Polysomnography- Used	31.2*	24.7	8.8	1.0	1.1	0.9	1.7	0.0
• A-NU	32.5^	27.3	2.9	5.7	8.8	13.1	11.7	9.6
• Not practical	27.5	19.5	14.7	4.8	8.8	10.9	18.3	17.3
Self-report - Used	91.2	92.5*	91.4	89.0	76.1	78.2	81.5	69.1
• A-NU	7.5	3.8	2.9	7.3	13.0	7.5	12.3	16.4^
• Not practical	1.2	2.5	5.7	1.8	2.2	6.1	6.2	7.3
Sleep diary - Used	78.9*	70.9	58.8	43.6	27.6	42.7	56.1	24.1
• A-NU	15.8	21.5	35.3	43.6	49.2^	31.9	34.8	40.7
• Not practical	2.6	6.3	2.9	6.4	9.9	12.6	9.1	20.4
SDI - Used	9.0	10.5	14.3*	2.8	1.7	10.4	11.5	5.7
• A-NU	28.2^	27.6	8.6	8.4	18.0	19.5	21.3	24.5
• Not practical	1.3	1.3	8.6	1.9	5.1	9.9	11.5	17.0
SSS- Used	6.3	6.6*	2.9	1.9	0.0	1.9	1.7	1.9

• A-NU	24.1 [^]	18.4	8.6	5.7	11.1	14.5	6.7	18.9
• Not practical	1.3	0.0	11.4	0.9	6.1	8.6	8.3	15.1
SCOPA-Sleep - Used	1.3	1.3	0.0	0.9	0.0	1.0	1.7	1.9
• A-NU	13.0	9.2	14.3 [^]	2.8	7.7	10.9	1.7	13.2
• Not practical	2.6	1.3	11.4	0.9	5.5	9.1	8.5	17.0
VSH-SS – Used	1.3	2.6 [*]	0.0	0.9	0.0	1.0	0.0	1.9
• A-NU	15.4 [^]	5.2	2.9	1.9	8.9	9.6	3.3	11.3
• Not practical	1.3	0.0	8.6	0.9	5.6	8.8	8.3	15.1

Key: ^{*}=most frequent users of tool, [^] = highest awareness of tool but no experience, A-NU=Aware but not used, GSA= Global Sleep Assessment, MOS-SS= Medical Outcomes of Sleep Study Scale, OT = occupational therapist, PDSS = Parkinson's Disease Sleep Scale, PSQI- Pittsburg Sleep Quality Index, PT= physical therapist, RT=Recreation therapist, SDI= Sleep Disturbances Index, SSS- Stanford Sleepiness Scale, VHS-SS = Verran Snyder-Halpern Sleep Scale, Note: insufficient sample of psychologists (15), respiratory therapists (2) and assistants (8) for analysis

3.1.6 Question #7: Use and Perceived Practicality of Non-pharmacological Sleep Interventions

Overall, participants had minimal experience (labeled 'RecPracUsed' in Table 8) with most NPSI, with the exception of increased daytime activity and decreased daytime napping. They were positively disposed to many of the interventions, as indicated by the high number of NPSI that participants rated as potentially useful, and despite their having no experience with these NPIS ('NoRecMaybePrac'). There were a few NPSI that 15% or more of the participants who, although they had recommended them in the past, now believed they were not practical ('RecNotPrac'). Specifically, these NPSI were: increased time outside (24.0%), warm bath before bed (19.6%), sleep restriction regime (16.2%), PWD set own bedtime (16.8%), and adjust caregiver bedtime to that of PWD (15.2%). These findings are intriguing and warrant further study as to why previous experience with the intervention led to judging it as impractical.

Table 8: Percentage within group experience and awareness of non-pharmacological sleep interventions (n)
 (p value calculated for relationship across all professional groups)

Intervention	Psychiatrist (76)	Physician (68)	Social Worker (29)	OT (85)	PT (125)	Nursing (873)	Pharma (49)	RT (36)	All	Stat Sig.
Bright light visor	5.3	7.4	6.9	2.4	4.8	4.8	0.0	2.8	4.8	
• RecPracUsed										
• RecNotPrac	7.9	5.9	6.9	3.5	1.6	5.5	4.1	0.0	5.0	
• NoRecMaybePrac	46.1	45.6	55.2	52.9	47.2	35.9	38.8	41.7	39.9	
• NoRecNotPrac	40.8	41.2	31.0	41.2	46.4	53.8	57.1	55.6	50.3	
Bright light box	40.0	21.7	17.9	6.9	4.7	8.4	17.3	7.9	11.3	
• RecPracUsed										
• RecNotPrac	12.5	13.0	7.1	8.0	2.4	5.5	9.6	10.5	6.3	
• NoRecMaybePrac	30.0	37.7	50.0	56.3	48.8	36.0	44.2	31.6	38.8	
• NoRecNotPrac	17.5	27.5	25.0	28.7	44.1	50.1	28.8	50.0	43.5	
Increased daytime activity	92.7	78.8	86.1	91.7	85.1	83.3	78.3	72.0	84.2	
• RecPracUsed										
• RecNotPrac	6.1	13.8	8.3	3.7	4.6	7.5	11.7	1.9	7.3	
• NoRecMaybePrac	1.2	5.0	2.8	3.7	8.0	6.9	10.0	3.7	6.6	
• NoRecNotPrac	0.0	2.5	2.8	0.9	2.3	2.3	0.0	0.0	1.9	
Restrict daytime naps	92.7	81.2	75.0	83.5	77.6	73.2	78.5	73.1	75.7	
• RecPracUsed										
• RecNotPrac	6.1	16.2	5.6	11.0	6.3	13.8	10.8	3.8	11.9	
• NoRecMaybePrac	1.2	0.0	8.3	2.8	10.3	6.5	7.7	11.5	6.6	
• NoRecNotPrac	0.0	2.5	11.1	2.8	5.7	6.5	3.1	11.5	5.8	
Evening warm bath	63.4	57.7	70.6	48.6	34.0	51.3	46.7	41.7	50.4	p<.001
• RecPracUsed										
• RecNotPrac	14.6	11.5	17.6	21.0	19.1	21.4	21.7	10.4	19.6	
• NoRecMaybePrac	15.9	23.1	5.9	21.9	30.9	14.8	26.7	35.4	18.4	
• NoRecNotPrac	6.1	7.7	5.9	8.6	16.0	12.5	5.0	12.5	11.6	
Decrease evening noise	76.2	72.2	75.0	71.8	50.9	77.5	74.2	69.4	73.9	
• RecPracUsed										
• RecNotPrac	8.8	5.1	8.3	7.8	12.6	8.7	8.1	4.1	8.6	
• NoRecMaybePrac	11.2	21.5	11.1	18.4	30.8	10.1	16.1	22.4	13.9	
• NoRecNotPrac	3.6	1.3	5.6	1.9	5.7	3.7	1.6	4.1	3.6	
Restricted caffeine	96.3	93.8	80.6	81.7	67.7	84.7	86.2	72.3	83.2	
• RecPracUsed										
• RecNotPrac	2.4	3.8	8.3	3.7	3.0	3.7	4.6	0.0	3.6	
• NoRecMaybePrac	1.2	2.5	8.3	13.8	26.9	8.9	9.2	21.3	10.9	
• NoRecNotPrac	0.0	0.0	2.8	0.9	2.4	2.7	0.0	6.4	2.3	
Restricted evening fluids	91.5	88.8	71.9	76.6	63.4	68.8	81.2	43.2	70.4	
• RecPracUsed										
• RecNotPrac	3.7	6.2	6.2	3.7	3.1	9.4	6.2	2.3	7.7	
• NoRecMaybePrac	2.4	3.8	15.6	15.0	29.2	8.7	12.5	38.6	11.9	
• NoRecNotPrac	2.4	1.2	6.2	4.7	4.3	13.1	0.0	15.9	10.0	
Regular bedtime routine	93.9	87.5	83.3	91.6	80.7	87.4	87.7	56.2	86.2	

• RecPracUsed										
• RecNotPrac	3.7	8.8	8.3	1.9	4.7	4.6	6.2	4.2	4.7	
• NoRecMaybePrac	2.4	2.5	5.6	5.6	14.6	5.2	6.2	33.3	7.0	
• NoRecNotPrac	0.0	1.2	2.8	0.9	0.0	2.8	0.0	6.2	2.2	
Relaxation techniques	82.7	63.7	65.7	72.2	64.5	66.2	63.9	73.1	67.5	
• RecPracUsed										
• RecNotPrac	13.6	17.5	11.4	12.0	13.6	12.3	13.1	1.9	12.3	
• NoRecMaybePrac	2.5	11.2	17.1	14.8	18.3	15.0	16.4	19.2	14.7	
• NoRecNotPrac									5.5	
Education about sleep surfaces and position	54.4	51.9	55.9	74.1	73.4	39.2	25.4	20.5	46.1	
• RecPracUsed										
• RecNotPrac	7.6	6.5	8.6	5.6	7.1	14.8	10.2	6.8	12.1	
• NoRecMaybePrac	34.2	33.8	29.4	18.5	12.4	27.8	59.3	54.5	28.2	
• NoRecNotPrac	3.8	7.8	5.9	1.9	7.1	18.2	5.1	18.2	13.6	
Increase time outdoors	66.7	55.7	64.7	52.8	44.0	38.8	39.7	74.5	44.6	
• RecPracUsed										
• RecNotPrac	13.6	19.0	17.6	15.1	18.7	28.2	27.6	7.8	24.0	
• NoRecMaybePrac	14.8	17.7	8.8	29.2	25.3	17.8	27.6	15.7	19.5	
• NoRecNotPrac	4.9	7.6	8.8	2.8	12.0	15.1	5.2	2.0	11.9	
Regular exercise program	87.8	78.5	80.0	87.9	88.9	70.4	75.0	98.1	76.0	
• RecPracUsed										
• RecNotPrac	8.5	19.0	8.6	7.5	5.0	12.1	11.7	1.9	10.8	
• NoRecMaybePrac	0.0	1.3	8.6	4.7	5.0	12.0	10.0	0.0	9.3	
• NoRecNotPrac	3.7	1.3	2.9	0.0	1.1	5.4	3.3	0.0	3.9	
White noise at night	25.0	33.8	38.2	24.8	21.2	21.1	21.3	15.4	22.9	
• RecPracUsed										
• RecNotPrac	12.5	13.0	8.8	5.9	5.3	13.1	3.3	7.7	11.1	
• NoRecMaybePrac	47.5	35.1	29.4	59.4	55.6	37.4	47.5	56.4	41.8	
• NoRecNotPrac	15.0	18.2	23.5	9.9	17.9	28.4	27.9	20.5	24.2	
Reduce ambient light at night	61.5	61.5	46.9	38.2	31.1	46.1	44.8	35.9	45.5	
• RecPracUsed										
• RecNotPrac	10.3	10.3	6.2	13.7	11.5	13.7	10.3	5.1	12.7	
• NoRecMaybePrac	24.4	17.9	37.5	38.2	39.2	22.1	27.6	46.2	25.8	
• NoRecNotPrac	3.8	10.3	9.4	9.8	18.2	18.1	17.2	12.8	15.9	
Sleep restriction regime	44.3	40.0	41.2	30.6	21.1	30.8	25.9	31.7	31.3	
• RecPracUsed										
• RecNotPrac	15.2	21.3	17.6	15.3	9.9	17.7	14.8	4.9	16.2	
• NoRecMaybePrac	27.8	25.3	23.5	37.8	40.8	23.5	37.0	39.0	27.6	
• NoRecNotPrac	12.7	13.3	17.6	16.3	28.2	28.0	22.2	24.4	25.0	
Light bedtime snack	57.5	57.3	73.5	50.0	35.8	79.4	48.3	63.8	68.8	
• RecPracUsed										
• RecNotPrac	5.0	5.3	2.9	5.0	9.3	6.5	5.2	4.3	6.5	
• NoRecMaybePrac	31.2	26.7	14.7	40.0	43.7	11.0	32.8	25.5	19.4	
• NoRecNotPrac	6.2	10.7	8.8	5.0	11.3	3.1	13.8	6.4	5.3	
Increase daytime ambient light	23.7	31.4	13.3	21.7	18.6	25.9	10.9	12.5	24.1	
• RecPracUsed										
• RecNotPrac	7.9	5.7	3.3	6.5	7.0	12.5	7.3	7.5	10.6	

• NoRecMaybePrac	40.8	35.7	50.0	48.9	37.2	28.6	40.0	55.0	33.1	p <.001
• NoRecNotPrac	27.6	27.1	33.3	22.8	37.2	33.0	41.8	25.0	32.3	
Adjust caregiver sleep schedule	29.5	37.3	38.2	26.8	20.8	37.9	23.3	35.7	34.6	p <.001
• RecPracUsed	15.4	26.7	17.6	19.6	10.4	15.3	8.3	4.8	15.2	
• RecNotPrac	28.2	20.0	29.4	24.7	37.5	20.0	25.0	25.7	23.6	p <.001
• NoRecMaybePrac	26.9	16.0	14.7	28.9	31.2	26.8	43.3	23.8	26.6	
• NoRecNotPrac	25.6	30.3	29.4	21.0	13.5	33.9	18.2	38.6	30.1	p <.001
PWD self-determines sleep time	11.5	21.1	14.7	21.0	17.7	17.5	14.5	6.8	16.8	
• RecPracUsed	32.1	22.4	26.5	25.0	27.7	19.5	18.2	34.1	21.6	p <.001
• RecNotPrac	39.7	26.3	29.4	33.0	41.1	29.1	49.1	20.5	31.4	
• NoRecMaybePrac	83.8	69.2	82.9	79.2	68.8	59.6	56.4	60.0	64.0	p <.001
• NoRecNotPrac	8.8	21.8	11.4	5.0	3.9	9.8	9.1	0.0	9.2	
Caregiver respite care	5.0	6.4	2.9	8.9	15.6	10.5	16.4	12.5	10.7	p <.001
• RecPracUsed	2.5	2.6	2.9	6.9	11.7	20.2	18.2	27.5	16.1	
• RecNotPrac	80.3	74.4	80.6	76.3	66.7	58.7	50.9	51.3	62.6	p <.001
PWD respite care	6.6	14.1	5.6	2.1	4.0	10.8	12.7	2.6	9.3	
• RecPracUsed	7.9	6.4	5.6	14.4	17.3	10.1	18.2	15.4	11.3	p <.001
• RecNotPrac	5.3	5.1	8.3	7.2	12.0	20.4	18.2	30.8	16.9	
• NoRecMaybePrac										
• NoRecNotPrac										

Key: PT= physical therapist, PWD = person with dementia, RecPracUsed= Recommended in the past and practical for patients to use, RecNotPrac= Recommended in the past BUT not practical for patients to use, NoRecMaybePrac= Not previously recommended but may be practical for patients, NotRecNotPrac= Not recommended and not practical, RT=Recreation therapist, Note: insufficient sample of psychologists (n=15), respiratory therapists (n=2) and assistants (n=8) for this analysis.

