



CANADIAN SOCIETY OF RESPIRATORY THERAPISTS  
SOCIÉTÉ CANADIENNE DES THÉRAPEUTES RESPIRATOIRES

## Proceedings from the Canadian Society of Respiratory Therapists Annual Education Conference

May 11–13, 2017 • Halifax, Nova Scotia

We are pleased to present a select number of abstracts from the proceedings of the CSRT Annual Education Conference to be held in Halifax, Nova Scotia, on May 11–13. This conference will include topics delivered by international, national, and regional individuals with expertise in various areas of respiratory therapy practice, including quality assurance, patient safety, evidence-based practice, patient and family-centered care, research, and innovation. As evidenced by the following abstracts, the work of our colleagues in 2017 highlights current research and practice innovations led by respiratory therapists. We have made every effort to include all abstracts accepted by the Program Committee before the publication deadline; however, please note that this collection does not represent the entire program (available at [www.csrt.com](http://www.csrt.com)).

The editorial board looks forward to receiving manuscripts from this conference for consideration for publication in the *Canadian Journal of Respiratory Therapy* to continue building the body of knowledge specific to our profession. Please note these abstracts have not been peer reviewed.

### KEYNOTE SPEAKERS

#### 01 BEING TRANSGENDER

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Transgender Activists/Public Speakers, Halifax, NS

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Hamilton and Michaelia Elliott created this presentation that was designed to give insight on the process of transitioning for all female-to-male transgender people. They also touch on the realities associated with being transgender along with their own personal experiences through the process of transitioning. Initially, Hamilton and Michaelia spoke with high school students. Two years later, they applied for The Amazing Race Canada and were announced as Canada's first transgender contestants. It was a goal of Hamilton and Michaelia to show the world that transgender people are the same as everyone else; they just did not have the luck of being born the right gender. Show ratings topped at 2.5 million viewers, allowing their message to be shared nationally. This led to participating in Pride parades in both Halifax and Toronto, as well as speaking opportunities at multiple universities and high schools. Today, they continue in their efforts to end the negative stigma associated with transgender people, while continuing to encourage people to value their self-worth and to be comfortable with who they are.

### PLENARY SESSIONS

#### 02 CANNABIS LEGALIZATION AND ITS IMPACT ON OLDER ADULTS

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**BACKGROUND:** In the 2012 Canadian Community Health Survey, an estimated 7.5% of Canadian adults over the age of 45 reported having used cannabis in the past year. American data show that among older cannabis users, an estimated 49% have used it for 30 days or more in the past year, suggesting that although younger adults are the primary users of cannabis, a significant number of older adults use the drug non-medically as well. Yet, there is a poor understanding of older adults' motivations for using cannabis, the intensity of their use (e.g., quantity consumed), the delivery systems they use, and the actual and perceived health implications of their cannabis use. What is clear, however, is that older adults use cannabis, and there is a need to specifically understand why and how to effectively design public health programs and messages as Canada moves to legalize non-medical cannabis in 2017.

**METHODS:** A narrative review of relevant epidemiologic and qualitative evidence describing the prevalence of cannabis use among older adults (defined as the baby-boom cohort and older) and the social and health implications and impact of relevance to respiratory therapists (RTs).

**RESULTS:** This presentation will discuss older Canadian adults' use of a variety of cannabis products, the motives behind the choices they make concerning cannabis use for non-medical purposes, and how aging may



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change these choices. The presentation will examine the factors that influence older users' choices to consume cannabis, and how they do so, including choices to limit the respiratory harms of cannabis use by choosing edibles or devices such as vaporizers over smoking. Older users' perceptions of the relationship between their cannabis use and their health concerns will be discussed, as will the available evidence concerning known adverse events associated with cannabis use in older adults. **CONCLUSION:** In spring 2017, Canada will introduce legislation to legalize non-medical cannabis use. This important public policy decision stands to have significant impacts for RTs and their patients, given that smoking cannabis is the most common means of consuming the drug. This presentation will focus on an often-neglected, but important, population that uses cannabis—older adults—and describe their patterns of use and motivations for using. This presentation will help RTs meaningfully and respectfully engage their patients in a discussion about the risks, benefits, and harms of cannabis use on their respiratory health.

### **03 PAPER TO PRACTICE: UNDERSTANDING CLINICAL RESEARCH**

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Respiratory therapists (RTs) aim to provide an evidence-based practice that incorporates the best research evidence as part of patient care. The evidence must be clinically relevant and RTs must be able to critically appraise the clinical research. The number of published research articles grows each year. PubMed now has over 22 million citations and, in 2015, there were almost 1,200 articles published on acute respiratory distress. With such a large amount of research being published each year, how do you determine what research is good? What research is applicable to patients? How do you combine the research with clinical expertise to improve patient care? In this session, attendees will be given the basic understanding of what research best answers our clinical questions and understand the appraising tools, such as the number needed to treat and confidence intervals. This will assist in critically appraising research for its validity and impact. Evidence-based practice is about integrating best evidence with individual clinical expertise. This means that the evidence is to be integrated into the decision-making process of care for individual patients. During this session, attendees will learn the tools along with clinical judgment to determine if the results of clinical research are clinically important and if the results could be replicated in your practice. RTs need to use both individual clinical expertise and the best available evidence, and neither alone is enough. With the right tools and understanding, busy RTs can devote some of their scarce reading time to selective, patient-driven appraisal and incorporate the best available evidence into their practice.

### **04 THE RT COURTROOM SURVIVAL GUIDE**

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Physicians have been the traditional target of malpractice litigation in Canada. Recently there appears to be a trend to more intense targeting of hospitals and their employees during litigation aimed at achieving a monetary settlement for poor medical or surgical outcomes. This increases the likelihood of involvement by respiratory therapists (RTs) as expert and defendant witnesses in medicolegal action. This presentation focusses on what, for most allied health professionals, is hostile territory. Through understanding of the malpractice litigation process, case studies, common sense, humility, and humour, RTs can learn to survive, and perhaps even enjoy, their dalliances with the law.

### **05 THE RESPIRATORY THERAPIST: TALES OF EVERYDAY HEROISM**

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This lecture reviews eight circumstances in which confident, learned, and courageous respiratory therapists (RTs) responded to a crisis, thought and acted outside the box, or challenged unproductive resistance to save the lives of patients. Actual patient applications include evidence-based support for the RT's actions. Also reviewed are the strengths and weaknesses of both randomized controlled trials (RCTs) and meta-analyses and how RCTs and the meta-analysis affect patient care. This review is followed by a discussion of how the science of medicine versus the practice of medicine play equal roles in patient care. The primary goal of the talk is to inspire RTs to be proud of what they do, to realize their potential, and to recognize their often life-saving contributions to the care of patients.

## STUDENTS' FORUM

### **06 COPD AND AAA: ENDOVASCULAR VERSUS OPEN SURGICAL REPAIR**

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Compromised lung function is one of the main patient-related risk factors for postoperative respiratory complications. Patients with severe chronic obstructive pulmonary disease (COPD) are up to six times more likely to have postoperative complications than those without COPD. COPD, specifically chronic lower respiratory disease, was the third-leading cause of death in the United States in 2014 according to the Centers for Disease Prevention and Control (CDC). Furthermore, the CDC reports 9,863 deaths in the United States in 2014 were directly due to aortic aneurysms, with another 1,500 deaths resulting from surgical repair procedures—making abdominal aortic aneurysms (AAA) the 14th leading cause of death in the United States. Screening programs of the general population report a 7%–10% prevalence of abdominal aortic aneurysms in people with chronic obstructive pulmonary disease. Considering the global burden these diseases impart independently, the relatively large co-morbidity of the two together and the risk for surgery, it only makes sense to explore the optimal management of AAAs when pulmonary function is compromised. The aim of this presentation is to investigate the relationship between COPD and abdominal aortic aneurysms, more specifically the effect this reduced pulmonary function has on the decision and management of traditional versus modern AAA surgical repair. The comparative analyses are fairly limited; however, a review of the literature supports a slightly more favourable outcome using the more modern approach of endovascular repair. Mortality does not seem to differ significantly between the two, whereas in-hospital complications and death occurred in nearly double the cases after open surgical repair compared with endovascular repair (EVAR). Additionally, the need for extended ICU stay and ventilation days was less in the EVAR cases.

