



## Original Article

## The impact of the Canadian Sleep Society on sleep science, clinical practice, and advocacy: past, present, and future

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## ABSTRACT

The Canadian Sleep Society/Societe Canadienne du Sommeil (CSS–SCS), is the only Canadian national organization which is dedicated to the clinical practice of sleep medicine as well as the advancement of sleep science. This article outlines the extent to which the CSS–SCS has shaped the field of sleep science and practice in Canada. A description of the CSS–SCS, the history of the CSS, the impact associated with the Society's activities, with an emphasis on the society's contribution to pediatric sleep, and future directions are outlined.

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## 1. Introduction

This article describes the development and impact of the Canadian Sleep Society/Societe Canadienne du Sommeil (CSS–SCS) [1], analyzing the extent to which it has shaped the field of sleep science and practice in Canada. The CSS–SCS is dedicated to the promotion of healthy sleep for both children and adults in Canada. All of the activities of the society (whether in education, patient advocacy, clinical care, and/or research related to the needs of all Canadians – from infants to the elderly. Much of the information about the society reviewed in this article does not separate pediatric from adult sleep medicine as both are intimately related in the initiatives, activities and future directions of the CSS. The CSS is an organization with a mandate to advance in the field of sleep science and practice for both adult and pediatric populations. The information to inform this article was obtained from a variety of sources including interviews by one of the authors (DV) with past and current presidents of the CSS, and with other leaders in Canadian sleep medicine as well

as a review of documentation available on the CSS–SCS website. The article provides a description of the CSS, the history of the CSS, the impact associated with the Society's activities, the organization's contribution to pediatric sleep, as well as future directions.

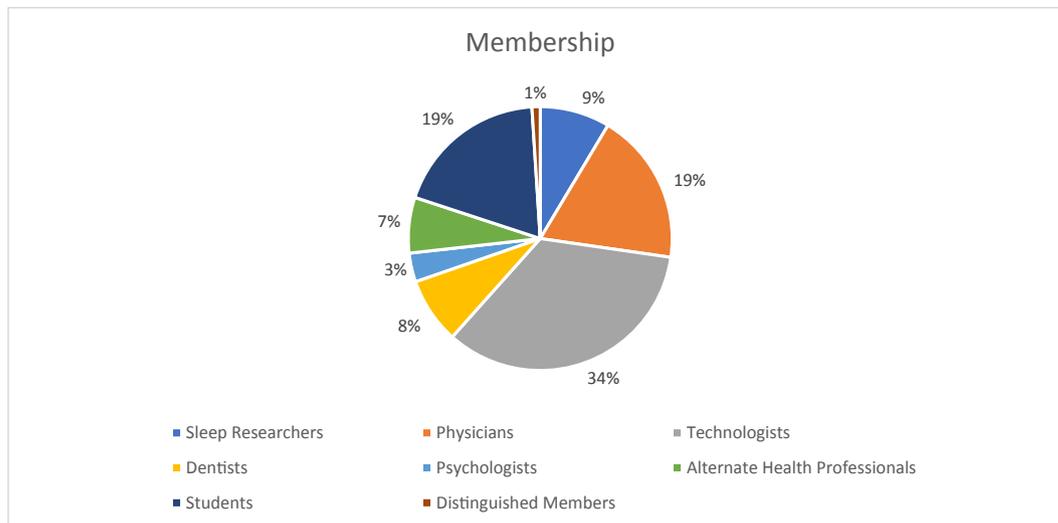
## 2. Introduction to the Canadian Sleep Society

The Canadian Sleep Society (CSS) is a national organization. As noted on ([www.css-scs.ca](http://www.css-scs.ca)), the organization is 'committed to improving sleep for all Canadians through: support for research, promotion of high quality clinical care, education of professionals and the public, and advocacy for sleep and sleep disorders medicine'. The mission statement of the CSS is 'healthy sleep for healthy Canadians'. In order to successfully carry out this mission, the CSS is dedicated to the provision of resources to both sleep professionals (i.e., clinicians, researchers, and technologists) and the public in relation to the understanding of the evaluation and treatment of sleep disorders. This mandate is actualized through various methods including the hosting of biennial conferences and annual meetings; providing education for the public through lectures and workshops; involvement with the federal government and funding agencies to improve the efficacy of sleep awareness programs and providing financial assistance for research, particularly to support students and trainees. The CSS includes approximately 400

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**Fig. 1.** Representation of the Society's membership, 2018.

members, including representation from the following: sleep researchers, physicians, technologists, dentists, psychologists, healthcare professionals and students (see Fig. 1 for a visual representation of its membership). Membership has increased steadily since the CSS was started.