3.1.7 Question 10: Knowledge translation preferences

Similar to preceding questions, there was high variability across the professional groups related to preferred knowledge translation strategies. There were statistically significant differences between endorsements for all of the 11 KT activities listed, indicating that while all activities may be useful preference vary across professional groups.

Table 9: Frequency of within group knowledge translation preference

Knowledge translation format	Psychiatrist (84)	Physician (81)	Social Worker (37)	OT (113)	PT (199)	Nursing (1127)	Pharmacist (67)	RC (59)	Total (1824)	Stat Sig.
Electronic reports	51 (60.7)	49 (60.5)	30 (81.1)	99 (87.6)	135 (67.8)	515 (45.7)	53 (79.1)	36 (61.0)	1006 (55.2)	<i>p</i> <.001
Hardcopy reports	35 (47.1)	16 (19.8)	17 (45.9)	38 (33.6)	43 (61.1)	368 (32.7)	10 (14.9)	16 (27.1)	560 (30.7)	<i>p</i> <.001
Journal articles	31 (36.9)	24 (29.6)	10 (27.0)	53 (46.9)	51 (25.6)	337 (29.9)	12 (17.9)	24 (40.7)	559 (30.6)	<i>p</i> <.001
Online tutorial	37 (44.0)	32 (39.5)	13 (35.1)	38 (33.6)	47 (23.6)	312 (27.7)	37 (55.2)	18 (30.5)	549 (30.1)	<i>p</i> <.001
Waiting room posters	18 (21.4)	20 (24.7)	14 (37.8)	52 (46.0)	64 (32.2)	332 (29.5)	11 (16.4)	17 (28.8)	538 (29.5)	<i>p</i> <.001
Half day workshops	10 (11.9)	18 (22.2)	11 (29.7)	31 (27.4)	35 (17.6)	365 (32.4)	13 (19.4)	16 (27.1)	511 (28.0)	<i>p</i> <.001
Noon hour presentations	21 (25.0)	25 (30.9)	11 (29.7)	39 (34.5)	42 (21.1)	258 (22.9)	19 (28.4)	19 (32.2)	443 (24.3)	
Video	13 (15.5)	9 (11.1)	13 (35.1)	40 (35.4)	32 (16.1)	283 (25.1)	17 (25.4)	12 (20.3)	428 (23.5)	<i>p</i> <.001
Live webinar	13 (15.5)	9 (11.1)	13 (35.1)	40 (35.4)	32 (16.1)	283 (25.1)	17 (25.4)	12 (20.3)	428 (23.5)	<i>p</i> <.001
Archived webinar	22 (26.2)	19 (23.5)	12 (32.4)	56 (49.6)	68 (34.2)	138 (12.2)	13 (19.4)	12 (20.3)	352 (19.3)	<i>p</i> <.001
Podcast	20 (23.8)	17 (21.0)	10 (27.0)	31 (27.4)	41 (20.6)	153 (13.6)	8 (11.9)	13 (22.0)	300 (16.4)	<i>p</i> <.001
Not needed	3(3.6)	4 (4.9)	0	1 (0.9)	10 (5.0)	71 (6.3)	2 (3.0)	5 (8.5)	96 (5.3)	

Key: OT = occupational therapist, PT= physical therapist, RT=Recreation therapist, Note: insufficient sample of psychologists, respiratory technicians and assistants for analysis

3.2 QUALITATIVE QUESTION RESULTS

3.2.1 Question #8: Barriers to non-pharmacological sleep interventions

Respondents were asked to provide a list of what they perceived to be barriers to recommending NPSIs for PWD. Respondents could identify and add text responses for as many as 5 barriers. In total 3,183 responses were recorded. Responses that were ambiguous were not coded (6.6%). We coded each of the 5 statements as a separate round so that we completed five rounds of coding. After five rounds of barrier statement coding nine themes, with accompanying within theme categories, emerged. A natural ranking emerged with several themes being much more frequently identified. The themes, and corresponding within theme categories, in descending order of frequency are listed in Table 10 along with illustrative comments from participants. Several categories overlapped themes and we sorted related comments in those categories into the most appropriate theme. For example comments related to safety at times reflected more of an environmental context and were placed into that theme. Other comments about safety related more to NPSI effectiveness and so were placed in that theme.

Table 10: Barriers to NPSI recommendations (n=2972)

Theme & frequency % (N)	Categories within theme	Illustrative quotations from participants (response number)
1. Resources 30.9% (917)	<ul style="list-style-type: none"> i. Limited institutional resources ii. Non-pharm interventions take time iii. Caregiver resources iv. Availability of non-pharm approaches v. PWD: Financial resources vi. Staff time constraints vii. Workload (staffing numbers, workload) 	<ul style="list-style-type: none"> • "Increased number of patients with dementia vs. limited number of resources (i.e.: money, staff, home support services etc.)" (r697) • "Not a lot of community support for caregivers and patients suffering from sleep problems. We need to be able to support them while implementing our recommendations, provide with encouragement and help with problem solving." (r222) • "Cost - work with marginalized seniors on fixed incomes, barely scraping by." (r585) • "No time....managers are having trouble coping with the current workload as are the caregivers...We are always working short staffed as well...especially now since the assisted living criteria has been changed to heavier clients that need more care...And no more staff will be hired at this time..." (r586)
2. Environment 27.8% (827)	<ul style="list-style-type: none"> i. Limited institutional resources ii. Institutional setting itself iii. Clinical priorities iv. Lack of continuity between staff shift changes v. Current institutional practices vi. Staff communication vii. Home setting viii. Institutional culture ix. Safety concerns x. Workload xi. Sleep hygiene xii. Use of/reliance on pharmacologicals 	<ul style="list-style-type: none"> • "Environment - the difficulty in maintaining a quiet, dark, uninterrupted sleep due to other patients in the dementia unit and the close quarters between residents" (r89) • "In the critical care setting, sleep problems are often not the priority in the care of the patient" (r728) • "The shift disparity plays in here - one shift does not care what the next shift has to deal with - just want things to be quiet on their shift. So evenings doesn't want to do things that might benefit nights but be a little more work for them and benefit the resident" (r60) • "Communication is poor amongst the interdisciplinary team. Still a top-down, hierarchical approach. The front line does not often receive valuable information and are not encouraged to share observations or are belittled when they do." (r569) • "Culture- there has to be a cultural change in the long term [care] settings as clients are not given autonomy to decide when their sleep patterns are." (r190) • "Not practical in a hospital setting. Dementia patients are locked in broda chairs, or given chemical sedation, or on restraints due to aggression and confusion. It's a safety issue for them and staff members." (r329) • "common practice in healthcare to prescribed drugs to control everything." (r1136)
3. PWD characteristics 21.8% (647)	<ul style="list-style-type: none"> i. Cognitive ability ii. Non-adherence iii. Financial resources iv. Behavior 	<ul style="list-style-type: none"> • "Cognitive ability of patient to understand and follow through, due to dementia" (r137) • "Non-pharmacological intervention can help for awhile but I have found that there are ebbs and flows with agitation levels. Sometimes they are too high to

	v. Motivation vi. Knowledge vii. Ability viii. Comorbidities/psychiatric/physical ix. Sleep hygiene practices x. Use of/reliance on pharmacologicals xi. Language issues	<ul style="list-style-type: none"> • <i>be calmed down without the help of PRN medication.”(r268)</i> • <i>“lack of public education in regards to alternative treatments and sleeping interventions to aid in sleeping that are not pharmacological; generally clients want a medication to fix their sleeping deprivation, are not aware of alternative interventions.” (r456)</i> • <i>“Every patient is different and nothing stays the same with them...by the time all routines are put in place for Patient...sleep habits change.”(r422)</i> • <i>“patients don't always understand what you are trying to teach them some speak a different language and it also depends in what stage they are at in their dementia” (r875)</i>
4. Awareness/ Knowledge 20.0% (595)	i. Non-pharm approaches discounted by some ii. PWD: Knowledge iii. Caregiver : Knowledge iv. Lack of professional education on non-pharm sleep interventions v. Beliefs around roles & responsibilities vi. Safety concerns	<ul style="list-style-type: none"> • <i>“Lack of knowledge re: non-pharmacological interventions - or think that some of the methods are just 'common sense' so don't mention them specifically to those who are having difficulty”(r229)</i> • <i>“Family members not understanding the need for routine interventions.” (r256)</i> • <i>“Lack of professional education to clinicians about non-pharmacological interventions. Perhaps sleep issues is not at forefront of concerns with this population.” (r180)</i> • <i>“Physicians don't take the time to suggest other things, just medicate.” (r101)</i>
5. Caregiver characteristics 13.9% (412)	i. Availability of caregiver ii. Caregiver motivation iii. Caregiver ability iv. Non-adherence v. Use of/reliance on pharmacologicals vi. Language issues	<ul style="list-style-type: none"> • <i>“If dementia patient lives alone, there is no caregiver available to assist with sleep interventions.”(r544)</i> • <i>“Caregiver motivation (they are tired)” (r1165)</i> • <i>“Caregivers are elderly with own physical limitations”(r942)</i> • <i>“Families sometimes want a “quick fix” that too often means pharmacological intervention, and they are not willing to try other means of sleep hygiene” (r1155)</i> • <i>“Caregiver language barrier - difficult to explain rationale to non-English speaking caregivers” (r117)</i>
6. Medicalization 8.5% (254)	i. Already tried non-pharm interventions ii. Suitability for PWD iii. Non-pharma's effectiveness iv. Non-pharm approaches not taken seriously by some v. Use of/reliance on pharmacologicals vi. Medicalization of sleep function	<ul style="list-style-type: none"> • <i>“I do not hesitate to recommend non pharmacological sleep interventions yet I find that there is nothing more effective than a hypnotic or a sedative. I find that non pharmacological interventions should always be implemented first then gradually introduce medications as needed. Sometimes non pharmaceutical interventions are not sufficiently effective for the patients to get a good night's rest.” (r527)</i> • <i>“tendency for people to look for pharmacological ‘fix’ and so non-pharmacological interventions not as readily accepted” (r168)</i> • <i>“It is a global perception that sleep aides are necessary in order to promote sleep” (r38)</i>
7. Healthcare provider characteristics 6.1% (181)	i. Staff motivation ii. Perceived/mandated scope of practice iii. Use of/reliance on pharmacologicals iv. Language issues	<ul style="list-style-type: none"> • <i>“Mostly it is staff unwillingness (including doctors) to try things that may take more time initially but will pay off in the end” (r60)</i> • <i>“Some are not in our scope of practice”(r142)</i> • <i>“Changing ideas and beliefs- staff have previously relied on ‘pills’ and continue to do so”(r41)</i> • <i>“Language- hard for client to understand what I am explaining to them.” (r414)</i>
8. Effectiveness of NPSI 3.6% (108)	i. NPSI requires more planning and continuity ii. Safety concerns iii. Non-pharm approaches not taken seriously by some	<ul style="list-style-type: none"> • <i>“Anything that requires retention of info and carryover of info isn't always workable.” (r37)</i> • <i>“People think it won't work” (r210)</i> • <i>“Risks associated with interventions NOT being effective, particularly those at risk to wander at night. Caregivers need the intervention to work, and cannot take a ‘chance’ that it won't, so may be reluctant to try non-pharma options.” (r1031)</i>
9. Adherence & monitoring 3.5% (104)	i. Non-adherence ii. Follow-up	<ul style="list-style-type: none"> • <i>“Not likely to have compliance” (r99)</i> • <i>“I work in a regional program in which I see clients only once; the follow-up is lacking.” (r108)</i>
Key: DS= disordered sleep, HCP=Health care provider, NPSI= non-pharmacological sleep intervention, PWD= person with dementia		

3.2.2 Question 9: Facilitators of NPSI recommendation

Respondents were asked to provide a list of what they perceived to be facilitators to recommending NPSIs for PWD. Respondents could add text responses for as many as five facilitators. In total, 2,152 responses were recorded. Responses that were ambiguous were not coded (9.1%). Following the process outlined in in section 3.4.1 above, after five rounds of facilitator statement coding, we identified ten themes, and accompanying within-theme categories, emerge. Several themes were much more frequently identified and this indicated a ranking of the comments. The themes, and corresponding categories, in descending order of frequency are listed in Table 11 along with illustrative comments from participants.