### **07 EXPANDING THE RT ROLE IN PEDIATRIC TRANSPORT**

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**BACKGROUND:** A Saskatoon pediatric transport team (PTT) was initiated in September of 1998. The team consists of a Registered Respiratory Therapist (RRT), Registered Nurse (RN), and a Pediatric Intensivist.

Originally, RRTs and RNs were on call for the Saskatoon PTT. The on-call team ran for 12 years until 2010, when RNs were graded supernumerary positions. The supernumerary position allowed the nurses to be based out of Saskatoon's trauma hospital, help with patient workload in the pediatric intensive care unit (PICU), and reduce time to patient statistics. The nurse did not carry a patient workload independently; therefore, no report was needed, nor was there a delay in time waiting for relief staff to arrive prior to transport departure. In 2014, the only other unit in Saskatchewan that was functioning as a PICU ended its services. Saskatoon was left as the only operating PICU and PTT. Saskatoon's PTT then became Saskatchewan's PTT. The expansion to a provincial PTT now meant that one team was to service 855 km to the farthest northern nursing station in Saskatchewan and 405 km to the farthest southern hospital. Additionally, a lack of specialized services required frequent transport of pediatric patients out of province. It was not until 2014 that the RRT for the PTT became supernumerary staff. The role and patient care have both since rapidly improved for the PTT as team members became more specialized. Scope of practice of the RRT has evolved to include life-saving procedures such as cricothyrotomy, chest tube insertion, pediatric arterial line insertion, and intraosseous/intravenous line insertion. Team members have improved the autonomy with which they are now able to practice. More consistent use of non-invasive and invasive respiratory therapies has led to faster results and improved patient safety and outcomes.

**OBJECTIVES:** To explain the role of a RT during pediatric transports in Saskatchewan. To understand how this role has expanded in recent years, and how the scope of practice for respiratory therapy has evolved.

**METHODS:** We will examine current and previous practices of the Saskatchewan PTT, along with collected data for trip volume, patient disposition, and treatments required for the patients who are transported by the team. A recent study outlining pediatric transport within Canada will be examined. Modalities of respiratory support utilized by the team and the equipment the team uses will be examined. Specific case studies will be presented from our personal experiences to show where the RT role improved patient outcomes.

**CONCLUSIONS:** The pediatric transport role is a fast paced, quickly evolving role for the respiratory therapy profession. Our unique knowledge of respiratory treatments, troubleshooting, and equipment make the RT a key part to the continued success of the specialized transport teams in Canada.

## 08 ADJUSTING FROM LAB SIMULATION DEBRIEFING TO CLINICAL DEBRIEFING

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**INTRODUCTION:** High-fidelity simulation has a great benefit on learning, especially within the field of respiratory therapy. Course material can be applied with hands-on learning during simulation scenarios. Debriefing on these scenarios is essential for learning and building upon knowledge. Adjusting to the clinical atmosphere is challenging for most students. Within the clinical environment, debriefing is structured differently and occurs less often. Debriefing is a valuable tool and there is an opportunity for it to be utilized more effectively and at a higher frequency in the clinical setting.

**BACKGROUND:** Recent experience of high-fidelity simulation involving large amounts of debriefing is compared to personal experiences of debriefing during clinical placement. What more can be done in the clinical environment to implement more, and effective, debriefing?

**OBJECTIVES:** This session partially explains Conestoga College's high-fidelity simulation program and how this prepares students for their clinical placement. It discusses the importance of debriefing in a simulation environment and clinical environment, and it explores different styles of debriefing.

**CONCLUSION:** The effectiveness of debriefing is explained from a student standpoint, and it results in an ability to use a foundation of

knowledge during simulation and to improve upon skills during simulation scenarios and afterwards during a debriefing session.

## 09 NEW GRADUATE CHALLENGES WORKING EXCLUSIVELY IN NEO/PEDS

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**OBJECTIVE:** Provide insight on "a day at the Sick Kids NICU and/or PICU." Provide exposure to new grads and students on the list of challenges in working in neo/peds, recounting experiences from colleagues and myself. Provide my own approach to clinical year and how it helped me to approach my current role in the NICU. Identify the aspects of the job that aren't taught in schools, but come from experience and exposure. Identify the deciding factors to solely work in neo/peds.

**METHODS:** Gathered experiences from myself as a student, employee, preceptor, volunteer, leader, etc. Gathered reasons for choosing neo/peds from colleagues. Gathered experiences from classmates working in adult critical care and compare it to personal experiences in the NICU/PICU. Gathered experiences from other new/recent/young graduates and seasoned RRTs who started in neo/peds and shared their experience.

**RESULTS AND DISCUSSION:** Provide experiences that hopefully will touch on all emotions and the way in which those individuals managed those emotions (resources, outlets, pastimes, etc.). Discuss the difficulties in deciding to work in neo/peds, as well as the rewards. Discuss the positives and negatives of working with a vast amount of people on a shift-to-shift basis, in close proximity.

**CONCLUSIONS:** Provide my own personal approach to my first year as a new grad in the NICU and the ability to maintain competency in adult critical care.

## 10 HOW DO I BECOME A RESEARCHER? THE RRT PERSPECTIVE

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My lecture will be based on my experience being a Principal Investigator in a NICU pilot study completed at Surrey Memorial Hospital. This presentation will go through the highs and lows, from a RRT perspective, of this 2-year process completing the pilot study with limited research experience. Topics to be discussed include addressing gaps in knowledge, components of the research grant, study design, managing a research budget, creating data collection sheets, managing Research Ethics Boards and consent forms, in-servicing staff prior to beginning research (doctors, RRTs, and interdisciplinary), staying on top of the data collection, and knowledge transfer.

## 11 RESULTING NEUROLOGIC EFFECTS OF HYPOXEMIA DURING OSA

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**INTRODUCTION:** Obstructive sleep apnea (OSA), according to the International Classification of Sleep Disorders (ICSD-3), is defined as "...repetitive episodes of upper airway obstruction that occur during sleep, usually associated with a reduction in blood oxygen saturation." Episodes of intermittent hypoxia and sleep fragmentation are commonly observed during OSA.

**OBJECTIVES:** In this systematic review, the consequences of hypoxemia during OSA on the cardiovascular system specifically will be examined as presented in current literature. The potential for these cardiovascular

complications to in turn affect various cognitive capacities will then be explored.

**METHODS:** The EBSCOHOST database was accessed through Thompson Rivers University using the following key terms: neurologic\*, hypox\*, sleep, apnea, ischem\*, (not) ischem\*, cardi\* and cognit\*. Initially, eight articles were reviewed to determine which cognitive capacities would be further researched. This literature review will look at linking evidence that suggests neurologic complications such as stroke, cognitive dysfunction, Alzheimer's, and depression can all result from cardiac complications due to hypoxemia during OSA. This review will also define terms such as hypoxia, hypoxemia, and intermittent hypoxia. By definition they are all different; however, many authors seem to use two or more of them interchangeably or use one when according to the definition, and they may mean to use another.

**RESULTS:** A quick search of the EBSCOHOST database suggests that no reviews have looked at the effects of hypoxemia on these cognitive abilities. The only similar recent review, "Oxidative Stress in Obstructive Sleep Apnea and Intermittent Hypoxia - Revisited - The Bad Ugly and Good: Implications to the Heart and Brain" (Lavie, 2015) looked at the potential protective and or damaging effects of oxidative stress on the cardiovascular and cerebrovascular systems.