Currently, there are 4 distinguished members who have been granted a lifetime membership due to their long-term commitment to the society and to the field of sleep medicine. The members of the CSS board meet frequently and one initiative in 2015 was led by the President at the time, Dr. Kimbely Cote to update the mission and strategic plan for the CSS in 2015.

### 3. Past, present, and future of the Canadian Sleep Society

The CSS has progressed through various organizational stages, including the founding of the CSS, to its current state. The achievements of the CSS have been overseen by twelve presidents (see Table 1 for a list of presidents and dates) and board members, all of whom have volunteered their time to help the CSS fulfill the vision and mission of the society. The background of the presidents has reflected leadership in diverse areas of sleep science and clinical practice including Professors of psychology, physiology, dentistry and physicians from a variety of backgrounds including, respirology, pediatric neurology and family medicine.

**Table 1**  
Presidents of the Canadian Sleep Society.

Name	Date
Dr. Roger Broughton	1986–1988
Dr. Robert Ogilvie	1988–1990
Dr. Meir Kryger	1990–1993
Dr. Alistair MacLean	1993–1996
Dr. Charles George	1996–1999
Dr. Joseph DeKoninck	1999–2002
Dr. Charles Morin	2002–2005
Dr. Giles Lavigne	2005–2008
Dr. Helen Driver	2008–2011
Dr. Shelly Weiss	2011–2014
Dr. Kimberley Cote	2014–2017
Dr. Charles Samuels	2017–

#### 3.1. The past

The initial formation of the CSS occurred in 1986 whilst Dr. Roger Broughton, MD, PhD, FRCPC, FAASM, Professor Emeritus of Neurology and Neuroscience, University of Ottawa, and approximately 25 Canadians, were attending the First Annual Meeting of the Association of Professional Sleep Societies, a United States-based organization (Columbus, Ohio). Dr. Broughton was aware that although it was (and continues to be) important to network with international colleagues at sleep conferences outside of Canada, this conference was not fully meeting the needs of Canadian sleep professionals given the different health care systems and research funding structures. There was a growing collective cognizance of the necessity of establishing a Canadian iteration of a national sleep society in order to promote the field of sleep medicine in Canada and to ensure that dialogue conducted at conventions would be applicable to the Canadian context. For these reasons, Dr. Broughton and colleagues founded the CSS.

On June 17th, 1986 the CSS was established, although the original name of the organization was the “Sleep Society of Canada”. The Society's infrastructure was developed by Dr. Broughton, with colleagues on the first executive board: Drs. Fleming, Godbout, Knowles, Ogilvie, and Saskin. It was determined that the executive body would be comprised of a president, two vice-presidents, a treasurer, and three members-at-large. The executive structure of the CSS received unanimous support during a meeting on June 19th, 1986. It was recognized that it was essential to present, affirm, and consolidate principles for this organization, which included: the establishment of annual meetings, alternating presidential incumbents with clinicians and researchers, and maximizing inclusive membership. In November 1986, Dr. Roger Broughton developed the five initial objectives associated with the established CSS which were supporting fundamental, applied and clinical research and enhancing professional and public awareness of sleep medicine.

To ensure the sustainability of the CSS, it was recognized that the CSS develop infrastructure which included: increasing membership, consolidating the Society's structure through the utilization of by-laws; development of feedback instruments to ensure communication between the Society's constituents and executive body; determining where the Canadian sleep researchers were located; ensuring the continuation of the CSS through sound

financial management; organizing federal and provincial integration in sleep clinics; and the initiation of routine meetings in alignment with other national societies. Dr. Robert Ogilvie, PhD, Founder of Brock University Sleep Laboratory was the second president of the CSS. Under Dr. Ogilvie's direction the membership of the CSS expanded, including increasing numbers of students and sleep technologists which enriched the CSS immensely.