Table 11: Facilitators of NPSI recommendations – (n=1956 responses)

Theme Frequency % (n)	Categories	Illustrative quotations from participants (response number)
1. HCP characteristics and practices 30.9% (605)	i. Knowledgeable ii. Accepting/open to NPSIs iii. Reluctance to use pharma/awareness of effects of pharma iv. Motivation v. Interdisciplinary, team approach vi. Already encouraging NPSI vii. Beliefs around roles and responsibilities viii. Adherence to NPSIs once started ix. Monitoring/Supervision of PWD x. Access to evidence-base and observable outcomes xi. Early application of NPSIs	<ul style="list-style-type: none"> • “Knowledge of alternatives: Reading ideas like the above gives me ideas to try” (r2) • “When everyone is willing to try novel ideas it helps.” (r139) • “number of medications client is already on- doctors reluctant to add more to the mix” (r26) • “Staff ... that are willing to think ‘outside the box’, a willingness to trial methods that may be unconventional” (r519) • “interdisciplinary team approach - assessment and recommendations” (r46) • “Attempts to decrease the amount of medications in use.” (r522) • “charting outcomes. To ensure that proper documentation is available to support or deny the effectiveness of an intervention.” (r152) • “good assessments on admission. We need to understand what is the patients normal sleep routine before perceived as a problem, what other health or social issues are going on” (r568) • “Making the suggestions at diagnosis rather than when caregiver is already burdened or burned out” (r170)
2. Education 17.8% (349)	i. Education for HCP ii. Education for PWD and/or Caregivers iii. Increasing social awareness of adverse effects of meds iv. Staff communication about NPSI (informal education) v. Influence of community of practice (informal education) vi. Specialists needed as advocates	<ul style="list-style-type: none"> • “Education. When staff understand the reasoning behind interventions, they (staff & the intervention) seem to be more effective, consistent and accepted by residents.”(r251) • “public education as to the causes of insomnia, and its safest treatments. Drug companies do a better job (and have monetary incentive) to make their answer for insomnia seem like the best one.” (r116) • “education re: non-pharmacological interventions--better education increases awareness and therefore increases opportunities to apply these interventions” (r135) • “Sharing successes of which non-pharmacological sleep interventions work” (r155) • “Specially trained persons to deal with these clients” (r811)
3. Resources 17.6% (344)	i. Staffing ii. Caregiver & PWD resources (respite, finances, community support, accessible plain language educational resources (e.g. handouts, pamphlets, websites etc.) iii. Evidence base for NPSIs needs strengthening iv. Institutional funding & equipment v. Family access to HCP vii. HCP and family access to NPSI viii. Reimbursement by insurance programs ix. Assessment tools	<ul style="list-style-type: none"> • “More staff to supervise the daytime activities that may be helpful to facilitate sleeping at night” (r1027) • “Availability of list of known effective interventions to review with patient and family: quick for educating and they can identify if practical or not.” (r55) • “A means of securing funds for those that cannot pay.” (r681) • “An evidence-based review of what works and does not, with “cook-book” instructions (specific ones, not general ones) of the do’s and don’ts” (r13) • “Having a better assessment tool for my practice would help me, I do not always feel i have the right questions to ask to plan for good advice.”(r105) • “Availability/ Access. If you can't get access to non-pharmacological interventions, you don't use them.” (r619) • “availability of insurance programs for supply of required devices.” (r20)

		<ul style="list-style-type: none"> • “Availability of assessment tools and research-supported information. Online resources (such as assessments and handouts) with permission to print and distribute would be helpful to make available to all AHS staff. More health professionals would talk about sleep with their clients if they had reliable information to provide in handout form.” (r546)
4. Family caregiver characteristics 12.3% (240)	<ul style="list-style-type: none"> i. Availability of family ii. Knowledgeable iii. Accepting/open to NPSIs iv. Collaborative relationship with HCP v. Motivation vi. Reluctance to use pharma/awareness of effects of pharma vii. Adherence to NPSIs once started viii. Monitoring/Supervision of PWD ix. Caregiver ability (physical, emotional, cognitive, financial) 	<ul style="list-style-type: none"> • “Caregiver: acceptance/open-mindedness/education/training/sophistication/motivation/support/milieu -- all these factors have to co-exist in an attempt to try to achieve an “ideal!”” (r541) • “In an ideal world, that would be great! I think you need a caregiver who is extremely dedicated in assisting the client with caring the methods out because most people with dementia do not have the organized thought processes necessary to carry the interventions out.” (r655) • “Caregiver wishes to avoid adding medications especially when there is a risk of falls and increased confusion as side effects.” (r25) • “family understanding and compliance” (r91) • “the care givers comfort in utilizing non pharmacological interventions to aid sleep” (r47)
5. Characteristics of NPSIs 12.2% (238)	<ul style="list-style-type: none"> i. Ease of use ii. No side effects iii. Affordable iv. Research evidence for NPSIs v. Pragmatic vi. Long term strategy 	<ul style="list-style-type: none"> • “ease to use practical intervention” (r6) • “Some of the interventions are inexpensive”(r775) • “Double blind peer reviewed studies suggesting money saved for institution”(r709) • “successful examples-to see the effect the intervention has on the patient” (r473) • “Valid studies showing success rates” (r573) • “by taking the time to aid someone to have a restful sleep, we’ve saved time in the end and given better patient care”(r794)
6. Environment 11.5% (224)	<ul style="list-style-type: none"> i. Environmental support for NPSI implementation ii. Supportive organizational environment ii. Demonstrated low impact on staff 	<ul style="list-style-type: none"> • “In an ideal world, there would be a separate room for everyone, with no call bells blaring into the pts.’ room (scares the pt with dementia) along with staff specifically caring for these patients, post acute phase. Most often times, after surgery, pts have increased confusion due to varying factors (medications, new routines) yet many of these pts end up staying with us for months due to inability to go home, or back to the nursing home. The best place is in a unit just for them.” (r208) • “We need to have a dedicated dementia unit that is set up to accommodate the dementia patient. The unit should be such that you can give each person what they need be it an evening bath, lower lighting, evening snack or a TV running all night. Everyone has different sleep habits and it is hard to adjust the conditions for each in one unit.”(r788) • “Manager supported changes in care routines. Managers observe and provide immediate feedback” (r63) • “Care paths and regular routine so all staff do the same thing with the patient.” (r322)
7. PWD characteristics 10.4% (204)	<ul style="list-style-type: none"> i. Knowledgeable ii. Accepting/open to NPSIs iii. Collaborative relationship with HCP iv. PWD: Cognitive ability v. Evidence of effects of NPSI on PWD visible to caregivers and HCP vi. Adherence to NPSIs once started vii. Health status viii. Ability to communicate 	<ul style="list-style-type: none"> • “patient and family open and agreeable to trying non-pharm interventions” (r48) • “Many people do not wish to take medication to assist with sleep and are open to trying alternatives” (r93) • “Stage of dementia (may not be able to comprehend instruction)and in later stages sleep is not such an issue” (r68) • “When a patient is tired all the time because of unusual sleep patterns it is a great risk to them as it increases their risk of fall, risk of choking, etc. This would facilitate recommending sleep interventions for patients.”(r748) • “Discussing with patient/family what regular bedtime and daily routines are and trying to follow as closely as possible.” (r711)

		<ul style="list-style-type: none"> “...patient ‘buy in’ or willingness to change (behaviours)” (r54)
8. Anti/Reverse medicalization 6.0% (117)	<ul style="list-style-type: none"> i. Effects of pharma (adverse effects, risk of falls) ii. Increasing social awareness of adverse effects of meds 	<ul style="list-style-type: none"> “consequences of drug side effects and adverse reactions leading to far greater workload impact (e.g delirium, falls, incontinence, skin breakdown)” (r138) “I think relying on pharmacological solutions increases the risk of other problems such as falls, loss of independence, becoming dependent on the medications, and patient abuse.” (r701) “more and more society is concerned about side effects and so open to non-pharmacologic avenue” (r9)
9. Policy driven elements 5.6% (109)	<ul style="list-style-type: none"> i. Guidelines ii. Institutional & policy support (hospital level, gov’t level) iii. Reducing pharma usage 	<ul style="list-style-type: none"> “Evidence-based intervention protocols so professionals can be confident with recommendations.” (r502) “Pragmatic leadership at the provincial level that employs evidence-based knowledge and accurate statistics to ensure that the capacity for long term care staff to use non-pharmacological interventions can be achieved each and every time.” (r477) “The problem is only going to increase, so we need to have something in place that will enable us to provide the best care for our patients, instead of using a ‘band-aid’ approach with chemicals.” (r523) “best practices dictates try non pharm before pharm responses, and every drug has s/e [side effects]” (r113)
10. Evidence from outcomes of effective sleep 2.2% (43)	<ul style="list-style-type: none"> i. Experiential evidence of benefits to other health indicators 	<ul style="list-style-type: none"> “to achieve optimal health care you must achieve sleep which is just as important as nutrition, physiotherapy, etc.” (r465)
Key: DS= disordered sleep, HCP=Health care provider, NPSI= non-pharmacological sleep intervention, PWD= person with dementia		

4.0 DISCUSSION

This study addressed the following research questions:

1. What is the current level of knowledge related to DS in PWD?
2. What is current practice related to screening and interventions for DS in PWD?
3. What do healthcare providers perceive to be the barriers and facilitators to prescribing/recommending non-pharmacological sleep interventions (NPSI) for PWD?
4. What are healthcare providers' preferences for sleep assessment and NPSI knowledge translation?

Each of these questions will be reviewed in more detail in the following sections. Action points arising from the analysis of findings as they relate to the extant literature are presented in accompanying 'Action point' boxes.

4.1 What is the current level of Canadian healthcare providers' knowledge related to risk factors for DS in PWD?

4.1.1 How representative is the survey of different healthcare professions?

Reasonably representative findings were obtained. Nursing (60.3%), and to a lesser degree, physiotherapy (9.0%) and occupational therapy (8.9%) are well represented in the sample. We draw this conclusion because there are only 11.7% (686/5841) occupational therapy (OT) members of the national Canadian Association of Occupational Therapists (CAOT) who report working in the area of geriatrics [29]. The 182 OTs who participated in our survey potentially represent 1 in 5 of these therapists. In physiotherapy (PT) the national organization reports 5.6% (574/10,253) of their members identify as working in the area of seniors. The 202 PTs who participated in our survey potentially represent 35.1%, or 1 on 3, of these therapists (personal correspondence 25/10/2012).

This clear representation from nursing, PT and OT is a strength because these healthcare providers, compared to others, typically have higher frequency of contact (daily or several times a week) and cumulative duration of time spend with PWD and their

families. As such they may be best suited to assume a triage and advocacy role to alert other team members to possible disordered sleep-related issues. The lack of physician (4.0%), psychiatrist (4.2%) and, notably, psychologist (<1%) participants is unsurprising given the scarcity of geriatricians and psycho-geriatricians in Canada. Indeed the Canadian Academy of Geriatric Psychiatry reports only 217 psychiatrists as members who are working predominantly in geriatrics. While membership in this national organization is voluntary it is presumably indicative of the overall low numbers of professionals working with persons who have dementia. Our sample contained 86 psychiatrists and we cautiously propose this is a sufficiently representative sample from which to draw preliminary conclusions.

4.1.2 How aware are healthcare providers of sleep problems in persons with dementia?

A little over 46% of the survey respondents estimated that 50% or more of their patients had sleep problems. Given that over 60% of our participants identified as working in LTC or institutional care it appears that, while participants recognize sleep to be an issue, they may underestimate its extent. Research indicates that the prevalence of sleep problems in community dwelling persons with dementia is conservatively estimated to be 40% [4, 30]. The situation in long-term care (LTC) settings is higher (because of resident acuity, noise, light, temperature, staffing practices etc.) to the extent that some researchers have concluded residents have no one full hour of sleep in any 24 hour period [31].

4.1.3 What do healthcare providers know about sleep related variables and how is this knowledge distributed across the professions?

Action point 1: Build capacity for screening and advocacy related to sleep and dementia in professions (nursing, physiotherapy, occupational therapy) whose practices have the highest frequency and duration of patient/family interaction.

Question 4 explored respondents' awareness of the relationship between selected evidence-based factors and DS [3, 32]. As illustrated in Table 5 awareness varied, in some instances with statistical significance, across professional groups. Overall, knowledge about health variables related to DS was low. None of the risk factors were identified by 80% or greater of the respondents within each professional group.

To clearly illustrate the extreme ranges across the professions for many of the variables in Table 5 we listed the highest (noted with a “^”) and the lowest (noted with a “*”) endorsing profession. All other professional groups fell between these ranges.

Particularly short-falls in awareness were evident for the relationship between sleep in PWD and **Appetite, Falls, Problem solving, Alcohol, Smoking** and **Caregiver beliefs**. In these categories none of the different professional groups had greater than 60% awareness of the relationship between the factor and DS (Table 5) and in some categories awareness fell to less than 5%.

Smoking and **caregiver beliefs** were the weakest endorsed by all professional groups. However, the evidence is clear that smoking (particularly as it contributes to apnea) is related to poor sleep in PWD [33]. Similarly caregiver beliefs about sleep [34] influence DS in PWD. It is possible that participants, predominantly working in institutional settings, did not endorse smoking because smoking is largely controlled in LTC. However, previous smoking habits can still exert an influence on vital capacity and apnea. Additionally, in community living PWD smoking is still very much a reality that should be considered. Caregiver beliefs also are very important because as caregivers assume increasing responsibility and decision making for PWD their beliefs and values will inform that process. It becomes a priority for healthcare providers to

Action point 2: Prioritize sleep and dementia education by profession so as to build on existing awareness when introducing information. For example, as physicians already report awareness of the relationship between DS and depression and night-time wakefulness, KT efforts should not focus on these elements. Rather, clear knowledge gaps should be targeted.

understand how caregiver beliefs about sleep can impact DS in PWD.

Notably, awareness of different factors varied across professions such that no one profession appeared to be consistently most aware of the evidence-based link between specific risk factors and DS. This finding is important as a signpost of how better to target educational and KT strategies to build on existing awareness and address specific knowledge gaps within individual professional groups.

4.1.4 What do healthcare providers know about the relationship between sleep and other co-morbidities? How is this knowledge distributed across the professions?

Similar to question 4.1.3 (above), the overall knowledge about relationships between sleep and evidence-based co-morbid health conditions was low. Of the 16 health conditions only **Pain, Mental Health** and **Urological conditions** were identified as sleep related factors by at least 60% of any one professional group. Table 6 shows, by profession, the lowest (*) and highest (^) endorsers for each health condition. Statistical significant differences in endorsement between professions were frequent and

Action point 3: Education about the relationship between caregiver beliefs and DS in PWD should be a priority for all HCPs.

this signposts opportunities for more targeted KT interventions within and across professional groups.

Of particular concern are the low (less than 25% in any professional group) endorsement rates for a relationship between disordered sleep in person with dementia and the co-morbid conditions of **Allergies, Endocrine Disorders, Renal disorder, Rheumatic diseases** and **Sensory deficits**. The evidence-base is strong and growing to support what is often proposed to be a bi-directional relationship between these types of health conditions and DS in person with dementia [31, 35]. We know that sleep disorders tend to be under-diagnosed in PWD as complexity of co-morbidities increases and managing the dementia assumes a greater and greater emphasis [6]. It is possible that amongst the survey respondents co-morbid conditions (such as allergies, sensory deficits and painful arthritic conditions), that routinely alert HCPs to the possibility of DS in non-cognitively impaired populations, tend to be overlooked as associated with DS in PWD.