## 12 STUDENT PERSPECTIVES ON THE PERCEPTIONS OF RESPIRATORY THERAPY

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Respiratory therapy is a career that takes us from the beginning of patient life to the end. But do members of the general public, or even other inter-hospital professionals, really know what the day of a respiratory therapist entails? As a student in the classroom setting, we can only gather so much from our research, job shadows, conversations, and simulations. It is when we are truly immersed into the clinical year that we get to experience the ins and outs of this very rewarding and challenging career. We would like to present a student respiratory therapist's outlook on how others perceive our profession and how we perceive it ourselves. We will use our experiences as successful clinical students to guide the next generation of student respiratory therapists and to promote and allow others to get to know this exciting career. We will discuss with students the typical workload during clinical year, survival tips, and how to build portfolios. We will touch on the importance of interprofessional care in everyday practice as well why it's important for clinical competency attainment. We will discuss the role of respiratory therapists as we experienced firsthand at our clinical sites. Further, we will discuss topics that we think are critical to developing a good understanding of expectations of respiratory therapists in clinical practice. Finally, we will talk about the great things respiratory therapists do and why we are honoured to be a part of this community of intelligent and compassionate individuals.

## 13 MANAGING ACUTE SEVERE ASTHMA IN VENTILATED PATIENTS

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Asthma is a common chronic disorder of all age groups, predominantly affecting pediatric populations. The current worldwide prevalence of asthma is around 300 million, which may be increased to 400 million by 2025. In Canada, approximately two out of three asthmatics patients who are treated in general practice suffer from uncontrolled asthma. Amongst the chronic diseases, asthma poses the biggest economic burden on the health care system. Asthma patients consume the highest health care resources by spending more days in hospital and have increased morbidity and mortality. The economic burden of asthma includes both

direct and indirect costs. Acute severe asthma accounts for only 5% of the total asthma population, but the costs associated with it is 50% of the total asthma cost. After physicians, the first line of health care providers who are directly involved in the management of asthma are respiratory therapists. This review will discuss management of mechanically ventilated acute severe asthmatics to determine the best practices in strategies of their care, focusing on both ventilator and non-ventilator management strategies. This presentation will include intubated and mechanically ventilated acute severe asthma patient populations of all age groups, covering peer-reviewed research and review articles published in the last 13 years.

## EDUCATORS' FORUM

## 14 THE STUDENT EXPERIENCE OF ASSESSMENT IN SIMULATION

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There exists an identified knowledge gap with respect to the impact of assessment on the social aspects of the clinical simulation learning environment in health professions education. This session presents the recent findings of an original research study aimed at understanding how approaches to assessment influence student learning experiences during clinical simulation. The primary objective of this study was to understand how different approaches to assessment—such as whether or not the simulations are graded or marked to measure achievement—influence social aspects of the learning environment in clinical simulation-based respiratory education. Those factors that might affect learners' emotional or psychological status or that may impact their sense of safety and trust in the learning environment were examined from a variety of perspectives by exploring the experiences of a sample of respiratory therapy students and their instructor at a Canadian entry-to-practice respiratory therapy program. A qualitative case study design was adopted to achieve a deep understanding and description of the social aspects of learning in this unique and nuanced learning environment. The understandings derived from this research can be used to support the design of enhanced clinical simulation learning environments for learners in respiratory therapy education.

## 15 DO E-LEARNING MODULES REALLY WORK?

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The development of psychomotor skills and the confidence associated with performing professional tasks are key milestones for health sciences students. Traditionally, these students are provided with lectures, readings, and limited simulated lab time in the didactic component of their education. Due to heavy course loads it is difficult to provide one-on-one training for all students and to ensure that this training translates into strong professional competence. We have therefore created an e-learning module to be used in conjunction with traditional didactic education for a common healthcare skill: venipuncture. There is limited research on the effectiveness of e-learning modules in developing psychomotor skills for health sciences students and practitioners. Our goal is to evaluate the effectiveness of our supplementary module in traditional didactic programs. Students from these programs at Fanshawe College will be recruited and randomly assigned to a control or a study group. Students will be scored based on three main components: 1) psychomotor skills, 2) level of confidence, and 3) academic competence. We hypothesize that the study group will outperform the control group in all three areas of evaluation. Overall, this work will provide insights

into the utility of e-learning in helping students achieve key competencies required in their future professions.

## 16 COMPARISON OF SRT PEDIATRIC EDUCATION: STUDY DESIGN

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**BACKGROUND:** Student respiratory therapists (SRTs) are required to complete pediatric training as a part of their clinical internship. There are existing challenges in accommodating all students at pediatric institutions; therefore, simulation becomes an enticing method to train SRTs in pediatric care. Currently simulation is being used to supplement pediatric training for students. However, different schools have a different blended model of percentage time spent in clinical-based training versus simulation-based training during their rotation, and formal evaluation of each educational model has not been done to date.

**OBJECTIVE:** Our goal was to design a study to determine whether student respiratory therapists who complete predominantly simulation-based pediatric rotations demonstrate comparable performance with respect to pediatric airway management when compared to students who completed a clinical-based rotation. This presentation is to discuss our study design and our experiences with this research project to date at the Hospital for Sick Children.

**STUDY DESIGN:** Students are scheduled for a specific model of education (either 2.5 weeks of clinical placement or 2 weeks of approximately 50% simulation and 50% clinical placement). Our study design involves evaluation at three points: 1) baseline testing: knowledge questionnaire, reported levels of self-efficacy, and demographics; 2) post-rotation testing: knowledge questionnaire, performance in a simulation scenario (using a standardized scoring tool), reported levels of self-efficacy and cognitive load, and self-appraisal in simulation; and 3) retention testing (3 month): knowledge questionnaire, performance in a simulation scenario (using a standardized scoring tool), reported levels of self-efficacy, and cognitive load and self-appraisal in simulation.

**IMPACT:** It is hoped that the results of this research will provide educators with evidence to optimize simulation-based rotations for SRTs, potentially leading to improved provision and efficiency of education and subsequent patient care.

## 17 TOOLS FOR THE EVALUATION OF ATTITUDES IN RESPIRATORY THERAPY EDUCATION PROGRAMS—A WORKSHOP

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Training programs offer courses and internships that enable validation of students' learning compared to development of their skills. Assessment of knowledge and know-how plays a major role in the way students provide care and can be used to establish their level of skill. But what about assessment of their soft skills? Soft skills are an essential component of complete skills development. Students show their soft skills in both the classroom and clinical settings. They do not realize that their behaviours influence their delivery of care in class as well as their future job prospects, since employers observe them during their internships. Their soft skills represent added value that makes a difference. Instructors often encounter challenges when coaching students on full development of their soft skills. A lack of tools has made soft skills assessment difficult, leading to reflection that has prompted questions about the essential characteristics of assessment tools instructors can use to objectively judge RT students' soft skills. Following a review of literature covering three concepts—soft skills, assessment, and assessment tools—five specific objectives were retained for use in addressing the challenges presented by soft skills assessments: 1) establish a soft skills nomenclature for the

respiratory therapy program; 2) describe soft skills as observable, demonstrable assets; 3) design a self-assessment tool for soft skills development, to be used by students in the RT program; 4) design a checklist of observable behaviours, to be used in assessing RT students' soft skills; and 5) design a descriptive grid for assessing RT students' soft skills.

