

Supervisor & Project Information Form

Please complete and return via email ONLY to gdip.hres@utoronto.ca by **Monday September 30, 2019**

Supervisor Information

MUST have unrestricted SGS appointment (appointment to supervise graduate students)

Name: Dr. Indra Narang	Email: indra.narang@sickkids.ca
SGS Department: Institute of Medical Science	Field of Research: Pediatric sleep disorders and management
Research Institution affiliation (if applicable): Translational Medicine, Research Institute at the Hospital for Sick Children	Location of Work: Hospital for Sick Children
Student contact time (number of hours per week YOU are available to the student for any concerns or to review progress:	5-10

Project Information (will be posted on GDipHR website for student access)

TITLE: The Use of Positional Therapy for Managing Obstructive Sleep Apnea in Adolescents

DESCRIPTION (MAX 500 WORDS):

Statement of problem: Obstructive sleep apnea (OSA) is prevalent in 25-60% of adolescents who are obese and/or have underlying medical comorbidities. Continuous positive airway pressure (CPAP) is the most effective treatment for OSA, but is not well tolerated in more than 50% of adolescents with OSA. As such, many adolescents with OSA remain untreated. This is particularly worrisome given the co-morbidities associated with OSA includes neurocognitive impairment, poor academic performance and increased cardiometabolic risk. Given the burden of OSA disease and its adverse consequences, alternative, effective therapies for OSA tailored to the adolescent population are urgently needed.

Background: OSA occurs when there is a temporary blockage of the airway during sleep, resulting in low oxygen levels and chronic sleep deprivation. The gold standard for diagnosing OSA is a sleep study. OSA is very common in adolescents who are obese and those with underlying medical conditions (i.e. craniofacial abnormalities), occurring among 25-60% of the population. Poor sleep quality associated with OSA can cause daytime sleepiness, learning and memory impairment, and long-term risk for diabetes and cardiovascular diseases. OSA is typically treated with CPAP, which is a machine attached to a tight-fitting face mask that delivers pressurized air while sleeping to keep the airway open and prevent blockage. Although CPAP is an effective treatment, it is poorly tolerated as more than 50% of adolescents do not wear their CPAP. Interestingly, a number of adolescents can experience positional OSA, where OSA primarily occurs while sleeping in a supine position (i.e. lying on their back) as the upper airway is more likely to collapse. Thus, novel treatment strategies targeted towards preventing a supine sleeping position, such as positional therapy, may be beneficial in alleviating OSA and related symptoms in adolescents with OSA. Previous studies in adults have demonstrated favourable results with positional therapy through the use of body positional devices (i.e. inflatable belts, specially-designed vests and neck/chest-worn devices). These devices have been shown to be effective at treating OSA in addition to being comfortable, easy-to-use and inexpensive. However, there remains no data in obese adolescents that assesses the effectiveness of such devices in treating OSA.

Study: The aim of the study is to assess the effectiveness of positional therapy using a positional device for treating positional OSA in adolescents. Adolescents with positional OSA will undergo two overnight sleep studies: 1) baseline sleep study and 2) sleep study wearing a positional device. Afterwards, to assess the long-term efficacy and adherence to positional therapy,

adolescents will also wear the positional device while sleeping at home for one month. This project is ideal for students interested in pursuing research in sleep medicine. Prospective students will be able to gain knowledge regarding pediatric sleep disorders such as sleep apnea and personalized treatment strategies. Students will also have the opportunity to attend our multidisciplinary sleep clinic and observe sleep studies at the Hospital for Sick Children to gain a greater understanding of diagnosing and managing sleep disorders in a pediatric population with various medical complexities.

If human subjects are involved, have the appropriate Research Ethics Board approvals been obtained?

Yes No Application Submitted (Date: _____)

Do you expect this work will be published within the 20 months?

Yes No Uncertain / Other

Student Roles & Responsibilities (please be as specific as possible)

Please indicate who will serve as the student's direct report for daily oversight (PI, PhD student, technician, etc...)

The student will directly report to the PI's research fellow for daily oversight and assistance. He or she will report to the PI at least on a weekly basis regarding progress and future goals.

The research ethics board submission for this project will be submitted prior to the student's start date. The student will primarily be responsible for extracting data from patients' medical records (i.e. sleep study reports) and collecting data relating to patients' adherence, comfort and symptoms after one month of using positional therapy at home. He or she will also prepare a research database for data entry and perform statistical analyses. Additionally, the student will be expected to regularly follow up with patients to inquire about their experience with positional therapy as well as assist with coordinating sleep studies accordingly. The student will have opportunities to disseminate findings through publications as well as preparing abstracts/posters for scientific meetings and conferences.