4.1.5 What sleep assessment tools are healthcare providers aware of? How is this knowledge distributed across the professions?

While there is some variability between and across the different professional groups, overall, participants' knowledge of sleep-related assessment tools for PWD was limited. Most knew of **caregiver report, self-report** and **sleep diaries**. These types of self-report tools, while important, are often insufficient to capture a full picture of the extent and characteristics of disordered sleep. Current guidelines recommend a combination of self-report, observational, and standardized tools so as to best understand the complexity of DS in PWD [2].

4.2 What is current practice related to screening and interventions for DS in PWD?

4.2.1 How do healthcare providers screen for and assess sleep problems in persons with dementia?

Survey respondents stated they become aware of sleep problems either through their usual assessment practices (32.3%) or report from another team member (26.9%). Family report was selected less than 20% of the time. It appears that screening for DS

Action point 4: Education about co-morbid conditions with known association to DS is required across professional groups with particular emphasis on allergies, endocrine conditions and sensory deficits.

in PWD occurs primarily at the level of the HCP or team members. It is also possible that families do not routinely bring concerns about DS to the attention of the clinician and so HCPs rely more on usual practice and colleagues to identify that DS may be a problem. Given these findings and the complexities of detecting DS in PWD, it would be of benefit to identify opportunities to include basic sleep-related screening questions in existing, routinely administered, geriatric assessments. For example, there is clear evidence that DS is a risk factor for falls [36, 37] and a significant amount of resource has been dedicated to falls reduction and prevention programs in many countries. However, when we examined the two falls

Action point 5: Embedding sleep-related questions in widely used screening tools for other conditions would be congruent with HCPs current practice and promote more routine screening in a practical format.

assessment tools (Morse Falls Scale http://www.patientsafety.gov/SafetyTopics/fallstoolkit/media/morse_falls_pocket_card.pdf and the St. Thomas's Risk Assessment Tool in Falling Elderly Inpatients -STRATIFY [38]) which were both identified as psychometrically sound in Oliver et al.'s systematic review [39], neither tool had any sleep-related questions. Our search of falls risk assessment tools did reveal one in-house tool, the FARAM, developed by Bayside Health in Victoria, Australia (www.health.vic.gov.au/qualitycouncil/downloads/falls/tools.pdf) that incorporated sleep-related questions. Although not yet validated, the sleep-related questions in the FARAM tool can serve as an example for further development. Given the clear evidence-based relationship between falls and sleep [36, 37] the goal of embedding sleep-related questions into falls assessment screening tools appears to be a practical way forward. This strategy can facilitate busy HCPs to routinely incorporate sleep screening questions.

4.2.2 What sleep assessment tools are healthcare providers aware of and have experience with?

Assessment tool knowledge was limited (Table 7) beyond non-standardized self-report measures such as sleep diaries and caregiver report. Encouragingly, none of the tools were perceived as highly impractical with the exception of polysomnography. This is not surprising given the complex challenges to ensure a sufficient degree of reliability when using polysomnography as a diagnostic tool for persons with

Action point 6: Healthcare providers need information about, and access to, appropriate assessment tools for PWD. Particular emphasis should be on actigraphy, PSQI, ESS, and SDI.

dementia. These findings seemed to indicate that, while awareness and experience with standardized tools was low, healthcare providers saw the relevance of sleep assessment and did not regard these tools as impractical. This is a promising finding and, as the need for KT about sleep assessment tools is cross disciplinary, interdisciplinary strategies to deliver education about assessment are indicated. Sleep assessment tools of particular relevance to PWD include actigraphy [40], the Sleep Disturbance Index (SDI) [6], the Pittsburg Sleep Quality Index (PSQI) and the Epworth Sleepiness Scale (ESS) [41]. The findings also highlighted that there is scarcity of assessment and screening tools specific to PWD and there is scope for further research and development.

4.2.3 What non-pharmacological sleep interventions are healthcare providers aware of and have experience with?

Table 8 in the Findings section (3.1.6) illustrates that only three of the 22 evidence-based NPSI strategies (**Regular bedtime routine, Increased daytime activity and Restricted caffeine**) were reported as having been recommended and perceived as practical (RecPrac) by greater than 80% of the sample (86.2, 84.2 and 83.2% respectively). A further four of the remaining NPSI were endorsed as RecPrac by 70-79% of participants: **Regular exercise routine (76.0%), Restricted daytime naps (75.7%), Decreased evening noise levels (73.9%), and Restricted evening fluids (70.4%).**

The remaining interventions were endorsed with much less frequency and greater between-group variation. Statistically significant ($p < .001$) patterns of endorsement were revealed for:

- Education and sleep surfaces (OT and PT more likely to endorse),
- Evening warm bath (Psychiatrist and Social Worker more likely to endorse),
- White noise machine at night (Social Worker more likely to endorse),
- Reduced ambient lighting at night (Psychiatrist and Physician more likely to endorse),
- Sleep restriction regime (Psychiatrist more likely to endorse),
- Increased daytime ambient lighting (Physician more likely to endorse),

- Adjust caregiver sleep schedule (PT less likely to endorse),
- PWD self-determine sleep schedule (PT less likely to endorse),
- Caregiver respite care (Social worker more likely to endorse), and
- PWD respite care (Psychiatrist and Physician more likely to endorse).

These findings seem to indicate that, while there is some degree of common knowledge and support for NPSI across disciplines, for many of the interventions awareness varies between professional groups. It may be that knowledge translation strategies need to be more targeted at the individual profession level.

Interestingly, interventions targeting modification to the nighttime sleep environment showed weak endorsement overall. Specifically, **Education about sleep surfaces and position, White noise** at night, and **Reduced ambient nighttime light** were not well endorsed (46.1, 22.9, 45.5% respectively). It may be that the significant role there NPSI play in improved sleep is not well understood. While reduced nighttime light may not have been strongly endorsed because of safety concerns, white noise machines and modification of sleep surfaces/bedding are relatively pragmatic considerations.

It is noteworthy that only 44.6% of participants overall had knowledge of and endorsed Increased time outdoor while other NPSI such as Increased exercise (76.0%) and Relaxation techniques (67.5%) were identified much more frequently (stat. sig. $p < .000$) as having been tried and as being practical. This apparent preference for active interventions may reflect a lack of awareness overall about how large a role **passive exposure to daylight** can play in sleep regulation. It is possible that the high number of participants that report working in LTC and institutional settings may skewed the findings as daylight exposure maybe a much less realistic option in these settings compared

Action point 7: Healthcare providers need education about NPSI that is tailored to knowledge gaps within their own profession.

to persons living in the community with family caregivers.

4.3 What do healthcare providers perceive to be the barriers and facilitators to prescribing/recommending non-pharmacological sleep interventions (NPSI) for PWD?

As illustrated in Table 10 respondents' perceived that their own lack of professional resources, as well as insufficient institutional and, at time family members ,resources were **barriers to implimenting NPSI** as the most significant barrier. The environment, was the second more freuquently identified barrier and comments particulalry highlighted the conflict between elements of the institutional environment that potentially conflicted using NPSI. A frequent example was that nighttime lighting was important because of safety concerns and so reduced night time ambient light was seen to be impractical. Other barriers were reported to be the characteristics of PWD and their caregivers and a general lack of awareness about NPSI and sleep as it relates to dementia. Interestingly only a few respondents mentioned characteristics of healthcare providers them selves (such as motivation and scope of practice issues) being a barrier. Likewise concerns for the evidence-base supporting NPSI were very few. While some (8.5%) of respondents mentioned that society seemed to trend towards medicalizing and pharmacolizing issues such as sleep, this was the only theme that emerged looking at barriers from a more societal, macro-level.

Table 11 details the themes that emerged related to **facilitators of using NPSI**. Comments most frequently related to the theme of *HCP characteristics*, focusing primarily on openness to alternative (non-pharmacological) interventions, relationship with a healthcare team, motivation, beliefs and access to evidence-based information. The remaining emergent themes were much less frequently endorsed (between 17.8%-2.2%) and identified education of

HCP and families of PWD, additional resources in institutions and community settings, family carers who were open to NPSI, and NPSI with an evidence-base as being facilitators. Notably most comments

focused on the macro/individual level. Only 11.5% of the comments had to do with features of the organisational environment and a scant 5.6% related

Action point 8: All healthcare providers need education about NPSI focused on modifications to the sleep environment and the critical role of passive exposure to daylight.

to the importance of policy to drive change. This mirrors the lack of macro-level elements found in the comments about barriers to NPSI practice. This lack of balance between participants' comments as they relate to macro and micro elements of using NPSI is intriguing and would be a worthwhile research question for follow-up.

Finally, it was interesting to us that, while we received 2,972 statements about barriers, there were only 1,976 statements about facilitators. We can only speculate about why the comments dropped off by 1,000 between these two survey sections but further investigation may prove some interesting and useful insights related to changing practice

4.3.1 Understanding how perceived facilitators and barriers of NPSI interventions relate to the Knowledge-to-Action Cycle Although previously under-recognized, in the last decade the evidence-base demonstrating the impact of sleep on the health and wellbeing of PWD and their families has grown significantly. However, integration of the evidence into daily clinical practice and guidelines has yet to occur. For healthcare providers to integrate emerging evidence related to sleep assessment and NPSI for persons with dementia into their practice a knowledge translation process must occur. Knowledge translation (KT) is defined by the Canadian Institute for Health Research (CIHR) as “*a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the healthcare system*”[42]. Experts in the field of KT suggest that, while there are a number of theories exploring how knowledge is created and exchanged between the levels of research and application, a common thread to these theories is that KT requires a planned-action approach [43]. Straus et al [43] synthesized existing KT theories based on planned-action approaches and developed The Knowledge to Action framework (see Figure 2) which has now been adopted by the CIHR and the World Health Organization (WHO).

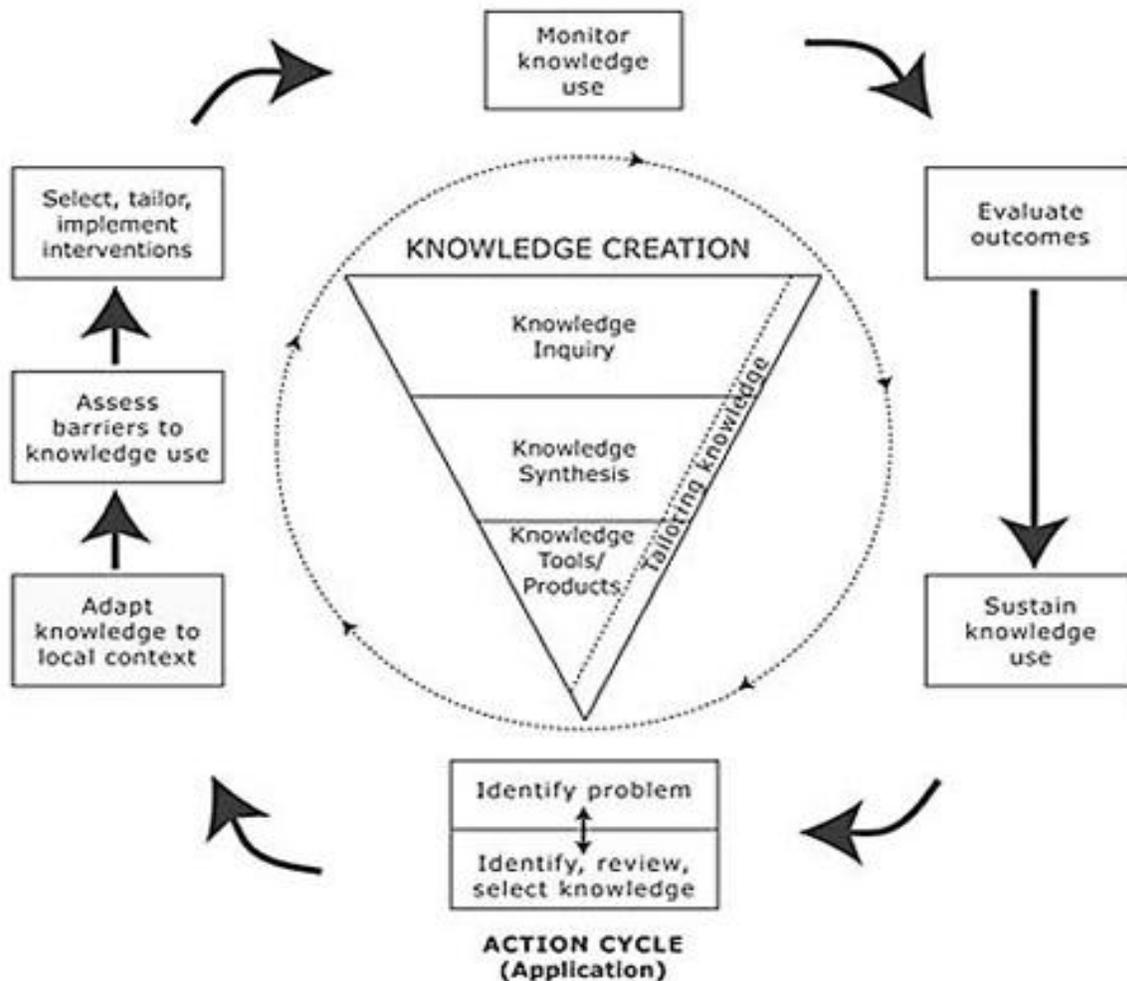


Figure 2: Knowledge to Action Framework (with permission of J Wiley & Sons, Dec 2012)

This dynamic, open-system model outlines the iterative steps of moving research information to practical, clinical application. Application in turn feeds back into the system to inform research development and future action. Straus et al [43] identify that determining barriers and facilitators of knowledge flow within the system is a key step. Congruent with this approach we asked participants to detail barriers and, additionally, to identify facilitators to use of NPSI with their patients. By asking for facilitators in addition to barriers we believe we will be better able to build strength-based KT strategies for addressing sleep problems for PWD.

