



CANADIAN SOCIETY OF RESPIRATORY THERAPISTS
SOCIÉTÉ CANADIENNE DES THÉRAPEUTES RESPIRATOIRES

Proceedings from the Canadian Society of Respiratory Therapists Annual Education Conference

May 9–11, 2019 • Niagara Falls, Ontario

We are pleased to present a select number of abstracts from the proceedings of the CSRT Annual Education Conference. Held in Niagara Falls, Ontario, May 9–11, 2019, this conference included topics delivered by international, national and regional individuals with expertise in various areas of respiratory therapy practice. As evidenced by the following abstracts, the work of our colleagues in 2019 highlighted current research and practice innovations led by RTs. 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).

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 Please note these abstracts have not been peer reviewed.

THURSDAY, MAY 9, 2019 – STUDENT STREAM

01 RESPIRATORY CARE IN THE RURAL SETTING

C Costello SRT

Conestoga College, Kitchener, ON

This presentation will detail the state of respiratory care in rural Canada, discussing access to services and practitioner availability. It will provide a comprehensive overview of rural health care in a broader context and focus on how those patterns extend to respiratory therapy. Chronic disease management and education across populations will be highlighted, as well as primary care experiences at the onset of cardiopulmonary symptoms. The presentation will construct a profile of the rural patient and disseminate how their medical needs differ from those of urban dwellers – exploring statistics, social histories, and health beliefs/ideologies. Reasons for access discrepancies will be explored, as well as current and potential solutions to make respiratory therapy more accessible in the rural setting.

02 A COMPARISON OF SURFACTANT ADMINISTRATION TECHNIQUES

K Neels SRT

Southern Alberta Institute of Technology, Calgary, AB

In preterm infants, the most common cause of respiratory failure is respiratory distress syndrome (RDS) caused by pulmonary

surfactant deficiency. As the gestational age of the neonate decreases, the risk of RDS development increases. According to Sardesai et al., “sixty percent of infants born at less than 28 weeks gestation will develop RDS, with an incidence of thirty percent in infants born between 28- and 34-weeks gestation, and in less than five percent of infants born after 34 weeks.” The connection between RDS and pulmonary surfactant deficiency was first recognized in the 1950s and the use of exogenous surfactant has since been accepted as the front-line treatment for this condition and therefore has been extensively researched. Many studies have been done since the 1950s to determine the optimal type of surfactant, timing of surfactant treatment, as well as surfactant administration technique. This presentation aims to briefly review the role of pulmonary surfactant in healthy lungs, to discuss the different components of the use of exogenous pulmonary surfactant in RDS pathology, to review the current techniques, especially the intubation, surfactant and extubation (INSURE) method with its modified techniques and their therapeutic outcomes, as well as explore potential future techniques, such as aerosolized approaches. The purpose of this presentation is to review current research on exogenous pulmonary surfactant administration, including the current techniques with a focus on outcomes as well as discuss future recommendations and their feasibility.

03 CENTRAL AIRWAY BRANCHING AND COPD

K Kok SRT

Fanshawe College, London, ON

The major risk factor for Chronic Obstructive Pulmonary Disease (COPD) has long been considered smoking. However, smoking does not



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guarantee the development of COPD, and many non-smokers also suffer from COPD. Reasons for this have been poorly understood for many years, however research lead by Benjamin Smith at McGill University has recently identified a previously unknown risk factor for COPD. Using the chest CT scans from more than 3000 participants in the Multi-Ethnic Study of Atherosclerosis, Benjamin and his team found that variations in central airway morphology, found in 26% of the general population, can lead to an increased risk of COPD. They identified two main patterns of branching variations, the first being an accessory subsuperior airway, which was identified in 16% of participants. This variation was found to have a 40% greater chance of developing COPD among smokers and nonsmokers alike. This morphology was also found to have segment lengths 3.7% shorter than average throughout the entire lung. All lobes also demonstrated larger airspace and central airway bifurcations. The second variation, absence of the right-medial basal airway, was identified in 6% of the population, and was found to have a 55% greater chance of developing COPD among non-smokers, and that risk increased to 78% among smokers. In this morphology, the lumen of the airways were found to be significantly narrower. The remaining 3% of the population had other rare branching morphologies. As CT scans taken over a period of 10 years did not show a change in airway anatomy, Smith and team concluded that these variations in morphology were determined in-utero. Through familial aggregation, they determined the accessory subsuperior airway would be present at a rate of 46% if one sibling was found to have this morphology, and the absence of a right-medial basal airway would occur at a frequency of 31%, suggesting a pattern of genetic inheritance. Smith and team believe their findings may one day influence treatment of respiratory diseases through the tailoring of therapy to one's airway morphology. While abstaining from smoking still remains the best way to prevent COPD, perhaps in the future this simple diagnostic tool will help patients better understand their likelihood of developing COPD. If a patient is aware they are among the 26% who are at a greater risk of developing this terrible disease, perhaps they will have more motivation to put down that cigarette.