This presentation summarizes a research and development-type test intended for the design of three soft skills assessment tools: 1) a self-assessment tool, 2) a checklist of observable behaviours, and 3) a descriptive self-assessment grid. Upon achieving the first two specific objectives, the author asked instructors in the respiratory therapy techniques department at two institutions—Collège de Rosemont and Collège de Valleyfield—to perform a validation of the soft skills assessment tools. Analysis and interpretation led to attainment of the specific objectives set. The data gathered were used to establish the nomenclature for professional soft skills and to take a critical look at the design of soft skills assessment tools intended for students in the respiratory therapy program. The tools were improved, i.e., made more effective, based on the feedback and suggestions received. This test identifies eight soft skills that students in the RT program should show they possess. These soft skills are demonstrated through 42 observable behaviours. Designing the assessment tools enables an objective look at the development of students' soft skills. A single task remains: to check the transferability of results between programs to coach other instructors who are having difficulty with soft skills assessment. The presentation is followed by a hands-on workshop in which the concepts described can be put into practice and the transferability and applicability of the results observed.

## LEADERS' FORUM

### 18 HOW CAN RESPIRATORY THERAPISTS SOLVE ALARM FATIGUE?

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Alarms are particularly numerous in intensive care units and can cause alarm fatigue, which results in delayed recognition and responses to critical alarms. Delays can result in patient harm, increased lengths of stay, and death. Alarm hazards related to cardiac monitors contributed to patient safety incidents in the adult intensive care unit at the Credit Valley Hospital site of Trillium Health Partners. These incidents were the impetus for a respiratory therapist led quality improvement project. Using improvement science methodologies and quality improvement tools, Plan-Do-Study-Act cycles were applied to test and implement change ideas. An interprofessional team, which included a frontline respiratory therapist champion, developed and tested ideas for improvement. The resulting quality improvement intervention consisted of daily electrode changes, assessment of alarm parameters, arterial line stabilizing devices, and adjustment of alarm default settings. The results of this intervention were a 13% decrease in the number of alarms, improved staff satisfaction regarding noise levels and perceptions of alarm fatigue, and elimination of alarm-related patient safety incidents. Respiratory therapists were a key component to success and can act as both leaders and essential team members when embarking on projects to improve quality and patient safety.

### 19 WORKING WITH MULTI-GENERATIONS IN HEALTH CARE

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Maintaining cohesiveness and understanding among a multi-generational workforce in respiratory therapy remains highly relevant for its operational fluency and efficiency for the specialized medical profession, as it does

for the general health care sector at large. It is therefore important to examine this demographic dimension in the Canadian health care context, both through its analysis of its most recent indicator changes along with the newly emerging practical and theoretical approaches, to bring both the problems and solutions of this topic to the forefront. This presentation begins with an overview of all major variables that influence cohesiveness, or lack of thereof, among the health care workforce, before emphasizing the focus on the age-group demographic dimension of the Canadian health care sector. This will be then followed by analyzing the pinnacle age demographic changes experienced for the sector. The main characteristics of each generational group, including their real and perceived strengths and weaknesses among their peers, will be identified to then discuss how multi-generational misunderstanding arises. Recommendations will follow, as cited in notable qualitative and quantitative research studies, the speaker's own small survey findings, as well the personal suggestions obtained from the speaker's own field RT training and professional work experiences in the RT field. Lastly, the presentation will address existing research gaps and where further research seems most essential.

## **20 IMPLEMENTATION OF STANDARDIZED TOOL FOR CHARGE RT HANDOVER**

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There is a growing body of evidence that shows the majority of adverse events in hospitals are due to gaps in communication and handover failures. Improving handover and, therefore, communication is a means to improve patient care and safety. Literature shows that the use of standardized handover processes improves communication and reduces errors. The Critical Care Unit (CCU) at the Hospital For Sick Children has experienced a steady increase in patient census and overall acuity, and there is increased awareness throughout the hospital about the culture of patient safety. As such, the Charge RT role has now become increasingly complex, necessitating careful balancing of patient care and safety with staffing and equipment resources and increased fiscal and administrative responsibilities. After conducting a needs assessment and focus group, the Charge RT group was able to develop a standardized handover tool aimed at improving communication between Charge RTs at shift change. Standardized handover tools for patient-to-patient handoffs are currently in use throughout the CCU; however, there is currently no handover tool developed for Charge-to-Charge handover. When developing this pilot handover tool, the Charge RT group used some discussion points that came out of the needs assessment and focus group, and also took into consideration larger organizational markers of patient safety as described. This was done in an effort to develop a shared mental model amongst the Charge RT group and between the Charge RT group and the hospital. The aim of using a standardized Charge-to-Charge handover is to improve communication and patient safety in the CCU at Sick Kids, decrease individual variability when giving handover, and improve overall staff satisfaction in the handover process.

## **21 ADOPTING POSITIVE LIFESTYLE HABITS TO PREVENT PROFESSIONAL BURNOUT**

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Many health care professionals are faced with fast-paced, high-stress, and high-pressure situations, shift after shift. Over the years this stress, shift work, lack of sleep, poor nutrition, and decreased physical activity levels leads to increased sick time, development of chronic disease and, ultimately, burn out from their career. This presentation will discuss the physical and emotional implications of shift work, working in high-pressure environments with time constraints, and dealing with death

and dying. Discussion will revolve around health care workers becoming proactive rather than reactive when it comes to their own personal health and well-being. This will be achieved by exploring the categories of physical activity, healthy sleep habits, and nutrition. The goal of this presentation is to empower health care professionals to adopt a healthy lifestyle that will not only prevent chronic disease and career burn out, but will increase quality of life.

## **22 REDEFINING COMPETENCIES IN RESPIRATORY THERAPY**

**L Martinek Bahon, RRT, MHS**

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Competence is a commonly and widely used term in health care. Competencies are developed to guide safe clinical practice and to provide a standard against which clinicians are evaluated. When one thinks of the traditional use of the term "competence," it is often a measure of: a) clinical hands-on skill, b) critical thinking, and c) decision-making ability. Following the American-based report "To Err is Human" in 2000, patient safety advocates around the world initiated discussions on the scope of "teamwork". As a result, competency evaluations based on inter-professional teamwork and team environments began to emerge. The World Health Organization (WHO) indicates "Effective teamwork in health-care delivery can have an immediate and positive impact on patient safety. The importance of effective teams is increasing due to factors such as: a) the increased incidence of complexity and specialization of care, b) increasing co-morbidities, c) the increasing incidence of chronic disease, d) global workforce shortages, and e) initiatives for safe working hours" (World Health Organization, 2012). Even so, competency evaluations that measure clinical skill, critical thinking, and decision-making ability from the perspective of the individual, without full consideration of the individual's competence as a member of a team, still dominate. Despite significant development in the last decade, there remains an opportunity to expand the definition of competence to reflect the broadened scope of health professionals within a interprofessional team-based model of care. In 2014, Michael Garron Hospital (MGH), a large community hospital in Toronto, embarked on a competency framework redesign for all allied health professionals to more effectively reflect the best practices and standards of interprofessional practice. The redesign included respiratory therapists (RTs), and focused the competency assessment not only on respiratory-specific skills and critical thinking, but also on patient safety, service excellence, excellence in team function, and patient-centred care. Adapted from the Canadian Interprofessional Health Collaborative National Competency Framework, the MGH competency framework is the driving force behind both the standard of practice expectations for all RTs as well as the annual performance review for clinicians. This presentation will provide participants with both the theoretical and practical components of the development of a competency-based framework for RTs that focuses on clinical skill as well as performance as a member of an interdisciplinary patient-centred care team. The presenter will review supporting evidence for a broadened definition of "competence" and present the process, outcomes, and lessons learned in building a competency framework that can be applied to a variety of settings.