Légare (in Straus et al [43]) develops a taxonomy of barriers and facilitators for knowledge use based on his review of the extant KT conceptual models. We used this taxonomy to guide our exploration of the survey's extensive qualitative findings in a clear and organized fashion. First we developed a table of knowledge-use variables from the taxonomy (Table 12). We then mapped the barrier and facilitator themes, and related categories, that emerged from our participants' responses onto the table. Some of Légare's variables identified only patients and so we modified these variable to read "patient & caregiver" to better reflect the reality for most PWD. From this mapping we were able to determine that there are clear and concentrated areas where our study's emergent themes align with Légare's variables. Interestingly, both facilitator and barrier themes align around the same variables. This is important as it highlights where the critical concerns are concentrated and so guides priority areas for action.

Additionally it illustrates that barriers and facilitators should be viewed along a continuum as opposed to discrete entities. For example at one end of the continuum knowledge (lack of knowledge) is a barrier but at the other end it is a facilitator (the existence of knowledge). The task is to move the balance of many of these continuums from the sleep negative to the sleep positive end of the scale. Using this map of aligned variables and visualizing them on a continuum will help us develop a more targeted and relevant KT strategy that builds on existing strengths, familiarity and system capacity.

Action point 9: KT strategies focused on concerns about shared responsibility between HCP and PWD/family members, on issues related to the quality and reliability of the evidence, and on ease of recall of the information ARE NOT a KT priority for this issue.

4.3.2 Less critical variables to address in KT strategies

From the mapping illustrated in Table 12, it appears issues of remembering information about sleep and PWD was not a concern. Further, shared decision-making, confidence in knowledge developers/researchers, and issues related to production of the evidence (bias, flexibility/modifiability and prescriptiveness of approaches) were not emerging concerns. It is important to consider however, that this may be more reflective of the limited knowledge most participants

actually have about the evidence-base as opposed to a lack of concern for the quality and rigor of the evidence-base. For example, participants may not have expressed that perceptions about research bias could facilitate or act as barriers because the state of their own knowledge is insufficient at this point to guide them as to what bias may be of concern for some studies of non-pharmacological sleep interventions.

Table 12: Barrier and facilitator themes mapped against knowledge use taxonomy

Knowledge use variables [43]	Barrier theme & corresponding categories (details in Table 10)	Facilitator theme & corresponding categories (details in Table 11)
Variable 1 -Knowledge		
• Awareness (or lack of)	T4ii, T4iii, T4iv, T5	T1i, T1x, T2i, T2ii, T3iii, T4ii, T4iii, T7i, T7v
• Familiarity (or lack of)	T4iv, T8i,	T1ii, T1xi, T2iii, T4iii,
• Forgetting/remembering		
Variable 2i- Attitudes – lack of applicability		
• Agreement	T4i, T8iii,	T1vi, T1vii, T2vi, T5iv, T7ii, T8ii
• Patient characteristics	T1iii, T3i-xi, T5i-vi,	T2ii, T3ii, T7ii,
• Clinical situation	T2ii,	T1v,
• Patient/caregiver preference for shared decision making		T4iv
• Patient/caregiver support for knowledge	T5iii,	
• Patient/caregiver values	T4v,	T2iii, T4iii,
• Cost-benefit		T3ii, T5iii
• Confidence in developers		
Variable 2ii- Attitudes – lack of agreement in general		
• Flexibility		

• Challenge to autonomy		
• Bias		
• Practicality	T1ii, T2iii, T4v,	T1ix, T4ix, T51, T5v,
• Shared responsibility with patient/caregiver		T1ix, T4i, T4iv, T7iii
Variable 2iii- Attitudes- lack of expectancy		
• Perception about contribution to change	T1iv, T3x, T4i, T5v, T6vi-vi	T1iii, T4iii,
• Perception about contribution to improved process	T2v,	Y1v, T5vi
• Perceived will provoke negative feelings		
• Self-efficacy of intended user	T3	
• Motivation of user	T3v, T5ii, T5vi, T7i	T1iv, T1vii, T4iii, T4v, T4vii, T7vi,
Variable 3- Behavior		
• Patient/caregiver preferences	T5	T4iii, T7iv
Variable 4- Factors associated with innovation		
• Trialability		
• Compatability		
• Complexity	T3i, T3ii, T3iv,	
• Observability	T9ii	
• Communicable	T2vi, T3xi, T7iv	T2iv, T2v, T7viii
• Uncertainty	T3, T4v, T4i, 6v, T6vi	T2vi
• Modifiable		
Variable 5- Environmental factors		
• Time	T1vi, T1vii, T2x, T9ii	T3i, T3ii,
• Resources	T1i, T1v, T1vi, T1vii, T2i, T51,	T3iv, T3v, T3ix
• Organizational constraints	T2i, T2ii, T2iii, T2v, T2vi, T7ii, T7iii, T9ii	T4i, T61, T6ii, T9i-iii
• Access to services		T3v, T3vi,
• Reimbursement	T1iii	T3viii
• Perceive risk/liability	T2ix, T4vi, T6i, T8ii, T9i	T4viii, T5ii, T8i

Action point 10: Look to stages-of-change theoretical models to guide KT strategies for modifying values and beliefs. Do not assumptions that opinion leaders are cross-disciplinary or relevant outside of specific contexts.

Action point 11:

Increase comfort and cohesion between stakeholders by framing new NPSI information as built on, and an extension of, what HCPs and family members already know.

4.3.3 Critical variables to address in KT strategies

Twelve key areas that present opportunities for focused KT strategies emerged from the mapping exercise:

1. Awareness
2. Familiarity
3. Agreement
4. Caregiver values
5. Practicality
6. Contribution to change
7. Motivation of knowledge user
8. Communicability of knowledge
9. Uncertainty
10. Time
11. Resources, and
12. Organizational constraints

This section will briefly discuss each variable in turn and present background literature to more clearly illustrate the relevance of each variable as one of the interactivity influences on KT activities to move NPSI from the evidence-base into practice.

Awareness of new information is important but in itself does not equate to change in practice and belief [44, 45]. The source and context of the information are also important factors in the uptake of new information [46, 47]. Some researchers suggest that formal knowledge brokers and opinion leaders who are able to build interpersonal connections with intended knowledge users can play a key role as change agents. Systematic reviews have identified varying degrees of support for the effectiveness of these types of KT strategies [47-49]. Additionally, it appears clearly erroneous to assume that the same

knowledge broker or opinion leader is relevant across disciplines and settings [47]. Rather these interpersonally driven strategies must be developed carefully and built on interpersonal relationships and contextual influences.

Participants' comments reflected that **familiarity** and **uncertainty** are influences in PWD sleep assessment and NPSI implementation. It may be then that change theories, built on the assumption that people move through several preparatory, stages to familiarize themselves with new ideas prior to action directed change [50], hold relevant in sleep and NPSI KT strategies. **Agreement** was also identified as an influence that, when present, was perceived to facilitate NPSI use. Conversely, when agreement is lacking it is seen as slowing down acceptance and implementation. This is a particularly important influence given the high degree of inter-professional and family caregiver co-operative working that is required for successful dementia care.

Action point 12:

Focus on placing NPSI on the dynamic continuum of care that values 'this as well as that' as is required for effective management of the complex adaptive human system presented by dementia.

Healthcare delivery for conditions like dementia occurs within a highly dynamic, non-linear and interactive human system. As such it is a complex, adaptive, system [51]. As Plesk and Greenhalgh [51] point out, one of the features of a complex system in health is that high degrees of **agreement** cannot be assumed. Rather, complexity theorists propose that disagreement should be anticipated, made transparent and the energy consequent to disagreement should be harnessed to fuel innovative problem solving [52, 53]. Complexity science proposes that we should look for adaptive, inclusive solutions that value "this as well as that" instead of

seeking the “best” solution. In simple, linear systems there may very well be one best solution but in complex systems there are multiple “good” options that incorporate the need for contextualized decision making [54]. As Rycroft-Malone et al point out, “it is possible that the chances of successful implementation may be increased by articulating the differences of opinions...” pg 175[46]. In the case of NPSI we should not promote valuing NPSI over pharmacological interventions but rather help all members of the healthcare team see how sleep interventions for PWD need to sit on a continuum of acuity and long-term sustainability.

Action point 13:

Facilitate caregiver change of beliefs and acceptance of NPSI through a focus on practical, observable, patient-centered outcomes; and strategies to enhance motivation that are aligned with kin group and cultural contexts.

Although comments about the influence of **caregiver values** on implementing NPSI were not frequent, they did map to Légaré’s taxonomy. It seems to us that the strength of caregivers’ values on NPSI adoption and adherence is perhaps currently under-recognized. A 2004 systematic review of patient adherence to medication regimes [55], a 2012 study of medication adherence and caregivers’ practices [56], and a review of falls prevention programs [57] all concluded that caregiver values were strongly influential. We extrapolate from these studies to support that caregiver values play a key role in influencing NPSI implementation. Although not specific to sleep and dementia there are lessons we can take away from this body of research. Of particular note is that many PWD are not responsible for their own treatment adherence but rather depend on family caregivers to organize and deliver any

interventions. In the case of this type of gatekeeping role family caregivers’ beliefs assume an even greater relevance that need to be considered in any intervention planning.

There are three additional variables in Légaré’s taxonomy that can serve to modify caregiver values and beliefs. Interventions that are **practical** [58], perceived to **contribute to actual change** [59], and for which the actor is highly **motivated** [60] are important influences on changing values. Quinn et al [60] point out that key components of influencing motivation in caregivers rest with cultural beliefs and values and within the dynamics between members of the same kin group as the PWD. It appears promising to consider KT strategies focused on any of these three variables to help improve the uptake and acceptance of NPSI interventions.

The variable of **communicability** of information was clearly identified as playing both a facilitator and a barrier role related to recommending the use of NPSI for PWD. There is encouraging research taking place across many of the industrialized countries to identify and address HCPs’ assumptions about family caregivers’ capacity for accessing, understanding and implementing health information. For example, Braithwaite and McGowan found that, while distress was not a significant barrier to caregiver learning, previous knowledge and age were [61]. Other researchers concerned with the growing trend towards web-based health literacy and disease self-management KT found that, while age was a factor in acceptance of web-based materials, beliefs about ease of access and usefulness of the information

Action point 14:

Avoid ageist assumptions about communication and base design of communication strategies on evidence-based principles for increased health literacy and clearly evident practicality of the information.

were actually stronger influences [62]. Importantly, many of these concerns about older adults and technology use for health literacy are self-limiting. More people in industrialized societies are now, consequent to workplace, education and leisure activities, aging *with* technology as opposed to learning computer literacy as an additional skill in their older years. Increasingly well designed health literacy electronic media will be an acceptable and effective form of communication.

Examples of recent websites designed to facilitate the flow of evidence-based sleep and dementia information to family caregivers and HCPs include:

- the Bendigo Health Region in Australia - an online decision making/problem solving cycle for HCP and family caregivers (http://www.dementiamanagementstrategy.com/Pages/ABC_of_behaviour_management/Management_strategies/Sleep_disturbance.aspx),
- the Mayo Clinic caregivers' resource website has pragmatic information, written at a grade 7.4 level, (<http://www.mayoclinic.com/health/alzheimers/AZ00030>), and
- Sleep and Dementia Resources- an evidence-based information and resource links for HCPs and family caregivers developed by the Sleep and Function Interdisciplinary Group (SAFIG) at the University of Alberta (<http://www.sleep-dementia-resources.ualberta.ca>).

The final three variables, **time**, **resources**, and **organizational constraints** relate to political and organizational environments. There is a great deal of interest in organizational change because of the significant, and often primary, role organizational culture plays in what interventions and procedures are valued and implemented. Researchers have identified that organizations often have a high degree of inertia (organizational inertia) that interferes with uptake and operationalization of evidence-based practices [63, 64]. Without motivation and ability for change at an organizational level, individual healthcare providers, regardless of motivation and knowledge, can be significantly limited in their own ability to effect change. As Kitson and Straus [65]

Action point 15:

Develop KT strategies that incorporate awareness of organizational context and that focus at the level of those stakeholders who are able to influence organizational culture.

point out organizational issues of inertia, conformity, and privileging of opinion based on hierarchy as opposed to the evidence-base, appear to be common place but unacknowledged in many healthcare organizations. Rycroft-Malone et al [46] stress that KT is a non-linear process that would be well served to adopt an understanding of how all

three domains of evidence, context, and facilitation have an interactive relationship in KT. Strategies that value only the evidence are less likely to succeed. Time and resources are deployed, to a large part, as functions of what activities are valued and how organizations structure themselves. Knowledge translation strategies built on a better understanding of organizational context [66] and culture are critically indicated to move forward with effective, applicable, change.

In summary, we have illustrated how participants' perceptions about the facilitators and barriers to use of NPSI align with issues identified in the wider KT literature. We highlighted 12 key indicators that function both as facilitators and barriers dependent on which end of the continuum they fall. Additionally, we proposed that framed in this manner, opportunities for building on existing strengths and knowledge are more apparent. Lastly we stressed that successful implementation of evidence-based information is often beyond the capacity of individuals and requires KT strategies that integrate local context and address organizational inertia and culture. Sixteen (16) action points emerged from this section and are detailed in Table 13.

4.4 What are healthcare providers' preferences for sleep assessment and NPSI knowledge translation?

The final question addressed in this study was preferences for sleep and dementia KT delivery. Similar to other survey questions there was high

variability across the professional groups. Although **electronic reports** were the most frequently selected it was only endorsed by 55.2% of the overall participants. While few participants stated that KT was not needed there was statistically significant differences between endorsements for all of the 11 KT activities listed. Interestingly the endorsement patterns reflected little interest in **video webinars and podcasts** but higher endorsement for the more traditional **printed reports and handouts** as KT vehicles. This preference appears to be contrary to previous evidence reviews concluding these more passive forms of KT are less effective [67]. However, other reviewers have determined that we currently have insufficient evidence to determine if passive KT interventions are any less effective than other strategies when used alone [68, 69]. What is consistent across studies, is the recommendation that single, stand-alone strategies are less effective than contextualized, multi-faceted KT interventions [70]. This reinforces the need to carefully plan dissemination strategies to both address demonstrated knowledge gaps and building on existing awareness within a professional group. Pre-determining knowledge gaps and then focusing specifically on these aspects as opposed to delivering less targeted, generic over-views will help address time constraints and demonstration of relevance to the recipient. Building on existing capacity helps link what is already familiar and comfortable to the new information such that relevance is apparent and knowledge user engagement is more probable [71]. Elwyn et al [71] propose that, to-date, KT research has neglected the important elements of communication theory and evidence generated in the field of business and marketing. Drawing on research in these fields, Elwyn et al developed a conceptual model, 'sticky knowledge', outlining how ambiguity, uncertainty, credibility, absorptive capacity, retentive capacity, barren organizational context, and arduous relationships influence the flow of information between sender and receiver. Importantly, these factors also influence how well the information 'sticks'

to the receiver and then, in turn, flows to the next recipient. As in other KT models, the importance of contextualized and the easily apparent relevance of information to the recipient is highlighted.