Ten years after the establishment of the CSS, in 1996, Dr. Charles George, MD FRCPS, Professor of Medicine, Western University was responsible for the formulation of a standardized clinical sleep practice methodology, which was presented in the Canadian Medical Association Journal. Concurrent with Dr. Charles George's presidency, the CSS increased its membership and secured additional corporate sponsorship to ensure financial sustainability. As the CSS membership expanded, Dr. Joseph DeKoninck, PhD, Professor of Psychology, University of Ottawa, was instrumental in the further development of the biannual CSS conference. A further advancement in the Society's development occurred during 2013 when Dr. Helen Driver, PhD, Queens University was the Past-President and Dr. Shelly Weiss, MD, FRCPC, Professor in Faculty of Medicine, Dept. of Pediatrics was the 10th President of the CSS. A significant advancement for the CSS was holding the CSS conference in Halifax in 2013. This was the first conference which was not held by the CSS in Central Canada (Ontario or Quebec). The success of this conference was a testament to the growth and importance of the CSS for clinicians, scientists, students, and sleep technologists in Canada (see Table 2 for a list of CSS conferences.).

### 3.2. Present

The CSS has had a significant influence upon the development and implementation of improved clinical sleep practice and research in Canada. The five major contributions of the CSS are highlighted below: these include the maintenance of continuing education; the amplification of advocacy in both the professional and public sphere; the collaboration with governmental institutions and medical agencies to recognize the necessity of sleep research and practice; the establishment of a community of practice amongst Canadian professionals of sleep medicine; and the development of national partnerships to promote improvements in both clinical practice and sleep research. Four position papers have been published regarding portable monitoring, dental sleep medicine, sleep laboratory testing and pediatric sleep medicine in Canada [2–4].

#### 3.2.1. Education

The CSS–SCS has been active in the education of physicians and allied health professionals, including both pediatric and adult practitioners, dentists, students, sleep technologists and the public. An extremely important and successful initiative has been the recent recognition of sleep medicine by the Royal College of Physicians and Surgeons of Canada (RCPSC). This was an initiative

commenced with an application to the RCPSC twice previously, led by Dr. Judith Leech and subsequently by Dr. Rachel Morehouse. In 2018, the RCPSC has implemented a diploma (Area of Focused Competence – AFC) which will allow for a standardized training in both adult and pediatric sleep medicine. This national education accomplishment would not have been successful without the numerous volunteer hours of many CSS physician members. In addition, the CSS provided the financial support needed to apply for an AFC, as required by the RCPSC. For more information about this, please see Katz S. et al. in this special issue.

Continuing education occurs during meetings and conferences, both events which progress the CSS towards the fulfilment of its established mandates. The goals of each conference include the provision of education, as well as opportunities to learn about advancement in the field, network with colleagues and social events. Additionally, there are education events specifically targeted for the diverse participants at the conference including students, technologists, and dentists. At each conference, lectures are provided to the public on a variety of aspects of sleep medicine. An example of the Society's role in providing continuing education is the relationship of the CSS with the Board of Registered Polysomnographic Technologists to evaluate educational material for sleep technologists.

Another initiative of the CSS was the establishment of special interest groups to represent various subcategories of sleep medicine such as the 'Dental, Insomnia and Pediatric Special Interest Groups'. Members of these groups have developed community of practices and together develop content and choose speakers for the biennial conferences. There has always been a focus on communication amongst members. Currently this is carried out with a robust social media presence as well as using the website and email list. Prior to the development of this technology, the members were informed regularly about the society activities by a CSS newsletter, mailed to the membership which for many years was edited by Dr. James MacFarlane.

#### 3.2.2. Clinical

The CSS has a mandate to improve clinical services throughout Canada for both children and adults. At this time, there remains a paucity of services in many parts of Canada. In order to improve clinical services there have been initiatives such as developing guidelines to the evaluation and treatment of sleep disorders, which are specific for the Canadian population, with our national funding structure of healthcare. A significant focus was the development of a standardized guideline to evaluate both obstructive sleep apnea and insomnia. These guidelines have been adopted by the Canadian Agency for Drugs, Technologies, and Health.