## **23 CREATING A DISASTER PLAN FOR RT DEPARTMENTS**

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As the number and scale of disasters are increasing worldwide—due in part to increased rates of urbanization, deforestation, environmental degradation, and to intensifying climate variables—it is essential for hospitals to plan and prepare for disasters. Hospitals play a vital role in disaster

response but they are also vulnerable to the negative impacts of disasters. While every hospital should have a disaster plan, they are often out of date and incomplete. Hospital disaster plans may not include respiratory therapists (RT) or they include RTs in roles for which they are not trained in. Respiratory therapy departments are unique since they are often decentralized, with one department covering an entire hospital or group of hospitals. Respiratory therapy departments should have a robust disaster plan to aid RTs during a disaster. The presentation will examine how to create an all-hazards disaster plan based on the key concepts of anticipation, monitoring, response, and learning.

**ANTICIPATION:** What do you anticipate will occur during a disaster? How can you anticipate, plan and prepare for a disaster?

**MONITORING:** What are our current responsibilities as a respiratory therapy department? What is the pre-existing disaster plan? Where would the hospital's emergency operating centre be located? What is the hospital's incident command system? What are our departmental responsibilities during a disaster? For example, if medical gases are no longer working, is the RT department in charge of providing tanks of medical gas to the entire hospital? What are the medical gas, loss of power/back-up power, mass casualty, etc. plans? What are our RT department responsibilities in those plans? How long is the battery life of our ventilators, BIPAPs and other equipment?

**RESPONSE:** How as a department would you respond to a disaster? What would you do if you had to evacuate? Lost medical gas? Lost power? Had a mass casualty event? Or all of the above? How do you allow for creativity and flexibility when responding to disasters?

**LEARNING:** Going forward what can your department do to prepare? What have you learnt from previous experiences with disasters or crisis situations? What worked and did not work? Is there a need for practice and training?

The presentation will also go over the creation of action cards, and a quick grab-n-go RT response handout. There are examples from a disaster plan created for a major hospital in Vancouver.

## 24

### TAKING CARE OF OUR COMMUNICATION!

**MT Tétreault RRT MA (communication and health)**

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Counselling, documentation, journals, websites... sources of health information are certainly numerous, but are they understood by our patients? Unfortunately, according to recent studies in health literacy, the answer is no. In truth, national surveys indicate that 60% of adults and 88% of seniors are not health literate. These results suggest that many of our patients have difficulty in obtaining, processing, and understanding the health information needed to make informed health decisions such as choosing a healthy lifestyle or taking medication properly. In addition to defining health literacy and the impact of limited literacy skills on the health of the individual, the presentation will portray the situation nationally and will expose the populations particularly at risk of low-health literacy skill. Tools and tips will also be offered to help respiratory therapists in the evaluation or screening of health illiterate patients and the production of documentation tailored to them.

## 25

### MAXIMISING CLINICAL CONTROL OF PRODUCT PROCUREMENT

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The practice of respiratory therapy is very dependent on the availability of appropriate clinical products. The quality and availability of these products can have a significant positive or negative impact on patient care. In extreme cases, poor quality or lack of availability can lead to patient morbidity or mortality. The cost of these products forms a significant part of

overall healthcare spending. Choosing the lowest cost product rarely is the best approach. Low-cost products may be low-quality products, which in turn increases costs in other ways, such as increased usage or less optimal patient outcomes. Conversely, expensive products are not necessarily of higher quality. Optimal product selection must be based on maximizing quality while minimizing cost. The best balance of quality and cost results in the best value. Measuring quality and cost requires intimate understanding of the product and its intended use. Supply chain organizations typically do not have the built-in expertise or the mandate to make these measurements on their own. They rely on clinical staff to inform these measurements in a variety of ways. Clinical staff ultimately trigger the initial request for a product, set the specifications required in a quality product and assess the relative quality of competing products. Clinicians may also be called upon to identify product trends and assess the value of proposed product innovations. The respiratory therapist who participates in these activities can greatly influence the final outcome. Health care supply chain organizations are tasked with organizing and maintaining the processes that ensure the availability of the correct products in the clinical setting. They are mandated to do this while maintaining the lowest possible overall cost and following Canadian public procurement laws and regulations. Partnership with the product users is the key to a supply chain's success. This partnership can take many forms, including one-on-one relationships, project-based evaluation committees, and permanent advisory groups. Many large supply chain organizations employ their own clinicians to foster and maintain these partnerships. For instance, BC Clinical and Support Services Society's supply chain organization currently includes 20 clinicians from a variety of backgrounds, including two RRTs. The author is one of those RRTs. One of the primary techniques used by supply chains to minimize costs is the competitive bid process. Vendors are publicly asked to provide their best price for fixed number units of a closely specified category of products. The supply chain agrees in advance to buy the entire committed volume of products from the selected vendor. This commitment allows the vendors to offer the lowest possible price because they know what the future sales will be if they win the competition. The most common form of competitive bids is the "Request for Proposal" (RFP). Supply chains can also negotiate uncommitted agreement to buy a specified list of products. These agreements provide good flexibility and stability but costs are typically higher than an RFP-based agreement.

## 26

### GETTING YOUR STAFF'S BEST: EMPLOYEE ENGAGEMENT

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What would happen if respiratory therapists became the most engaged employees in an organization? Engaged employees are more creative, more productive, more loyal, use fewer sick days, and experience higher workplace satisfaction. What leader does not want these characteristics in every member of their workforce? In this respect, respiratory therapists are no different from manufacturing, retail, or finance employees. They value three basic work factors of engaged employees—mastery, purpose, and autonomy. These three critical factors have been well documented and, if an RT supervisor, coordinator, or manager wants engaged employees, they must address these factors. But if the general workforce only has 17%–25% of its workforce highly engaged, how is a mid-level manager in a huge, multi-tiered organization supposed to create a work atmosphere of engaged employees? This presentation will identify the foundational principles for creating an environment where engaged employees can be the standard and not the exception. It will be a strategic look into what conditions must be created (because you must be strategic before you implement tactics) and what practical outcomes can be expected from even simple changes. Leaders of two or 200 can apply these three factors to improve their workplace, their employees, and their team's productivity—even in an organization that may not, or cannot,

support them. Don't settle for average. Start on the high purpose of making respiratory therapists the example of employee engagement in your organization.

## CRITICAL CARE

### **27 WITHDRAWAL OF LIFE-SUSTAINING CARE POST-TRAUMATIC BRAIN INJURIES**

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Respiratory therapists play an integral role in caring for patients who have suffered a traumatic brain injury (TBI), as well as extubating patients once the decision to withdraw life support has been made. It has been found that there is significant variation across Canada in terms of how long physicians wait to recommend withdrawal of care after a patient has suffered a severe TBI (Turgeon, 2011). Some centers wait less than 3 days, while others wait much longer with the hope that decreased swelling over time will deliver a more positive prognosis (Turgeon, 2011). The decision to recommend withdrawal of life support is a complicated one and needs to take several things into account (Creutzfeldt, 2015). This includes as accurate a prognosis as possible, the patient's wishes, and the alternate decision-maker's wishes (Cook, 2003). What factors influence a physician's recommendation to withdraw care? Health care professionals must work with the patient and (or) the alternate decision-maker(s) to come to a mutually agreeable decision, but what obstacles make this difficult? This presentation will look at different approaches to withdrawal of care currently used across Canada; current practices for determining an accurate prognosis; and coming to a mutual decision with the patient, alternate decision-maker, and health care team.

### **28 YOU, ME, AND THEM: MAKING ECMO INTERPROFESSIONAL**

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Providing ECLS support (ECMO) can be a complicated process for experienced providers, let alone new learners. Our challenge was to find a way to provide standardized curriculum and education to an inter-professional group with a wide variety of training. We capitalized on the experience and expertise of a number of various professions to evaluate, revamp, and deliver an interprofessional curriculum to our learners. From the outset, we identified the gaps within the old model of education and care delivery. Our goal was to increase consistency of care and standardize the education to our team. The process involved having all curriculum developed by content experts, then peer reviewed by the interprofessional team. It was then beta tested, evaluated, adjusted, and beta tested again. This continues to be an iterative process, following a basic process improvement paradigm (Plan, Do, Study, Act). Our curriculum development process has been a model for improvement for other practice variances; in other words, we have used this model to standardize and improve practice in other areas.

