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Pediatric sleep disorder medicine training in Canada: past, present and future

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ABSTRACT

Pediatric sleep medicine is rapidly evolving in Canada. As pediatric sleep disorders are increasingly recognized, there is a growing need for clinicians educated in the evaluation and treatment of pediatric sleep disorders. Current pediatric sleep resources in Canada are inadequate to meet the needs of the population. Until this year, there was no formal pathway or specific requirements for pediatric sleep disorder medicine training in Canada and exposure to this field of medicine in post-graduate training was limited. In 2018, the Royal College of Physicians of Canada approved an Area of Focused Competence program for certification and maintenance of competence in Sleep Disordered Medicine. It was designed to ensure adequate breadth and depth of training experiences in this diverse field. The goals of the program are to ensure competence in the assessment and management of adults and children with a range of sleep-wake disorders and sleep-disordered breathing, to interpret sleep investigations, to administratively manage a sleep laboratory and to advance the discipline of Sleep Disorder Medicine through research. The program follows a competency-based model in which, within the year of training, trainees accumulate a dossier of experiences which are evaluated by a Royal College of Physicians and Surgeons committee. This new program will ensure that a critical mass of trained sleep medicine physicians is developed to meet the needs of the Canadian pediatric population and to contribute to advancement of the field of pediatric sleep medicine.

1. The need for pediatric sleep physicians in Canada

Pediatric sleep disorder medicine is a rapidly evolving and growing field of medicine in Canada and worldwide. An increase in the recognition and incidence of pediatric sleep disorders that are respiratory, neurological and/or behavioral has prompted an increased demand for investigation and care. Snoring is common in childhood (prevalence 12%) [1], obstructive sleep apnea has been estimated to affect 1–6% of children [2] and parent reported sleep problems are common in pre-schoolers (25–50%) [3]. As the neurobehavioral consequences of obstructive sleep apnea in young children are identified, requests for sleep evaluation by qualified sleep clinicians have increased.

This is particularly true in select populations of children at high risk of sleep disordered breathing. The obesity epidemic has resulted in an ever-increasing group of children who are diagnosed with sleep disordered breathing as adolescents [2]. Care guidelines for children with neuromuscular disease recommend sleep evaluations and the use of nocturnal respiratory support [4–6]. The care of children with increasingly complex medical conditions who are surviving longer has also resulted in an increase in the number of children supported at home with non-invasive or invasive ventilation during sleep. Although the majority of young children with obstructive sleep apnea (OSA) treated with adenotonsillectomy do not undergo polysomnography prior to surgery [7], quantification of OSA severity would be helpful to surgeons and anaesthesiologists to guide disposition planning. Other, non-respiratory sleep

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problems (eg narcolepsy and restless leg syndrome) in children are increasingly identified and also require evaluation. Behavioral sleep disorders are common and exacerbated by the increasing access to technology and electronics to which youth are exposed.

Despite this increasing need for clinicians educated in the evaluation and treatment of pediatric sleep medicine disorders, it is known that current pediatric sleep resources in Canada are inadequate to meet the needs of the population. A 2014 Canadian survey of sleep clinicians, including pediatric respirologists, pediatric neurologists, pediatricians, psychologists, psychiatrists and nurse practitioners, reported that of children with straightforward OSA, diagnostic polysomnography would only be available to 13% [8]. There was one pediatric sleep physician per 167,000–282,000 children depending on the province, with wide geographic disparities. Wait times to see a pediatric sleep specialist ranged from 0 to 1 month, to 1.5–2 years (median five months). Six of thirteen (46%) provinces and territories have no access to diagnostic or pediatric specialist sleep services, particularly in the northern and eastern regions of Canada. One of the barriers within Canada that contributes to the shortage of sleep medicine services relates to a lack of education and certification of physicians in this new and growing field of medicine. Recognizing the need to improve access to pediatric sleep services, there have been recent efforts aimed at investing in the training of future generations of pediatric sleep physicians, who can provide care to this underserved population.

2. Past pathways to practice and comparison to other training models

In 2018, the Royal College of Physicians and Surgeons of Canada (RCPSC), the national professional association that sets standards for all post-graduate medical education (other than for family physicians) in Canada, developed a pathway for an Area of Focused Competence in Sleep Disorder Medicine. Prior to this, there was no formal pathway or specific requirements for either pediatric sleep disorder medicine training or for maintenance of certification in Canada. Exposure to pediatric sleep medicine in medical post-graduate training is currently limited, even in Royal College accredited programs for Pediatric Respirology, Pediatric Neurology or General Pediatrics, in which certification is required to enter the AFC in Sleep Disordered Medicine.

The majority of pediatric sleep medicine specialists in Canada have not received formal training. A recent survey of knowledge, attitudes and practices of Canadian pediatric primary health care practitioners attending a continuing medical education course revealed that only 1% received formal instruction or training in pediatric sleep in medical school, and 15% received education on this topic in residency or post-medical school/residency [9]. Knowledge was greatest about developmental issues, but limited with respect to OSA and other specific sleep disorders. The respondents endorsed a lack of confidence in skills and knowledge to evaluate and treat sleep problems in children. This finding is consistent with other international surveys identifying similar issues in pediatric residency programs in other countries, in which sleep medicine training is limited for most to a few hours [10–12] and almost one quarter of pediatric residents have no exposure to sleep disorder medicine education [10].

A survey of Canadian Pediatric Sleep Network members (which includes the majority of pediatric sleep consultants working in the pediatric academic health science centers in Canada) reported that 11/27 (38%) had received some form of training in pediatric sleep medicine, with 2 (7%) having obtained certification from the American Academy of Sleep Medicine [8]. Currently, there are only four academic centres across Canada that offer additional training in pediatric sleep medicine to fellows who have completed training in Pediatric Respirology.