#### 3.2.3. Research

The CSS has a major role in promoting research in all aspects (from basic science to clinical) of research. There have been important collaborations with CIHR resulting in team grants which are described elsewhere in this supplement. Funding has been secured various research related activities. The biennial conference is a forum for research presentations and networking with collaborators. for research prizes, funding. An example of the success of this ... Is The 2011 congress in Quebec City was in conjunction with the World Association of Sleep Medicine and is worth highlighting "With its theme on Sleep, Health, and Society, the 2011 international event brought together 1588 delegates from 41 countries. The WASM/CSS congress was selected by the Quebec Office of Tourism as the international congress of the year held in Quebec City in 2011 for its impact on the local economy." At each conference there are research awards, including awards for investigators,

**Table 2**  
Conferences of the Canadian sleep society.

Location	Date
Ottawa, Ontario	2001
Québec City, Quebec	2004
Montréal, Quebec	2007
Toronto, Ontario	2009
Québec City, Quebec with WASM	2011
Halifax, Nova Scotia	2013
Toronto, Ontario	2015
Calgary, Alberta	2017
Vancouver, British Columbia with World Sleep	2019

students and sleep technologists. In 2019, there will be a new award, a CIHR distinguished lecture award.

**3.2.3.1. Patient advocacy.** The CSS has an important role in patient advocacy. In the past, there was a separate organization called ‘Sleep/Wake Disorders Canada (SWDC)’ which was a registered charity, supported by Health Canada in the 1990s and early 2000s. It was a national association of volunteers dedicated to “fostering the interests of people with sleep and wake disorders and to assist them in improving their alertness so they could become more productive and enjoy a better quality of life.” This organization published a quarterly newsletter called GOOD NIGHT GOOD DAY. The head office was located in Toronto, with chapters across Canada. When this organization closed, the CSS expanded its mandate to include advocacy.

An example of this focus was the initiation of a patient engagement workshop which occurred in September 2015 in Toronto. At this workshop, the goal was to bring sleep professionals’ patients (and parents of pediatric patients) together to engage in dialogue pertaining to sleep disorder and sleep science research. At this workshop, the focus was on 4 topics; Restless Leg Syndrome, Obstructive Sleep Apnea, Narcolepsy, and Insomnia. The Canadian Institute of Health Research (CIHR) provided funding for this patient engagement workshop.

A further example of the role in patient advocacy has been the creation of a national map depicting sleep clinics in Canada. Finally, the CSS has developed information brochures both for the public (adult and pediatric patients) as well as for primary care physicians (Insomnia Rounds) which are distributed via the CSS website without cost. The CSS, under the current leadership of Dr. Charles Samuels, MD CCFP, DASBM, Medical Director of the Center for Sleep & Human Performance, Calgary, who is the 12th President, is collaborating with relevant agencies to increase the availability and quality of sleep laboratories and home-based clinical assessments, which will further increase accessibility for patients throughout Canada to have access to sleep evaluations.

Finally, The CSS has been involved in other public awareness campaigns about the importance of sleep e.g. National Post (Media Planet Supplements with content provided by CSS members twice in the past) and advertising during the Olympics in Brazil with the Dairy Farmers of Canada on the importance of sleep. There have been successful national fundraising activities for the CSS called ‘CSS National Sleep Walks’ which are planned to continue in the future.

### 3.2.4. Networking

One of the ongoing roles of the CSS is to facilitate networking amongst clinicians, scientists, technologists, and students in Canada. This networking occurs both at the biannual conferences as well as at other events (e.g. smaller continuing education events) during the year. The first of these biannual conferences occurred in Ottawa in 2001. All of the conferences have been in Central Canada excluding the meeting in 2013 which was held in Halifax, Nova Scotia, and in 2017, which was held in Calgary, Alberta. The success of these conferences is evidence of the growth and strength of the CSS. Currently, with the leadership of Dr. Charles Samuels, who is based in Calgary, the CSS has developed further connections in Western Canada. The conferences include didactic and interactive components. Keynote speakers representing all facets of sleep medicine and research are invited (e.g., speakers in the area of dentistry, adult and pediatric sleep medicine). During these conferences, there is opportunity for learning, socializing, networking and strengthening the community of practice of sleep medicine in Canada. An innovation at the 2017 conference in Calgary was a satellite conference organized by the CSS and Sleep Research Society and supported by the Institute

of Circulatory and Respiratory Health of the Canadian Institute for Health Research (ICRH/CIHR) focusing on sleep science, which was called “New Frontiers in Sleep Functions and Mechanisms”.