### **29 CARDIAC ARREST MANAGEMENT POST-CARDIAC SURGERY**

**L Diep Bsc Kin RRT**

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Approximately 1,300 patients undergo cardiac surgery at the Foothills CVICU annually; of those, 0.7%–2.9% will experience a postoperative cardiac arrest. In Canada, it is common practice to follow the American

Health Association (AHA) recommendations when it comes to basic life support (BLS) and advanced cardiac life support (ACLS). In Europe, they follow guidelines that are provided by the European Resuscitation Council (ERC). Identifying that post-op cardiothoracic patients are a special population requiring special management means that management of cardiac arrest needs to be catered to them. AHA does not provide clear recommendations for resuscitation of post-op cardiothoracic patients. The use of ERC guidelines, which provides important evidence-based deviations from ACLS, may bring better assistance for CPR in these patients while reducing mortality. Here we will review key differences and supporting evidence between ACLS and ERC guidelines that are specific to resuscitation after cardiac surgery. Key areas of debate are a) swiftly identifying and eliminating reversible causes of arrest, b) defibrillation or pacing should occur before external cardiac compressions, c) cautious use of epinephrine to prevent potential rebound hypertension, and d) decision for re-sternotomy should be made within 5 minutes to promote optimal cerebral perfusion with internal massage. The ERC offers a more specific and appropriate management of cardiac surgical arrests and should be adopted as the standard in Canada. For the first time, FMC CVICU will be implementing these key modifications to ACLS in hopes of achieving higher survival rates. Follow how they created new algorithms, trained their staff, and exercised new simulations scenarios and simulation mannequins, which will help shape their practice for years to come.

### **30 I COLLABORATE, THEREFORE I AM—AN RT!**

**N Pendergast RRT MPH FCSRT**

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Collaborative health teams, person-centred care, and collaborative practice are the direction health care is moving. Health care delivery is less and less about individual health professionals making their contributions in a silo. We are seeing the transformation of health care, and health education correspondingly, and a culture shift toward greater interprofessional collaborative care. RTs are very well placed to be leaders in collaborative practice. This presentation will focus on the role of RTs on the interprofessional team in the ICU and the potential to make a positive impact on patient outcomes with improved collaboration.

### **31 PREVENTING VENTILATOR-ASSOCIATED PNEUMONIA: WHERE IS THE BENEFIT?**

**T Piraino RRT FCSRT**

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The prevention of ventilator-associated pneumonia (VAP) has been a serious focus in Canada. In 2012, the Centers for Disease Prevention and Control changed to ventilator-associated event surveillance due to the multiple issues with VAP surveillance and reporting. Recent research has demonstrated that VAP preventative measures proven to reduce VAP have not resulted in a reduction in ICU or hospital length of stay. The cost versus benefit of some VAP bundle strategies is no longer evident. This presentation will discuss these issues, the supportive evidence, and provide a recommendation for future quality initiatives.

## NEONATAL AND PEDIATRIC

### **32 BETTER TOGETHER: THE POWER OF PATIENT AND PARENT PARTNERSHIPS**

**C Gunn BSc RTR MBA, Y Gillis BSc**

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Patient- and family-centered care places emphasis on mutually beneficial partnerships between patients, families, and health care professionals. Working in partnership with patients and parents and allowing them to participate in the decision-making process reduces uncertainty and fear, which are predominant factors in distress. This results in an increase in quality and safety, as well as increased satisfaction for both the family and health care team.

### 33 50 YEARS OF NEONATAL CARE: ARE WE LEARNING FROM OUR MISTAKES?

**D Reid MD FRCP(C)**  
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Neonatal medicine has changed a great deal over the past 50 years, and Dr. Don Reid has been a part of this. From London to Regina, Newfoundland, and Halifax, he has witnessed incredible changes in neonatal care—and the incredible role that RTs have had in these changes. Through 50 years of entertaining stories of evidence-based practice, successes, and failures, Don reviews the role that RTs have had in changing the face of neonatal care and will inspire attendees to continue to expand and grow that role within neonatal and all healthcare.

### 34 NEO/PEDS CRITICAL CARE IN THE AIR

**L Betts RRT BSc, A Spicer RRT**  
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Have you ever thought about putting the knowledge and skills you have learned in the intensive care unit to the test at 20,000 feet as a member of an air medical transport team? Do you have the courage it takes, knowing that the difference between a good outcome and a bad outcome for your patient depends on your ability to diagnose what is wrong? Do you have the confidence needed to draw upon your past critical care experience and knowledge and combine it with the technical capability to do what is needed in a challenging and ever-changing environment? Have you ever wondered what it is like to be a member of an air medical transport crew? This presentation, from members of the CAMTS accredited Nova Scotia EHS LifeFlight team, will give you a view of what it takes to be part of the air medical crew, in case study format, by two members of the neonatal-pediatric team. We are a full-time, dedicated RRT/RN team that uses rotor wing, fixed wing, and ground transport vehicles to service all of the Maritime provinces. We work with an advanced scope of practice and provide critical care, including ECMO, on transport. You will come away inspired by the courage, stamina, and expertise of these critical care colleagues who put themselves to the test every time they take off.

### 35 AUTONOMY IN TEAMWORK: WHY IT MATTERS

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Interprofessional teams have been shown to improve patient care and outcomes, but rarely exist in true form in the clinical world. The interprofessional team in the NICU at Sunnybrook HSC has evolved over decades and aspires to a trans-professional goal. Respiratory outcomes from this unit are extremely good and largely attributed to the fact that respiratory therapists essentially control ventilator management of patients independently. While hard evidence is lacking in this area, it is hoped that the link between outcomes and the interprofessional model of care can be demonstrated, and how the extensive use of non-invasive modes of ventilation may help others improve respiratory outcomes. The latest and historical outcomes as reported to the Vermont Oxford

NICU collaborative are presented for reference and give a frame of reference.

## CHRONIC CARE

### 36 CREATING A REGIONALIZED LUNG HEALTH PROGRAM

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In 2006, the Champlain Lung Health Network was created to bring lung health champions (patients, primary, tertiary, home care, etc.) together to improve lung health services in the Champlain Local Health Integration Network (LHIN). This patient-driven network created “The Breathing Easier Guide”, an in-depth inventory of services produced to 1) educate residents about their lung disease, 2) empower patients to seek out lung health services that they require, 3) decrease health care utilization through self-management, and 4) improve quality of life. Today, this network has grown to 36 representatives that meet quarterly, follows an annual workplan, and works together to improve access to the much-needed lung health services in the region. Much of the success of the network is due to LHIN support and the relationships that have been built between tertiary and primary care institutions. These relationships allow for candid discussions between health care providers which result in 1) an improved transition from hospital to home, 2) an increased awareness of all lung health services across the region, and 3) a common goal for funding requests to decrease duplication of services. This presentation will focus on the Lung Health Networks initiatives and successes to date. Delegates will have an understanding of partnership building (through networks) and engaging stakeholders as a way to increase resources with today’s limited health care funding.