4.4.1 Do we know what we don't know?

One reason survey participants may have more strongly endorsed traditional forms of KT is that they have limited experience with other strategies. This would indicate a comfort level in familiar strategies. In addition, it is possible that the cognitive and time demand of alternative KT delivery can, for some

practitioners, be demotivating [72]. As such, KT interventions to raise awareness and influence practice related to sleep and dementia should attempt to be multi-dimensional. Sleep and dementia KT needs to be delivered through both familiar paper-based reports and brochures but at the same time incorporate current best evidence for electronic-based, interactive tools. Further, the materials' relevance and trustworthiness need to be clearly apparent and so specific,

contextualized messages, delivered by respected local sources, are important [73]. Lastly, the high diversity of KT delivery preferences across professional groups signposts which particular strategies should be incorporated in a KT approach to better increase familiarity and comfort levels for the information within each specific group.

Action point 16:

Deliver KT with as much local context as possible, in a range of formats that accommodate learners' preferences and that reduce the amount of time spent in learning new technology to access the material as opposed to time spent in learning the new material specifically.

5.0 LIMITATIONS

The survey had several limitations that should be noted. The sample was gained through convenience and we have no certainty that the respondents were representative of their province, discipline, or other factors. Additionally, because participants were often able to select more than one response for each question, we cannot conclude that responses were ranked ordered. Losing our ability to analyze the French language qualitative data at midpoint in the study leaves that body of data non-yet explored. Consequently, it is possible that some language dependent variation in the themes that emerged from the data may have been omitted in our discussion. However, the volume of qualitative data that the 1,846 English language participants generously provided for analysis in this study allows us to feel some degree of confidence in our findings. Finally, and **importantly**, healthcare providers who are working with PWD who live in the community are under-represented in this survey. We were unsuccessful in accessing these healthcare providers despite our extensive efforts. This is a critical area for attention as effective and early sleep intervention in the community can act as a preventative measure to support caregivers' well-being, optimize PWD's functional capacity, and reduce the risk of requiring institutionalization.

6.0 CONCLUSIONS & RECOMMENDATIONS

At the start of the study, we knew that sleep problems for PWD were largely unrecognized and often undertreated by healthcare providers. As a consequence of this survey, we now know that healthcare providers are motivated to learn more and they also see the relevance of non-pharmacological sleep interventions for their patients. We also know that different professional groups have different knowledge strengths, knowledge gaps and KT preferences. These are all positive findings that can help guide the more targeted and contextualized KT approaches that are supported by the current evidence-base. Critically, healthcare providers need increased awareness about the relationship between other health conditions and sleep, and about the range of sleep screening tools that are relevant to their practice. We believe that KT strategies to address these gaps must be strength-based and incorporate lessons from the current KT evidence-base. To that end, we have summarized the report's recommendations as action points (Table 13) that can guide further work to address the unmet need of effective recognition of, and provision of NPSI for sleep problems in persons living with dementia.

Table 13: Emergent action points for NPSI KT strategies

1. Build capacity for screening and advocacy related to sleep and dementia in professions (nursing, physiotherapy, occupational therapy) whose practices have the highest frequency and duration of patient/family interaction.
2. Prioritize sleep and dementia education by profession so as to build on existing awareness when introducing information. For example, as physicians already report awareness of the relationship between DS and depression and night-time wakefulness, KT efforts should not focus on these elements. Rather, clear knowledge gaps should be targeted.
3. Education about the relationship between caregiver beliefs and DS in PWD should be a priority for all HCPs.
4. Education about co-morbid conditions with known association to DS is required across professional groups with particular emphasis on allergies, endocrine conditions and sensory deficits.
5. Embedding sleep-related questions in widely used screening tools for other conditions would be congruent with HCPs current practice and promote more routine screening in a practical format
6. Healthcare providers need information about, and access to, appropriate assessment tools for PWD. Particular emphasis should be on actigraphy, PSQI, ESS, and SDI.
7. Healthcare providers need education about NPSI that is tailored to knowledge gaps within their own profession.
8. All healthcare providers need education about NPSI focused on modifications to the sleep environment and the critical role of passive exposure to daylight.
9. KT strategies focused on concerns about shared responsibility between HCP and PWD/family members, on issues related to the quality and reliability of the evidence, and on ease of recall of the information ARE NOT a KT priority for this issue.
10. Look to stages-of-change theoretical models to guide KT strategies for modifying values and beliefs. Do not assume that opinion leaders are cross-disciplinary or relevant outside of specific contexts.
11. Increase comfort and cohesion between stakeholders by framing new NPSI information as built on, and an extension of, what HCPs and family members already know.
12. Focus on placing NPSI on the dynamic continuum of care that values 'this as well as that' as is required for effective management of the complex adaptive human system presented by dementia.
13. Facilitate caregiver change of beliefs and acceptance of NPSI through a focus on practical, observable, patient-centered outcomes; and strategies to enhance motivation that are aligned with kin group and cultural contexts.
14. Avoid ageist assumptions about communication and base design of communication strategies on evidence-based principles for increased health literacy and clearly evident practicality of the information.
15. Develop KT strategies that incorporate awareness of organizational context and that focus at the level of those stakeholders who are able to influence organizational culture.
16. Deliver KT with as much local context as possible, in a range of formats that accommodate learners' preferences and that reduce the amount of time spent in learning new technology to access the material as opposed to time spent in learning the new material specifically.

7.0 Comments from survey participants

Thank you this really made me think about what I need to do to investigate the techniques that I was unaware of.

- I would like to see a patient centered approach - an educational session with patient, family, and invite all care providers of the patient. That way we all get the same message, and all focus on helping the patient instead of each trying individually to work against each other's ideas and wishes I'm really happy to see that nurses are getting this survey. Gaining knowledge about research and how we can change our practice to better help our patients, especially persons who are often overlooked is so valuable. Thank you.

Thank you for taking the time to do this survey I have always been concerned about this issue and would love more information and education so I can be more effective with my holistic and hospital practice as a nurse.

As a home care physical therapist, my practice has a definite emphasis on fall prevention, skin & wound Rx, and palliative symptom relief so I am glad to see that sleep disorders in seniors is being studied and I look forward to hearing more about your work.

Education and support for in-home caregivers in any format are really needed.

I did not realize all the assessment tools available. I will be 'googling' the list from above. Studies like this will re-enforce what we should be doing in LTC. Thank You

Thank you for raising this issue on-line - it is one I could be spending more time assessing and treating in my practice

Thank you this really made me think about what I need to do to investigate the techniques that I was unaware of.

Good luck with this much needed study!! Thank you.

8.0 Dissemination activities

The findings of this study and related resources have been disseminated as follows as of February 1 2013:

- **Brown CA, Berry R, Tan M, Turlapati L, Swedlove F.** (2011) A critique of the evidence-base for non-pharmacological sleep interventions for persons with dementia. Dementia: The International Journal of Social Research and Practice. Published online before print November 7, 2011, doi: 10.1177/1471301211426909
- **Brown CA, Berry R, Tan M.** (2011) Sleep and dementia: A report on the evidence-base for non-pharmacological interventions, Long Term Care 21(2):14-19.
- **Brown CA** Non-pharmacological sleep interventions for persons with dementia: Pragmatic approaches in the community. Canadian Coalition of Seniors' Mental Health/Canadian Association of Geriatric Psychology Joint Conference – Banff Alberta Sept 2012. (workshop presentation)
- **Brown CA, Wilson D, Wielandt T, Jones A, Bullock M.** Healthcare providers' awareness and recommendation of non-pharmacological sleep interventions for persons with dementia: A national survey. Found in Translation- Alberta Health Service. March 2012 *Best Seed/Bridge Fund Poster Award*
- **Brown C** Sleep and Dementia: What Healthcare Providers Need to Know. Covenant Health Research Day 2012. Edmonton, February 2012 (oral presentation)
- **Brown CA, Berry R, Tan M, Turlapati L.** A critical review of non-pharmacological sleep interventions for persons with dementia. World Association of Sleep Medicine September 2011 Quebec City, Canada (poster presentation).
- **Brown CA, Wilson D, Wielandt T, Jones A, Bullock M.** Determining healthcare providers' knowledge and recommendation of non-pharmacological sleep interventions for persons with dementia: A national survey University of Alberta Centre on Aging, Annual Research Networking event. - January 2013

Pending

Brown C, Wielandt T, Wislon D, Jones A, Bullock M Healthcare providers' knowledge and practice related sleep problems of persons with dementia: A national survey. Canadian Association of Occupational Therapist ASM Victoria, **BC June 2013.** (oral presentation)

A manuscript of study findings is in preparation for Dementia: The International Journal of Social Research and Practice.

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10.0 Appendices

Appendix A: List of contacted organizations

1. Canadian Association of Occupational Therapy (CAOT)
2. Canadian Psychological Association (CPA)
3. Older Persons' Mental Health and Addictions Network of Ontario (OPMHAN)
4. Canadian Academy of Geriatric Psychiatry (CAGP)
5. Canadian Geriatric Society (CGS)
6. Canadian Association on Gerontology (CAG)
7. Canadian Coalition for Seniors Mental Health (CCSMH)
8. Saskatchewan Association of Health Organizations (SAHO)
9. Regional Health Authorities of Manitoba (RHAM)
10. College of Family Physicians of Canada (CFPC)
11. Royal College of Physicians and Surgeons of Canada (RCPSC)
12. Canadian Medical Association (CMA)
13. Society of Rural Physicians of Canada (SRPC)
14. Canadian Physiotherapy Association (CPA) -Seniors' Health Division
15. Canadian Nurses Association (CNA)
16. Canadian Gerontological Nurses Association (CGNA)/Gerontological Nurses Association of British Columbia (GNABC)
17. Canadian Federation of Nurses Unions (CFNU)
18. Canadian Association of Advanced Practice Nurses (CAAPN)
19. Canadian Alliance for Long Term Care (CALTC)
20. Canadian Association of Social Workers (CASW)
21. Canadian Psychiatric Association (CPA)
22. Canadian Pharmacists Association (CPhA)
23. Canadian Association of Consultant Pharmacists (CSCP)
24. Canadian Society of Hospital Pharmacists (CSHP)
25. Canadian Association of Physician Assistants (CAOPA)
26. Canadian Therapeutic Recreation Association (CTRA)
27. Canadian Society of Respiratory Therapists (CSRT)
28. Canadian Association of Speech-Language Pathologists and Audiologists (CASLPA)
29. Alberta College of Occupational Therapists (ACOT)
30. Society of Alberta Occupational Therapists (SAOT)
31. The College of Occupational Therapists of British Columbia (COTBC)
32. Saskatchewan Society of Occupational Therapists (SSOT)
33. Manitoba Society of Occupational Therapists (MSOT)
34. Ontario Society of Occupational Therapists (OSOT)
35. College of Occupational Therapists of Ontario (COTO)
36. Ordre des ergothérapeutes du Québec (OEQ)
37. Nova Scotia Society of Occupational Therapists (NSSOT)
38. College of Occupational Therapists of Nova Scotia (COTNS)
39. New Brunswick Association of Occupational Therapists (NBAOT)
40. Prince Edward Island Occupational Therapy Society (PEIOT)
41. Newfoundland & Labrador Association of Occupational Therapists (NLAOT)
42. Northern Association of Occupational Therapists (NAOT)
43. Association of Yukon Occupational Therapists (AYOT)
44. Therapist Assistant Association of Alberta (THAAA)
45. BC Rehabilitation Therapist Assistant Network
46. Saskatchewan Association of Therapist Assistants
47. Occupational Therapy Assistant Steering Committee of Ontario
48. College of Alberta Psychologists (CAP)
49. Psychologists Association of Alberta (PAA)
50. College of Psychologists of BC (CPBC)
51. British Columbia Psychological Association (BCPA)
52. Saskatchewan College of Psychologists (SCP)
53. Psychological Society of Saskatchewan (PSS)
54. The Psychological Association of Manitoba (PAM)
55. Manitoba Psychological Society (MPS)
56. College of Psychologists of Ontario
57. Ontario Psychological Association
58. Ordre des Psychologues du Québec (OPQ)
59. Association of Psychologists of Nova Scotia (APNS)
60. College of Psychologists of New Brunswick
61. Prince Edward Island Psychologists Registration Board
62. Newfoundland and Labrador Psychology Board
63. Association of Psychology in Newfoundland and Labrador (APNL)
64. Association of Psychologists of the Northwest Territories
65. Health and Social Services Government of Nunavut
66. Alberta Psychiatric Association