04

INDIRECT CALORIMETRY IN THE ICU

N Kulaga SRT

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BACKGROUND: Providing optimal nutrition for critically ill patients reduces complications and decreases mortality. Determining accurate energy expenditure of a patient earlier, during their ICU stay can prevent the patient from being under and overfed and can ultimately aid recovery. The concept of indirect calorimetry (IC) involves measuring oxygen consumption and carbon dioxide production to determine the energy used by patients. Due to lack of education, resources, cost, and lack of personnel, IC is underused in the clinical setting.

OBJECTIVE: The aim of this paper is to examine the current use and potential uses of indirect calorimetry, specifically in critically ill mechanically ventilated adult patients. This paper will also evaluate the benefits and limits to alternative methods used to determine energy expenditure, such as ventilator derived parameters and predictive equations. Finally, the potential role of respiratory therapists in IC will be examined, and the significance of meeting nutritional requirements in critically ill patients will be discussed.

METHODS: A systematic literature review was conducted to evaluate the methods of determining energy expenditure of mechanically ventilated patients in the ICU. Only studies on mechanically ventilated patients were included. Dates of articles used range from 2011 to 2017. All articles are peer-reviewed. The articles used in this paper are composed of literature reviews, randomly controlled trials, and retrospective observational study. Due to a majority of these studies being performed clinically and not in a research setting, clinical changes in patient status could have affected the results.

RESULTS: Indirect calorimetry as gold standard due to patient-specific measurement and treatment. Most authors found ventilator derived values remained suitable alternatives to IC, when compared to predictive equations. Predictive equations were shown to underestimate calculated resting energy expenditure and result in underfed patients.

CONCLUSION: Modern technology has made indirect calorimeters more convenient and easier to use at the bedside. Increasing the use of IC by multidisciplinary teams, can lead to optimal nutrition for critically ill patients and can ultimately improve patient care.

05

A FASCINATING WAY TO SPEND THE SUMMER: A ROLE OF RESEARCH

N Moroz SRT, T Piraino RRT

**Vanier College, Montreal, QC; St. Michael's Hospital,
Toronto, ON**

Research is considered an important part of modern evidence-based medicine. As a result, respiratory therapists (RTs) are expected to critically read articles, analyze scientific data, understand different research techniques, and even to be a part of the multidisciplinary research team. Usually, the RT curriculum provides students with some theoretical research knowledge such as critical reading. However, there is no clear pathway for RT students to obtain required practical research skills. Moreover, there is a consensus that early exposure of students to research activities is essential for all future health care professionals. For example, participation in research can help students to develop analytical skills which are important for clinicians in everyday practice. The question then arises how can RT students get practical research experience in an already overloaded RT program. Based on our experience, we propose a summer elective research observer-ship as a possible way to expose student RTs to research activities. Firstly, we will discuss the role of respiratory therapy research for improving patient care. The importance of research conducted by an RT as a unique specialist with deep knowledge in cardiovascular physiology and mechanical ventilation will be also shown. Secondly, we will review the reasons why research experience is important for RT students. The benefits not only for future possible research involvement but also for everyday clinical practice will be covered. Finally, both student and preceptor experiences of conducting a summer elective observer-ship in a mechanical ventilation research lab will be presented. The student and preceptor will discuss organization, structure and outcomes for this type of educational activity.

06

MINDFULNESS AND ITS EFFECT ON INDIVIDUALS WITH COPD

S Zaretsky SRT

Fanshawe College, London, ON

Chronic Obstructive Pulmonary Disease (COPD) is projected to be the third leading cause of death globally by 2020. There is no cure for COPD, however, maintenance therapy has been shown to slow its progression and mitigate its symptoms. Symptom mitigation is, today, the only way for COPD patients to live comfortably with the disease. Mindful Meditation is a mechanism used to improve patient quality of life across many facets of healthcare, and this is particularly true for patients suffering from COPD. Research indicates that Mindfulness and other types of meditation may improve sleep patterns, decrease pain, control breathing, reduce anxiety and depression, and increase energy levels in patients with COPD. While the results of Mindfulness have been quite positive, further exploration of meditation-based techniques

for COPD should be conducted. This will help to better quantify the benefits, as well as help determine the best application of the techniques moving forward.