### 37 RESPIRATORY CARE IN NEUROMUSCULAR DISEASE

**F Syed BHSc RRT, J Sparks BBA MIR CPHR**  
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Muscular Dystrophy (MD) Canada and The Hospital for Sick Children (SickKids) are partnering to create a presentation that will highlight the leadership role of respiratory therapists in the management of neuromuscular disease (NMD). Neuromuscular disease is characterized by progressive muscular impairment that leads to a loss of ambulation, swallowing difficulties, and respiratory failure. Thus, education about NMD management remains a priority to assist patients to stay healthy at home and in the community, while preventing hospital admissions. It is necessary that respiratory therapists and caregivers are active in knowledge acquisition around new technology and therapies as they care for these patients. In this presentation, various therapies will be examined, with focus given to pulmonary clearance, maintaining good respiratory health, and challenges and best practices around ventilatory support through case studies. Seamless transition from hospital to home care is an identified area for improvement. This applies to both adult and pediatric care. It is primarily due to lack of understanding of pulmonary clearance therapies and the shift to managing more patients via noninvasive ventilation. We would like this platform also to advocate for the increased need for respiratory therapy support in the community and to facilitate a knowledge-to-action plan for achieving this. Individuals with NMD are surviving well into adulthood. We would like to highlight SickKids’ transition partnership with WestPark Rehabilitation hospital. We will also provide feedback from our adult clinicians as they care for these patients on the receiving end. This part of the discussion will highlight quality improvement work that has been done looking at patient

and caregiver experiences after transition to adult care and the challenges patients have faced. It is important to listen to these inspirational patients and learn about their disease. In doing so, overcoming challenges and barriers to respiratory management is better understood. Patients and their caregivers are also then empowered to eventually choose treatments most suited to their lifestyle. It is key to mention here the importance of the patient having a treatment plan well in advance of any progression of disease or acute illness. Included in this plan should be goals of care documentation and expectation setting for adherence to therapy to achieve optimal day-to-day and long-term functioning. We also would like to highlight work that is currently being done in respiratory management of NMD. RRTs are increasingly partnering with inter-professional colleagues, community providers, and patient organizations such as MD Canada to provide support, education, and research to this ongoing area of respiratory health. Good respiratory care of patients with NMD is resulting in prolonged survival and improved quality of life. These achievements have been made possible by advocacy from patients themselves, caregivers, and patient organizations such as MD Canada, but also from the field of respiratory therapy and the advances RRTs have made in respiratory rehabilitation to improve everyday life for patients and their families.

**38****SHISHA25: SHISHA TOBACCO USE IN NEWCOMERS TO CANADA****M Al-Azazi SRT BSc****University of Manitoba, Winnipeg, MB****[maryamabdo@yahoo.com](mailto:maryamabdo@yahoo.com)**

This presentation will describe main definitions and challenges encountered by newcomers in Canada and a brief view on the current Canadian response to the Syrian crisis. Shisha has an exotic-flavored aroma, which is made up of different mixes such as molasses, honey, and dried fruit with tobacco leaf. Other names are used to define it such as hooka, narghile, waterpipe, and hubbly-bubbly. It is a custom in the Middle East to smoke shisha, but it's also popular in the younger generation in the developed countries. It's an emergent concern because it is associated with health risk factors such as respiratory and cardiac diseases, cancer, and adverse effects during pregnancy. The behavioral enslavement is prevalent because of its social, pleasant, and relaxing connotations. Loopholes exist in the regulation of shisha, resulting in it being smoked indoors in cafes, lounges, and bars. In 2015, an Ontario study assessed the quality of air in both indoor and outdoor shisha cafes. The study demonstrated Indoor Air Quality Index (AQI) of PM<sub>2.5</sub> of 1419 µg/m<sup>3</sup> in shisha cafes. Recognizing that an advisory to avoid all physical activities outdoors would be warranted if the air quality has a PM<sub>2.5</sub> of 500 µg/m<sup>3</sup> the AQI in shisha cafes should be of concern. Moreover, the public misconception on the myth of shishas' safety and harmlessness leads to its overuse. This presentation will also present the findings of a systematic review on shisha use that is currently being conducted. These findings will be interpreted relative to the need for cultural competence amongst RTs when assessing for tobacco/shisha use. A video will be shown to illustrate the smoking session if needed, and discussion will highlight the need for response by Canadian Respiratory Therapists. RTs can be part of initiatives aimed at addressing the effects of smoking shisha.

**39****OBTAINING QUALITY DIAGNOSTICS FROM A MULTICULTURAL POPULATION****M Kooperberg RRT CRE****C-Health, Calgary, AB****[micah.kooperberg@gmail.com](mailto:micah.kooperberg@gmail.com)**

**BACKGROUND:** The 2011 National Household Survey provided a very multicultural and multi-linguistic image of Canada. The survey results showed 1 in 5 people in Canada were foreign born, with over 200 different languages identified as "mother tongue". With the diversity of the Canadian population, respiratory therapists require a unique

understanding of culture and communication to obtain diagnostically appropriate and reliable testing. What respiratory education fails to teach is the importance of understanding cultural and effective communication, which is arguably a "prerequisite to safe healthcare" (Schyve, 2007).

**DISCUSSION:** Based on experience and research in culture and communication, this presentation will examine the role culture plays on obtaining quality respiratory testing. Examination of cultural barriers within the most represented population groups in Canadian society will provide therapists with an understanding of how beliefs and customs affect diagnostic testing. Cultural topics to be discussed include attitudes towards suffering, etiology of disease, distrust or misunderstanding of Western medicine, and lack of cultural understanding from healthcare providers. Furthermore, the presenter will examine barriers of both nonverbal and verbal communication. Nonverbal communication barriers in conjunction with cultural understanding can lead to many issues while performing diagnostic testing. Barriers such as eye contact, voice, and body position will be reviewed and insight will be provided for improved cultural understanding. Verbal communication cues such as double negative questions, questioning techniques that possess two embedded questions, and Canadian cultural nuances will provide the foundation of possible barriers to effective diagnostic testing. While examples will mainly focus on pulmonary diagnostics, the presenter will provide extrapolated examples to other areas of the respiratory therapist's role.

**CONCLUSION:** The presenting clinician will create awareness on how Canada's multicultural makeup affects the respiratory therapist's clinical practice. The conclusion of this presentation will provide participants with concrete communication strategies and tools to ensure accurate diagnostic results, while maintaining cultural sensitivity.

**40****ASTHMA CARE APPS IN THE PATIENT'S POCKET****S Quach SRT HBSc****The Michener Institute of Education at UHN, Concord, ON****[14sq1@michener.ca](mailto:14sq1@michener.ca)**

**BACKGROUND:** The Public Health Agency of Canada (PHAC) reports that 2/3 of Canadians diagnosed with asthma do not have adequate control over their symptoms, which could compromise their daily activities and reduce their quality of life. Available therapies to control asthma require continuous motivation and positive reinforcement to ensure patient compliance. Currently, there are many accessible apps that are available and are designed to provide education and management suggestions to help individuals monitor their symptoms and to execute their care plan.

**OBJECTIVES:** Primary objective: To identify and summarize potential benefits and limitations of using mobile apps for asthma control through examining the available literature. Secondary objective: To suggest and advocate for topics to be incorporated into a standardized asthma care app.

**METHODS:** PubMed, Cochrane, and UT libraries databases were used to collect various studies that investigated the use of mobile, electronic apps, or portals to administer asthma education, care, and self-management.

**RESULTS:** Results from the literature review were conflicting; two studies that piloted asthma care apps found positive feedback from the patients and demonstrated improvement in asthma, and multiple small population studies revealed that using a form of electronic portal, app, or texting helped patients self-educate, manage, and adhere to their care plan. However, two systematic reviews that investigated the use of mobile apps to manage asthma found that there was no statistically significant difference in asthma control with the use of apps.

**DISCUSSION:** Asthma control requires patient compliance. The use of a mobile app to facilitate asthma management could take advantage of modern technology to provide convenient and reliable information in an engaging format. Numerous small studies of asthma care apps have demonstrated their potential for management and control of symptoms. However, accessibility is a major consideration in app design.