Until the recent AFC was developed, the situation in Canada, in which there was no formal training program for pediatric sleep disorder medicine, was similar to Europe, but in contrast to the route to certification in the United States. In the United States, the American Board of Sleep Medicine credentials physicians who have met the requirement to complete formal fellowship training for one year in Pediatric Sleep Medicine and have passed their licensing examination (http://absm.org/credentials.aspx). The situation is the same for adult sleep medicine physicians.

3. Setting a new standard for pediatric sleep training in Canada

In 2015, an application was made to the RCPSC to develop a diploma program in sleep medicine disorders. This included both a pathway to certification and program for maintenance of competence, for adult and pediatric Canadian sleep medicine physicians. It was approved by the Royal College of Physicians of Canada in 2018 as an Area of Focused Competence (AFC) (http://www.royalcollege.ca/rcsite/specialty-discipline-recognition/categories/discipline-recognition-areas-focused-competence-afc-programs-e), which consists of advanced training in supplemental competencies in this highly specialized discipline of medicine which pertains to a narrow scope of practice that does not meet the criteria of a subspecialty. The AFC is designed to ensure adequate breadth and depth of training experiences and a means to ensure that graduates are ready for practice in this diverse and growing field. Currently, the RCPSC is transitioning all post-graduate residencies, fellowship and AFC curricula to a new model for assessment of competency, called Competency by Design (CBD). CBD is a novel approach to the education curriculum and evaluation of trainees, which employs an outcomes-based framework to ensure that skills and behaviors are acquired and assessed throughout training. It allows for frequent formative assessments with graduated independence as trainees progress through their programs, without a licensing examination. The AFC in Sleep Disorders Medicine is designed to meet the requirements of a CBD-based program. The goals of the program are to ensure competence in the assessment and management of adults and children with a range of sleep-wake disorders and sleep-disordered breathing, to interpret sleep investigations (including polysomnography, actigraphy, multiple sleep latency and maintenance of wakefulness tests), to administratively manage a sleep laboratory and to advance the discipline of Sleep Disorder Medicine through clinical and basic science research. Training has been designed to ensure that proficiency is developed in each of the core competencies defined within the CanMEDS framework [13] developed by the RCPSC. This framework defines the necessary competencies within medical education programs, which include medical expert, communicator, collaborator, leader, health advocate, scholar and professional.

There is no final summative examination as in the American Academy of Sleep Medicine fellowship program. Instead, within the year of training, trainees must accumulate a portfolio documenting their clinical encounters and experiences, which is evaluated by a RCPSC AFC committee who are the final arbiters of competence. The portfolio includes the following: a selection of consultation letters, case summaries and follow-up notes related to diagnosis and management of a variety of sleep wake complaints, a log book and selection of polysomnogram, multiple sleep latency, actigraphy, oximetry and home testing reports, and attestations of multi-source feedback for the trainee and completion of a scholarly project. This process is advantageous for pediatric trainees as it allows them to focus their time in pediatric sleep medicine rather than to pass a

mostly adult medicine-focused examination. Physicians who have been practicing pediatric sleep medicine are eligible for a diploma certifying equivalent training to the AFC in sleep disorder medicine by submitting a portfolio under the practice eligibility route.

In order to qualify as a training site for Pediatric Sleep Disorder Medicine, a program must demonstrate to the RCPSC that it has sufficient expertise, teaching faculty, resources, infrastructure and the clinical population to provide the needed teaching and supervision to trainees. An AFC training program must have sleep physicians responsible for supervision and education of trainees who are able to provide experience in ambulatory sleep assessment and intervention clinics, perioperative clinics, in-patient hospital consultations and sleep laboratory environments. The program must have access to consultative services in medical areas related to pediatric sleep disorders including dentistry, otolaryngology-head and neck surgery or oral maxillofacial surgery, cognitive behavioral therapy for insomnia and developmental pediatrics. The program must liaise with services in Respirology, Neurology and Psychiatry. Necessary support facilities and services include Respiratory Therapy, companies providing home positive airway pressure treatment, cardiology diagnostic testing, pulmonary function, medical imaging and genetics. Exposure to the sleep laboratory and the need to interpret a minimum number of polysomnograms encompassing a range of diagnoses is included. Additionally, there is an academic requirement of completing a scholarly research, quality assurance or educational project which must be available to the trainees.

In order to be eligible to apply for the Area of Focused Competence in Pediatric Sleep Medicine, trainees must have completed Royal College Certification (or equivalent) in Developmental Pediatrics, Pediatric Respirology or Pediatric Neurology. These entry pathways were selected after input from Royal College pediatric specialty committee and detailed discussion by the Royal College committee of specialties as these disciplines share a common set of competencies related to the management of sleep disorders, which each discipline applies to its distinct patient population.

4. Looking to the horizon

There is optimism in the pediatric sleep community in Canada. As a critical mass of trained physicians is developed, the pediatric population will be better served, ensuring shortened times to diagnosis and treatment of sleep disorders, enhancing the care of children. Telemedicine may be leveraged in future to provide pediatric sleep medicine consultation services with specialists via videoconferencing to remote areas of Canada, ensuring improved access to sleep care for all Canadian children. Other professional associations such as the Canadian Psychological Association and the Canadian Academy of Child and Adolescent Psychiatry may be inspired by the RCPSC to develop a path of specialization for their members to treat pediatric sleep disorders which will further expand the breadth of pediatric sleep services across Canada. Momentum is also growing to contribute to academic advancement in this field through participation in research and development of educational tools. Indeed, the field of pediatric sleep medicine is waking up in Canada.

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Conflict of interest

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