**3.2.4.1. Partnerships.** It has been recognized since the inception of the CSS the importance of partnerships and collaborations with other organizations including the RCPSC and ICRH/CIHR. In close collaboration with the CIHR, a new research initiative providing team grants to Canadian sleep scientists, the Canadian Sleep and Circadian Network (CSCN) was formed. Although this is not directly related to the CSS, there is ongoing collaboration between the CSS and the CSCN in advancing sleep science in Canada.

There has also been an opportunity for the CSS to develop corporate partnerships. A successful example was in 2012–2013 in an initiative led by Dr. Shelly Weiss and Dr. Helen Driver to edit and disseminate to family physicians in Canada information on adult and pediatric insomnia called ‘Insomnia Rounds’. These are available to the public on the CSS website. Corporate sponsorship was essential to fund this initiative with an unrestricted educational grant.

The CSS has been closely involved in providing awards annually to promote sleep science as well as developing other awards to promote sleep medicine in Canada. Some examples of the research and clinical awards that are provided at the biannual conference include the Distinguished Scientist Award (Table 3), the Roger Broughton Young Investigator Award (see Table 4 for a listing of these individuals), the Student Outstanding Achievement Award, the Outstanding Student Abstract Award, and the Technologist Service Award. Additionally, the CSS and CIHR have cooperated to establish team grants and travel grants.

### 3.2.5. Pediatric sleep and the CSS

The CSS has a commitment to activities that enhance the care of both adults and children with sleep disorders. A special interest group specific to pediatric sleep medicine was developed in 2011. The special interest group’s primary objective is to advance the care of children with sleep disorders in Canada, in the areas of clinical care and sleep science, as well as to provide networking opportunities for Canadian pediatric clinicians. One of the successful activities of this special interest group was the endorsement by the CSS and publication of a ‘Position Paper on Pediatric Sleep’ [5] which was led by Dr. Reut Gruber. There is currently a collaborative project between members of the Pediatric Special Interest Group of the CSS and the Canadian Thoracic Society to develop guidelines concerning the evaluation and treatment of pediatric

**Table 3**  
Distinguished Canadian sleep society scientist award.

Recipient	Date
Jacques Montplaisir	2007
Carlyle Smith	2009
Ben Rusak and Meir Kryger	2011
Jospeh De Koninck	2013
Elliot Phillipson	2015
Barbara E. Jones	2017

**Table 4**  
Canadian sleep society Roger Broughton Young investigator award.

Recipient	Date
Kimberly Cote	2004
John Peever and Penny Corkum	2007
Jean-Francois Gagnon	2009
Robyn Stremler	2011
Antoine Adamantidis	2013
Thanh Dang-Vu and Jean-Philippe Chaput	2015
Stuart Fogel	2017

sleep apnea in Canada. In a separate initiative, members of this special interest group have worked with 'Healthy Active Living and Obesity' at the Children's Hospital of Eastern Ontario, led by Dr. Mark Tremblay to develop 24-h guidelines for youth and adolescents that incorporate sleep, sedentary, moderate and, vigorous activity. These guidelines have been disseminated widely in Canada by ParticipACTION.

### 3.3. Future of the Canadian Sleep Society

The CSS is a well-organized, focused organization with the commitment of many volunteers, both those who have been involved in the past as well as those individuals who are currently on the executive board. There are also many members of the CSS who are not on the executive board but who also volunteer their time to advance the work of the CSS. The CSS' membership continues to expand. There have been important changes in the CSS and in the future there will be further developments in the areas of research, grant funding, and collaborations with organizations such as CIHR, as well as improving access to clinical care and education initiatives. One of the important tenets of the CSS is the inclusivity, ensuring that all scientists, clinicians, technologists, and students who are interested in sleep medicine have a voice in this organization and help to shape the future of the CSS. The CSS is well positioned to help to advocate for advances in education, advocacy, clinical practice and funding for the field of sleep, including pediatric sleep.

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### Conflicts of interest

The ICMJE uniform disclosure form for potential conflicts of interest associated with this article can be viewed by clicking on the following link: <https://doi.org/10.1016/j.sleep.2018.11.004>.

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