Literacy levels, age appropriate content, and language barriers are all issues that would need to be addressed to create a patient-friendly app. Asthma care apps should include up-to-date, patient friendly, well-accepted care guidelines, as well as features that emphasize the crucial messages of complying with care plans and highlight dangerous signs and symptoms. Video demonstrations and information on using medication delivery devices is also worth including to reinforce proper use and to provide instruction to those without access to qualified health care providers. The incorporation of online forums could also facilitate connections between patients and with asthma care educators who may be able to quickly address patient concerns and questions.

**CONCLUSION:** There is still the lack of studies identifying and investigating a well-accepted, medically approved asthma care app and its effect on patients. Information consistency is a clear issue, as some apps may not be up to-date or be in agreement with standardized asthma care guidelines. The creation of a standardized app could allow future research investigators to systematically investigate what aspects affect patients' quality of life and asthma condition the most and could facilitate trust and continued usage by patients with asthma and their health care providers.

## ANESTHESIA ASSISTANTS

41

### ANESTHETIC TRACE GAS ANALYSIS

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The standards regarding the measurement of anesthetic trace gases are based on the values that were set in the late 1970s. Since these standards were created, there have been changes in anesthetic delivery devices and anesthetic techniques. The ability to measure operating room pollution resulting from anesthetic agents can be challenging. Do the standards that were set back in the late 1970s correlate with what can be done with today's anesthetic gas machine technology and techniques? Should the acceptable levels of pollution be the same as they were from 30-40 years ago? Or should the levels be adjusted to reflect how anesthesia practice has changed and how the equipment has changed too? The beginning of the talk will be a brief history on the practice of measuring anesthetic trace gases at three hospitals within Interior Health Authority. Also, the reasons of how and why anesthesia trace gas testing started, and the methods used to collect samples will be looked at. Two different techniques, one using a passive dosimeter and the other using an infrared gas analyzer, will be discussed. Samples collected and data obtained are then tabulated and reported in parts per million. Do each of these systems compare to one another when used side by side? The results will be compared between the two types of setups/systems used to measure the anesthesia trace gases. Further discussions of how often to test for waste gas pollution, what areas should be tested, how long the tests should last for, what to do with results if the values are high, and how should the results be stored are all topics that can be expanded on.

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### PROCEDURAL SEDATION: THE WHY AND HOW

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La sédation-analgésie comporte plusieurs enjeux important, de l'évaluation à la surveillance post intervention. Comme équipe interdisciplinaire, il est important de viser un degré optimal de sécurité et celle-ci doit posséder les compétences professionnelles pour y arriver. L'évaluation doit être complète, la salle et le matériel doivent être vérifiés et le monitoring adapté en fonction de la condition clinique du patient doit être disponible. Les interventions et la surveillance effectuées devraient également être consignées de manière rigoureuse. Pensez-vous être prêt à intervenir?

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### SUGGAMADEX: A REVOLUTIONARY REVERSAL OF NEUROMUSCULAR BLOCKADE

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Suggamadex is a fairly new pharmaceutical answer to the difficult bag mask, difficult-to-intubate emergency patient situation. It is fairly unfamiliar to most as it is not used very often and is quite expensive relative to other options. In this talk we will learn more about Suggamadex as well as other pharmacological solutions that are available for the difficult BMV/intubate patient population. The mechanism of action, distribution of drug, metabolism, and elimination will be discussed. Indications and contraindications of the drug, as well as an in depth comparison with other drugs used for reversal such as neostigmine will also be detailed. Furthermore, the use of Suggamadex and the fear of creating an era of "lazy anesthesia" will be discussed. The presentation will conclude with other induction techniques for the difficult to bag mask ventilate and difficult to intubate patients (i.e., high dose remifentanyl instead of paralytic).

## PROGRAMME FRANCOPHONE

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### BOUGER À DOMICILE: REVE OU RÉALITÉ?

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Les maladies respiratoires, telles que la maladie pulmonaire obstructive chronique (MPOC), évoluent progressivement vers des complications systémiques pouvant nécessiter de l'oxygénothérapie. Ce déclin inévitable contribue également au déconditionnement, à la diminution des capacités fonctionnelles et de la qualité de vie des usagers, des conditions délétères pouvant être adressées par des programmes de réadaptation structurés et adaptés. Étant donné leurs contraintes de mobilité, les usagers du Service régional de soins respiratoires spécialisés à domicile (SRSRSD) ont un accès limité aux programmes ambulatoires de réadaptation. Le SRSRSD s'est donc donné pour mission de développer un programme d'activité physique sécuritaire et individualisé afin de préserver la capacité fonctionnelle, la tolérance à l'effort, la qualité de vie et le contrôle des symptômes de dyspnée chez des usagers oxygénodépendants.

L'objectif de ce projet pilote était donc de vérifier la faisabilité d'implanter un programme d'activité physique à domicile chez une clientèle oxygénodépendante et d'obtenir des données cliniques préliminaires.

**MÉTHODOLOGIE:** En 2014, 50 patients de 50 à 91 ans nécessitant une oxygénothérapie à domicile avec suivi par le SRSRSD pour une maladie pulmonaire ont été approchés pour participer à ce programme de 12 semaines. La capacité fonctionnelle (*Timed Up and Go (TUG)* et *Five Times Sit to Stand Test (FTSST)*), la qualité de vie (*COPD Assessment Test (CAT)*), l'impact fonctionnel de l'essoufflement (*MRC*) et le niveau de confiance et de motivation à participer à ce programme ont été évalués avant et après le programme de 12 semaines. Deux guides d'enseignement créés par un groupe interdisciplinaire lors de ce projet ont permis aux intervenants d'orienter les patients vers un programme d'activité physique de faible intensité durant 12 semaines, adapté à leur condition physique et respiratoire. Les exercices proposés sollicitaient autant l'aspect cardiovasculaire que musculaire, avec une gradation d'intensité faible à intermédiaire.

**RÉSULTATS:** Sur 50 patients admis consécutivement au SRSRSD, 9 patients ont refusé dès le départ, 13 patients sont décédés, 10 cessations de suivi par le SRSRSD et 4 autres exclusions ont été observés, laissant ainsi 15 patients pour initier et compléter le programme. Chez

ceux-ci, aucun évènement indésirable n'a été recensé durant l'ensemble du programme. D'un point de vue clinique, aucune détérioration n'a été observée après les 12 semaines du programme, ni pour la capacité fonctionnelle, ( $\Delta$  TUG et  $\Delta$  FTSST =  $0.37 \pm 3.68$  secondes ( $p = 0.721$ ) et  $0.47 \pm 3.52$  secondes ( $p = 0.638$ ) respectivement), ni pour les scores de qualité de vie ( $\Delta$  CAT =  $0.4 \pm 7.1$  points ( $p = 0.885$ ) et de dyspnée ( $\Delta$  MRC =  $0.05 \pm 0.72$  ( $p = 0.839$ )).

**CONCLUSION:** Les résultats obtenus lors du projet pilote supportent la faisabilité d'un tel programme et suggèrent que ce type de programme d'activité physique à domicile peut contribuer à maintenir la qualité de vie des usagers oxygénodépendants. D'autres études sont nécessaires pour confirmer les données concernant l'efficacité clinique d'un tel programme.

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## À CHACUN SON MASQUE

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Dans le marché actuel, il y a une quantité phénoménale de masques disponibles pour la ventilation non invasive. Malgré cette multitude d'opportunités, la problématique d'attribution et d'ajustement d'un masque afin d'optimiser la ventilation persiste. L'ajustement des masques demeure toujours un défi relativement au confort et à l'efficacité du traitement. Cette présentation permettra aux inhalothérapeutes de démystifier toutes les facettes de l'ajustement des masques, sans égard aux fabricants.