67. Ontario Psychiatric Association
68. Association des médecins psychiatres du Québec
69. Nova Scotia Psychiatric Association
70. New Brunswick Association for Psychiatric Education and Advancement Inc. (AEAPNB)
71. Alberta College of Family Physicians (ACFP)
72. Alberta Medical Association
73. College of Physicians & Surgeons of Alberta (CPSA)
74. British Columbia College of Family Physicians (BCCFP)
75. British Columbia Medical Association (BCMA)
76. College of Physicians & Surgeons of British Columbia (CPSBC)
77. Saskatchewan College of Family Physicians (SKCFP)
78. Saskatchewan Medical Association (SMA)
79. College of Physicians & Surgeons of Saskatchewan (CPSS)
80. The Manitoba College of Family Physicians (MCFP)
81. Doctors Manitoba
82. The College of Physicians & Surgeons of Manitoba
83. Ontario College of Family Physicians (OFCF)
84. College of Physicians & Surgeons of Ontario
85. Ontario Medical Association
86. Collège québécois des médecins de famille (CQMF)
87. Collège des médecins du Québec
88. Association médicale du Québec (AMQ)
89. Nova Scotia College of Family Physicians
90. Medical Society of Nova Scotia/Doctors Nova Scotia
91. College of Physicians and Surgeons of Nova Scotia
92. New Brunswick College of Family Physicians
93. New Brunswick Medical Society
94. College of Physicians & Surgeons of New Brunswick
95. Prince Edward Island College of Family Physicians
96. College of Physicians & Surgeons of Prince Edward Island
97. Medical Society of PEI
98. NL College of Family Physicians Inc
99. Newfoundland and Labrador Medical Association
100. College of Physicians & Surgeons of Newfoundland & Labrador
101. Northwest Territories Medical Association
102. Department of Health Social Service, Government of the Northwest Territories
103. Yukon Medical Association
104. Yukon Medical Council
105. Physiotherapy Alberta: College and Association
106. Physiotherapy Association of British Columbia
107. College of Physical Therapists of BC
108. Saskatchewan Physiotherapy Association
109. Saskatchewan College of Physical Therapists
110. Manitoba Physiotherapy Association
111. College of Physiotherapists of Manitoba
112. Ontario Physiotherapy Association
113. College of Physiotherapists of Ontario
114. Ordre professionnel de la physiothérapie du Québec (OPPQ)
115. Nova Scotia Physiotherapy Association
116. Nova Scotia College of Physiotherapists
117. New Brunswick Physiotherapy Association/Prince Edward Island Branch/Atlantic Provinces' Physiotherapy Associations (NL, NB, PEI, YK, NWT**)
118. College of Physiotherapists of New Brunswick (CPTNB)
119. Prince Edward Island College of Physiotherapists
120. Newfoundland & Labrador College of Physiotherapists
121. Northwest Territory and Nunavut Council
122. Yukon Territories Council
123. College and Association of Registered Nurses of Alberta (CARNA)
124. Alberta Gerontological Nurses Association (AGNA)
125. College of Licensed Practical Nurses of Alberta (CLPNA)
126. Nurse Practitioner Association of Alberta (NPAA)
127. United Nurses of Alberta
128. College of Registered Nurses of British Columbia (CRNBC)
129. Licensed Practical Nurses Association of BC
130. British Columbia NP Association
131. Saskatchewan Registered Nurses' Association (SRNA)
132. Saskatchewan Association of Licensed Practical Nurses (SALPN)
133. Nurse Practitioners of Saskatchewan (NPOS)
134. College of Registered Nurses of Manitoba (CRNM)
135. Manitoba Gerontological Nurses' Association (MGNA)

136. College of Licensed Practical Nurses of Manitoba
137. Nurse Practitioner Association Manitoba (NPAM)
138. College of Nurses of Ontario (CNO)
139. The Gerontological Nursing Association of Ontario
140. Ontario Nurses Association (ONA)
141. Registered Practical Nurses Association of Ontario
142. Nurse Practitioner Association of Ontario (NPAO)
143. Ordre des infirmières et infirmiers du Québec (OIIQ)
144. Association québécoise des infirmières et infirmiers en gérontologie (AQIG)
145. Ordre des infirmières et infirmiers auxiliaires du Québec (OIIAQ)
146. College of Registered Nurses of Nova Scotia (CRNNS)
147. Nova Scotia Gerontological Nurses Association (NSGNA)
148. Nova Scotia Nurses Union
149. College of Licensed Practical Nurses of Nova Scotia (CLPNNS)
150. Nurse Practitioner Association of Nova Scotia (NPANS)
151. Nurses Association of New Brunswick (NANB)
152. Association of New Brunswick Licensed Practical Nurses (ANBLPN)
153. Nurse Practitioners of New Brunswick (NPNB)
154. Association of Registered Nurses of Prince Edward Island (ARNPEI)
155. Nursing Policy Analyst, Long Term Care - Dept of Health
156. Prince Edward Island Gerontological Nurses Association
157. Licensed Practical Nurses Association of PEI
158. Association of Registered Nurses of Newfoundland and Labrador (ARNNL)
159. College of Licensed Practical Nurses of Newfoundland & Labrador (CLPNNL)
160. Newfoundland and Labrador Nurse Practitioner Association (NLNPA)
161. Registered Nurses Association of the NWT and Nunavut (RNANTNU)
162. Northwest Territories Health and Social Services
163. Yukon Registered Nurses Association (YRNA)
164. Alberta College of Social Workers
165. British Columbia Association of Social Workers
166. BC College of Social Workers
167. Saskatchewan Association of Social Workers
168. Manitoba Institute of Registered Social Workers
169. Ontario Association of Social Workers (OASW)
170. Ontario College of Social Workers and Social Services
171. Ordre des travailleurs sociaux et des thérapeutes conjugaux et familiaux du Québec (OTSTCFQ)
172. Nova Scotia Association of Social Workers
173. New Brunswick Association of Social Workers
174. Social Work Prince Edward Island
175. Newfoundland and Labrador Association of Social Workers
176. The Association of Social Workers of Northern Canada (ASWNC)
177. Alberta College of Speech-Language Pathologists and Audiologists (ACSLPA)
178. British Columbia Association of Speech Language Pathologists and Audiologists (BCASLPA)
179. Saskatchewan Association of Speech-Language Pathologists and Audiologists (SASLPA)
180. Manitoba Speech and Hearing Association (MSHA)
181. Ontario Association of Speech-Language Pathologists and Audiologists (OSLA)
182. Association québécoise des orthophonistes et des audiologistes (AQOA)
183. Ordre des orthophonistes et des audiologistes du Québec (OOAQ)
184. New Brunswick Association of Speech-Language Pathologists and Audiologists (NBASLPA)
185. Speech and Hearing Association of Nova Scotia (SHANS)
186. Prince Edward Island Speech and Hearing Association (PEISHA)
187. Newfoundland and Labrador Association of Speech-Language Pathologists and Audiologists (NLASLPA)
188. Yukon Speech-Language Pathology and Audiology Association (YSLPAA)
189. Association of Northwest Territorial Speech-Language Pathologists and Audiologists (ANTSLPA)
190. College of Pharmacists of British Columbia
191. BC Pharmacy Association
192. UBC Pharmaceutical Sciences
193. Alberta College of Pharmacists
194. Alberta Pharmacists' Association
195. Faculty of Pharmacy and Pharmaceutical Sciences-University of Alberta
196. Pharmacy Technicians Society of Alberta
197. Pharmacists' Association of Saskatchewan
198. Saskatchewan College of Pharmacists
199. University of Saskatchewan –College of Pharmacy and Nutrition
200. Manitoba Society of Pharmacists
201. Manitoba Pharmaceutical Association
202. University of Manitoba –Faculty of Pharmacy
203. Ontario Pharmacists' Association
204. Ontario College of Pharmacists
205. Leslie Dan –Faculty of Pharmacy

206. University of Waterloo –School of Pharmacy
207. Ordre des pharmaciens du Québec
208. Université de Montréal – Faculté de Pharmacie
209. Université Laval –Faculté de Pharmacie
210. New Brunswick Pharmacists' Association (NBPA)
211. New Brunswick Pharmaceutical Society
212. Nova Scotia College of Pharmacists
213. Pharmacy Association of Nova Scotia
214. Dalhousie University—College of Pharmacy
215. Pharmacists' Association of Newfoundland and Labrador
216. Memorial University of Newfoundland—School of Pharmacy
217. Primary Care Initiative
218. Vancouver Coastal Health (VCH)
219. Integrated Health Networks (IHN)
220. Saskatchewan Primary health Services
221. Physician Integrated Network (PIN)
222. Health Force Ontario – Primary Health Care
223. Community Health and Social Services Network
224. Primary Health Care
225. Community Health Centres Network
226. Health PEI: Family Health Centres
227. Primary Health Transition Fund
228. Integrated Service Delivery Model for the NWT Health and Social Services System
229. Health and Social Services
230. NWT and Nunavut Public Health Association
231. Alberta Home Care & Support Association
232. Alberta Continuing Care Association (ACCA)
233. BC Care Providers Association
234. Long Term & Continuing Care Association of Manitoba
235. Ontario Home Care Association
236. Ontario Association of Non-Profit Homes and Services for Seniors (OANHSS)
237. Association Québécoise d'Établissements de Santé et de Services Sociaux (AQESSS)
238. Nova Scotia HomeCare Association (NSHCA)
239. Continuing Care Association of Nova Scotia
240. New Brunswick Association of Nursing Homes (NBNH)
241. Champlain Dementia Network
242. Community on Aging Knowledge Exchange (CAKEs)
243. Applied Research Committee Request for Assistance –Ontario Long Term Care Association
244. Sleep Surgery, Inc. (Coquitlam, BC)
245. Canadian Sleep Institute (Calgary, AB)
246. Sleep medicine program, Dept. of Psychiatry, UofA (Edmonton, AB)
247. Centre for Sleep and Human Performance (Calgary, AB)
248. Northern Alberta Sleep Clinic (NASC) (Edmonton, AB)
249. Cobourg Sleep Clinic (Cobourg, ON)
250. Sleep Disorders Clinic, (Hamilton, & St. Catharines ON)
251. Insomnia Clinic (Kingston, ON)
252. Kingston General Hospital, Sleep Disorders Laboratory (Kingston, ON)
253. Tri-Hospital Sleep Laboratory West (Mississauga, ON)
254. Queensway Carleton Hospital Sleep Centre (Nepean, ON)
255. Niagara Snoring and Sleep Centre (Niagara Falls, ON)
256. The Ottawa Hospital Sleep Centre, General Campus (Ottawa, ON)
257. Royal Ottawa Hospital Sleep Disorders Service (Ottawa, ON)
258. Scarborough North Sleep Disorders Clinic (Scarborough, ON)
259. Northern Nights Sleep Disorder Centre (Thunder Bay, ON)
260. The Centre for Sleep & Chronobiology (Toronto, ON)
261. Glengroue Clinic (Toronto, ON)
262. Malvern Sleep Clinic (Toronto, ON)
263. Toronto Sleep Institute (Toronto, ON)
264. Universal Sleep Disorder Clinic (Toronto, ON)
265. Victoria Terrace Sleep Clinic (Toronto, ON)
266. West Park Healthcare Centre (Toronto, ON)
267. Windsor Sleep Disorders Clinic (Windsor, ON)
268. Clinique Sommeil Santé (LaSalle, QC)
269. Hôtel-Dieu de Lévis (Lévis, QC)
270. Oxygene Granby (Granby, QC)
271. Sleep Disorders Centre of OSR Médical Inc. (Ville Mount-Royal, QC)
272. Atlantic Health Sciences Sleep Centre (Saint John, NB)
273. The Reitman Centre (The Cyril & Dorothy, Joel & Jill Reitman Centre for Alzheimer's Support and Training); Mount Sinai Hospital (Toronto, ON)
274. Canadian Nurse Newsletter

275. National Initiative for the Care of the Elderly (NICE)
276. The Lung Association (AB & NWT)
277. Ontario PsychoGeriatric Association membership list
278. Canadian Centre for Activity and Aging (CCAA), University of Western Ontario
279. Centre de recherche de l'Institut universitaire de gériatrie de Montréal (CRIUGM), Univ. de Montréal
280. Centre de recherche sur le vieillissement, Univ. de Sherbrooke
281. Center for Alzheimer and Neurodegenerative Research (CANR), Univ. of Alberta
282. Centre on Aging, Univ. of Manitoba
283. Centre on Aging, Univ. of Victoria
284. Centre on Aging and Health, Univ. of Regina
285. Department of Family Practice, Community Geriatrics, Family Medicine; UBC
286. Department of Family Relations and Applied Nutrition
287. Department of Health, Aging, and Society, McMaster University
288. Department of Health Studies and Gerontology, University of Waterloo
289. Division of Geriatric Medicine, Dalhousie University
290. Division of Geriatric Medicine, McGill University
291. Élisabeth Bruyère Research Institute (EBRI)
292. Institute for Life Course and Aging, Univ. of Toronto
293. The Kenneth G. Murray Alzheimer Research and Education Program (MAREP)
294. McGill Centre for Studies in Aging, McGill University
295. McMaster Center for Gerontological Studies, McMaster University
296. Care of the Elderly Program, Univ. of Toronto
297. Centre for Education and Research on Aging & Health (CERAH), Lakehead University
298. Nova Scotia Centre on Aging, Mount Saint Vincent University
299. Quebec Network for Research on Aging
300. Research Group on Frailty and Aging, McGill University/University of Montreal
301. The Research in Aging Centre, Schlegel-Univ. of Waterloo
302. Rotman Research Institute, Univ. of Toronto
303. R. Samuel McLaughlin Centre for Research and Education in Aging and Health (MCAH), McMaster Univ.
304. Sheridan Elder Research Centre, Sheridan Institute of Technology and Advanced Learning
305. Third Age Centre, St. Thomas University
306. Alberta Centre on Aging
307. Canadian Sleep Society
308. The Education Resource Centre
309. Family Health Teams Ontario
310. Acute Care Geriatric Nurses Network (ACGNN)
311. ElderCare Edmonton
312. Geriatric Psychiatry Interest Group Committee
313. Director of the Division of Geriatric Psychiatry at UofC.
314. University of Manitoba
315. Achieva Health (Ontario)
316. Alberta Association on Gerontology (AAG)
317. Ontario Gerontology Association (OGA)
318. Association Québécoise de Gérontologie (AQG)

Appendix B: English language survey

Sleep Intervention & Dementia

Question 1- What is your practice setting? Please check all that apply AND in the last box provide the first three characters of your practice's postal code (for example R3G___).

- Family practice/ Primary care
- Geriatric clinic
- Research centre/ University
- Community/ Homecare service
- Rehabilitation service
- Private practice
- Supported living facility
- Long-term care facility
- Acute care facility
- Other (please write in) _____
- first 3 characters of your practice's postal code _____

Question 2- What is your profession?

- Psychologist
- Psychiatrist
- Physician
- Social Worker
- Occupational Therapist
- Physiotherapist
- Nurse
- Care assistant
- Rehabilitation Assistant
- Pharmacist
- Recreation therapist
- Respiratory therapist
- Other? - please write in _____

Question 3-Please read ALL of the options carefully and then select all of the responses that apply to your patients with dementia

(check all that apply):

- More than 50 % live alone or with a family member in the community
- More than 50% live in some form of institution (nursing home, etc)
- Less than 25% have sleep problems
- 25-50% have sleep problems
- 51-75% have sleep problems
- 76-100% have sleep problems
- Most often, I become aware of sleep problems through my usual assessment practices
- Most often, I become aware of sleep problems when the patient tells me
- Most often, I become aware of sleep problems when a member of the family tells me
- Most often, I become aware of sleep problems when a member of the healthcare team tells me
- OTHER- Most often, I become aware of sleep problems when (please write in): _____

Question 4-In your opinion, which of the following factors are related to sleep problems among persons living with dementia ? (Please check all that apply):

- Lack of appetite
- Falls
- Social withdrawal
- Decreased problem solving ability
- Combative and aggressive behavior
- Depression
- Daytime sleepiness
- Nighttime wakefulness
- Napping
- Use of prescription and over the counter medications
- Cognitive decline
- Multiple co-morbidity
- Decreased physical mobility
- Alcohol use
- Smoking
- Caregiver beliefs and choices (please give examples) _____
- Other (please write in) _____

Question 5- Which of the following medical conditions and symptoms do you find are frequently associated with sleep problems in persons with dementia?

- Allergies
- Cardiovascular disorder (for example CHF)
- Chronic alcohol or drug use
- Endocrine disorders
- Obesity
- Gastrointestinal disorders
- Infection
- Pain
- Neurologic disorder (for example Stroke,MS, Parkinson’s disease)
- Pruritis or other skin conditions
- Psychiatric conditions (for example anxiety)
- Pulmonary disorders (for example COPD)
- Renal disorders
- Rheumatic diseases
- Sensory impairment (for example cataracts)
- Urological conditions (eg incontinence)
- Other? please write in _____

Question 6- Please check all of the following statements about sleep assessment tools for persons with dementia that apply to you or your practice:

Please check all that apply

	I am aware of but HAVE NOT used this assessment tool	I HAVE USED this assessment tool	I am NOT AWARE of this assessment tool	This assessment tool is not practical for my clinical setting
Actigraph/ Accelerometer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Caregiver report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epworth Sleepiness Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Global Sleep Assessment Questionnaire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical Outcome Study: Sleep Scale (MOS-SS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Parkinson’s Disease Sleep Scale (PDSS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pittsburgh Sleep Quality Index	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Polysomnography/Multiple Sleep Latency test	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Self report	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sleep diary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sleep Disorders Inventory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stanford Sleepiness Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verran and Snyder-Halpern Sleep Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Blood sample analysis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scales for Outcomes in PD-Sleep Scale (SCOPA-S)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other assessment tools? (please write in the COMMENTS SECTION at the END of the Survey)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 7- Please check all of the following statements about non-drug (non-pharmacological) sleep interventions for persons with dementia that apply to your practice:

	I have recommended this AND it is practical for my patients	I have recommended this BUT it is not practical for my patients	I have not recommended this BUT think it might be practical for my patients	I have not recommended this AND do not think it would be practical for my patients
Bright light visor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bright light box	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased daytime activity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restricted daytime naps	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evening warm bath	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Decreased evening noise level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restricted caffeine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restricted evening fluids	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Regular bedtime routine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relaxation techniques	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Education about sleeping surface and position	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increased time spent outdoors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
regular exercise program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White noise machine at night	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- | | | | | |
|--|-----------------------|-----------------------|-----------------------|-----------------------|
| Eliminate ambient light at night | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sleep restriction regime | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Light bedtime snack | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Increase ambient lighting | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Adjust caregiver schedule to fit sleep schedule | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Allow person with dementia to determine own sleep schedule | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Recommend respite for caregiver | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Recommend respite care for person with dementia | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other? AT THE END OF THIS SURVEY - please write in the COMMENTS section any additional information you would like to share about non-pharmacological sleep interventions | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Question 8-Please tell us what you have experienced, or perceive, to be barriers in recommending non-pharmacological sleep interventions for your patients with dementia.

- Barrier 1 and why?
- Barrier 2 and why?
- Barrier 3 and why?
- Barrier 4 and why?
- Barrier 5 and why?
- Any other barriers and why?

Question 9- Please tell us what you think facilitates recommending non-pharmacological sleep interventions for your patients with dementia.

- Facilitator 1 and why?
- Facilitator 2 and why?

Facilitator 3 and why?

Facilitator 4 and why?

Facilitator 5 and why?

Any other facilitators and why?

Question 10-Which of the following ways would you prefer to receive information about evidence-based non-pharmacological sleep interventions in the future? (Please check all that apply). If you would like more information about the study findings please provide your email address in the box below. This is the last question- THANK YOU for your time and input.

- Hardcopy of educational materials sent through the mail
- Educational electronic PDFs of short summaries and reports
- Educational podcasts (audio)
- Short educational video clips posted on YouTube
- Memory aids (for example magnets, pens, calendars, notepads)
- Webinar delivered in synchronous format to allow interaction between participants
- Archived webinar
- On-line tutorial with self-test questions
- In-person 1 hour OR noon hour presentation
- In-person ½ day workshop
- Patient educational posters for work area and/or waiting room
- I do not require any further information
- Journal articles
- Other suggestions? _____
- Please provide your email if you would like more information about this study and its findings _____
- If you have any other comments from previous questions- please add here. _____

Appendix C: French language survey

L'Intervention du Sommeil & de la Démence

Question 1- Quel est votre milieu de pratique? Veuillez cocher tout ce qui s'applique ET dans la dernière boîte fournissez les trois premiers caractères du code postal de votre pratique (par exemple R3G___).

- Pratique familiale/Soins de santé primaire
- Clinique gériatrique
- Centre du recherche/Université
- Communauté/Services à domicile
- Services de réhabilitation
- Pratique privée
- Installation aide à la vie
- Établissement de soins de longue durée
- Établissement de soins aigus
- Autre (s'il vous plaît précisez ici) _____
- Les trois premiers caractères du code postal de votre pratique _____

Question 2- Quelle est votre profession?

- Psychologue
- Psychiatre
- Médecin
- Travailleur social
- Ergothérapeute
- Physiothérapeute
- Infirmière
- Assistant de soins
- Assistant de réhabilitation
- Pharmacien
- Ludothérapeute
- Inhalothérapeute
- Autre? –s'il vous plaît précisez ici _____

Question 3- Veuillez lire attentivement toutes les réponses, puis sélectionnez toutes les réponses qui s'appliquent à vos patients atteints de démence

(Cochez tout ce qui s'applique):

- Plus de 50% des patients habitent seuls ou avec un membre de famille dans la communauté
- Plus de 50% des patients habitent dans toutes formes d'institutions (maison d'infirmière, etc.)
- Moins de 25% des patients sont atteints de troubles du sommeil
- 25-50% des patients sont atteints de troubles du sommeil
- 51-75% des patients sont atteints de troubles du sommeil
- 76-100% des patients sont atteints de troubles du sommeil
- D'habitude, je deviens conscient des problèmes du sommeil à travers mes pratiques d'évaluation habituelles.
- D'habitude, je deviens conscient des problèmes du sommeil quand le patient m'en informe
- D'habitude, je deviens conscient des problèmes du sommeil quand un membre de famille m'en informe
- D'habitude, je deviens conscient des problèmes du sommeil quand un membre de l'équipe soignante m'en informe
- AUTRE- D'habitude, je deviens conscient des problèmes du sommeil quand (s'il vous plaît précisez la raison ici)

Question 4- Selon votre opinion, lequel des facteurs suivant sont reliés aux troubles du sommeil parmi les personnes atteintes de démence? (S'il vous plaît cochez tout ce qui s'applique):

- Manque d'appétit
- Chutes
- Retrait social
- Diminution de la capacité de résolution des problèmes
- Comportement combatif et agressif
- Dépression
- Somnolence diurne
- Éveil nocturne
- Siestes
- L'utilisation de médicaments d'ordonnance et de médicaments en vente libre
- Baisse cognitive
- Comorbidité multiple
- Diminution de la mobilité physique
- Consommation d'alcool
- Consommation de tabac
- Croyances des soignants et des choix (s'il vous plaît donnez des exemples) _____
- Autre (s'il vous plaît précisez ici) _____

Question 5- D'après vous, laquelle de ces conditions et de ces symptômes médicaux suivants sont fréquemment associés à des problèmes du sommeil chez les personnes atteintes de démence?

- Allergies
- Trouble cardiovasculaire (par exemple l'insuffisance cardiaque chronique)
- L'utilisation chronique d'alcool ou de drogues
- Troubles endocriniens
- Obésité
- Troubles gastro-intestinaux
- Infections
- Douleur
- Désordre neurologique (par exemple, attaque, sclérose multiple, maladie de Parkinson)
- Affections de la peau (prurit ou autres)
- Conditions psychiatriques (par exemple l'anxiété)
- Troubles pulmonaires (par exemple maladie pulmonaire obstructive chronique)
- Problèmes rénaux
- Maladies rhumatismales
- Déficience sensorielle (par exemple cataractes)
- Conditions urologiques (par exemple l'incontinence)
- Autre? S'il vous plaît précisez ici _____

Question 6- Les déclarations suivantes portent sur les outils d'évaluation du sommeil pour les personnes atteints de démence. Veuillez cocher celles qui s'appliqueraient à vous ou votre pratique:

S'il vous plaît cochez toutes les déclarations qui s'appliquent à votre cas

	Je suis conscient de cet outil d'évaluation mais JE NE L'AI PAS utilisé	J'AI UTILISÉ cet outil d'évaluation	Je ne suis PAS CONSCIENT de cet outil d'évaluation	Cet outil d'évaluation n'est pas pratique pour mon milieu de clinique
Actigraphe/ Accéléromètre	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rapport de soignant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Epworth Sleepiness Scale/Échelle de somnolence d'Epworth	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Global Sleep Assessment Questionnaire	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Medical Outcome Study: Sleep Scale (MOS-SS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Parkinson's Disease Sleep Scale (PDSS)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pittsburgh Sleep Quality Index	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Polysomnographie/Plusieurs test de Latence du Sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Auto-rapport	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Journal du sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sleep Disorders Inventory	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stanford Sleepiness Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Verran and Snyder-Halpern Sleep Scale	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
L'analyse des tests sanguins	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scales for Outcomes in PD-Sleep Scale (SCOPA-S)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Autre outils d'évaluation? (S'il vous plaît indiquez dans la SECTION COMMENTAIRES à la FIN du sondage)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 7- Les déclarations suivantes portent sur les interventions sans médicament (non-pharmacologique) pour les personnes atteintes de démence. Veuillez cocher celles qui s'appliquent à votre pratique.

	J'ai recommandé cette intervention ET elle pratique pour mes patients	J'ai recommandé cette intervention MAIS elle n'est pas pratique pour mes patients	Je n'ai pas recommandé cette intervention MAIS je pense qu'elle peut-être pratique pour mes patients	Je n'ai pas recommandé cette intervention cela ET je ne pense pas qu'elle puisse être pratique pour mes patients
Pare-lumière vive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Boîte à lumière brillante	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Activité diurne augmentée	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restrictions des siestes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bain chaud le soir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Diminution du niveau de bruit le soir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restriction de la consommation de caféine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Restriction des liquides le soir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine régulière au coucher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Techniques de relaxation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

L'éducation à propos de la position de sommeil et la surface	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Augmentation du temps passé à l'extérieur	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Programme d'exercice régulier	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Machine de bruit blanc au soir	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Élimination de la lumière ambiante	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Régime de restriction du sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Légère collation à l'heure du coucher	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Augmentation de l'éclairage ambiant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ajustement au calendrier de soins pour s'adapter à l'horaire de sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Permettre à la personne atteinte de démence de déterminer son propre calendrier de sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommander les soins de répit pour le soignant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recommander les soins de répit pour la personne atteinte de démence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Autre? À LA FIN DE CE SONDAGE – s'il vous plaît inscrivez dans la section COMMENTAIRES toute information additionnelle que vous voudrez partager au sujet des interventions non-pharmacologiques du sommeil	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 8- Veuillez indiquer selon votre expérience quelles sont les barrières relatives aux recommandations d'interventions non-pharmacologiques du sommeil pour vos patients atteints de démence

Barrière no.1 et pourquoi?

Barrière no.2 et pourquoi?

Barrière no.3 et pourquoi?

Barrière no.4 et pourquoi?

Barrière no.5 et pourquoi?

Toute les autres barrières et pourquoi?

Question 9- Veuillez nous indiquer quels ont pu être les facteurs qui ont facilité les interventions non-pharmacologiques pour vos patients atteints de démence.

Facilitateur no.1 et pourquoi?

Facilitateur no.2 et pourquoi?

Facilitateur no.3 et pourquoi?

Facilitateur no.4 et pourquoi?

Facilitateur no.5 et pourquoi?

Tous les autres facilitateurs et pourquoi?

Question 10- Lequel des formats suivants préférez-vous pour recevoir de l'information factuelle à propos du sommeil non-pharmacologique dans l'avenir? (Veuillez cocher tout ce qui s'applique). Si vous aimeriez plus d'informations sur les résultats de l'étude veuillez fournir votre adresse courriel dans la boîte ci-dessous. Ceci est la dernière question- MERCI de votre temps et de votre contribution.

- Matériel pédagogique en papier envoyé par la poste
- Courts résumés et rapports éducatifs en format électronique (PDF)
- Podcasts éducatifs (audio)
- Vidéoclips éducatifs sur YouTube
- Aide-mémoires (ex : aimants, stylos, calendriers, blocs-notes)
- Webinaire envoyé en format synchrone permettant l'interaction entre les participants
- Webinaire archivé
- Didacticiel en ligne avec questions d'évaluation
- Présentation d'une heure en personne par exemple à l'heure du midi
- Atelier d'une demi-journée en personne
- Affiches éducatives pour la zone de travail et / ou la salle d'attente pour les patients
- Je n'ai pas besoin de plus amples informations
- Articles de journaux

- Autre suggestions? _____
- Veuillez fournir votre adresse courriel si vous souhaitez plus d'information à propos cette étude et des résultats

- Si vous avez d'autres commentaires à partir des questions précédentes- s'il vous plaît précisez les- ici.