07

THE BENEFITS OF TAI CHI IN COPD PATIENTS

C Ley SRT

Fanshawe College, London, ON

This presentation focuses on the incorporation of Tai Chi as an adjunct to standard care in patients with Chronic Obstructive Pulmonary Disease (COPD). The presentation will explore how Tai Chi is an accessible, effective, and low-risk therapy to those living with COPD all around Canada. The inspiration to further understanding of this topic was brought about while the presenter was working for The Lung Association and speaking to Alpha-1 and COPD patients to learn about their first-hand experiences with Tai Chi and how it has helped them manage their disease.

08

PHYSIOLOGIC IMPACT OF BREATH PATTERN DISORDERS

D Patel SRT

Southern Alberta Institute of Technology, Calgary, AB

Breathing Pattern Disorder (BPD) is a spectrum used to describe a group of breathing disorders where chronic changes in breathing pattern result in dyspnea and other physiological symptoms resultant of respiratory alkalosis. Additional terms used to describe BPD are hyperventilation syndrome and dysfunctional breathing. Both terms are used interchangeably in literature since a gold standard classification system is not yet available. Due to altered CO₂ levels, a state of sympathetic dominance manifests with heightened fight or flight response. On the other hand, a chronic abnormal breathing pattern can itself be a symptom of another underlying respiratory pathology such as asthma or vocal cord dysfunction. In this case, the BPD is not considered dysfunctional breathing as there is a respiratory related root cause. Currently, there are no tests to clinically diagnose BPD. Hence, correlation between the variety of methods that are utilized to diagnose BPD are poor. The prevalence of BPD is hard to gather in the absence of gold standard test and mainly relies on exclusion of organic cause and a general method of assessment known as the Nijmegen Questionnaire. The following presentation will explore the general causes and effects of BPD, treatment options and their efficacies, and lastly examine its impact on motor skills, as well, learning process in children.

09

THE EFFECTS OF E-CIGARETTES AND THEIR PERFORMANCE AS SMOKING CESSATION TOOLS

H Stuart SRT, A Somani SRT

Thompson Rivers University, Kamloops, BC

BACKGROUND: E-cigarettes (ECs) are battery-operated devices that vaporize a liquid containing nicotine, either vegetable glycerin or propylene glycol, and flavourings for inhalation without burning tobacco. ECs are currently the most popular method for consuming nicotine amongst youth and have often been marketed as a smoking cessation aid. However, research suggests “vaping” has additional negative impacts on the respiratory system, as well many individuals who initiate EC use have never once before smoked a cigarette.

OBJECTIVE: To evaluate the impact of ECs on the respiratory system and assess their role and efficacy in the community as a smoking cessation device.

METHOD: A systematic literature search of PubMed and Cochrane Library conducted between July and October 2018 for randomized

control trials (RCTs) from the last 5 years that studied smoking cessation rates amongst ECs users were included, along with animal studies that evaluated ECs' effect on the lungs. Reference lists of selected studies were also reviewed for relevant information. Interviews of professionals in the field were conducted as well.

RESULTS: The chemicals inhaled from ECs caused an increase in oxidative stress and inflammation in mice when exposed to 18 mg/mL nicotine liquid for 1 hour/day for 4 months. EC users had a greater 6-month abstinence from cigarette smoking compared to those who used an NRT patch or a placebo EC.

DISCUSSION: ECs can cause users to develop an obstructive airway disease due to the nicotine content, however chemical exposure depends on several factors. Overall if used strategically, ECs can be an effective smoking cessation aid in users motivated to quit.

CONCLUSION: ECs may be an efficient smoking cessation aid, but the results vary with the individual. ECs can cause airway issues similar to those of traditional cigarettes, but more research is necessary in order to account for variables such as reliability of nicotine delivery as well as determine the long-term effects.

10

RESPIRATORY THERAPY IN SASKATOON: UPDATES AND OPPORTUNITIES

L Martin RRT, S Gillott RRT, J Dmytrowich RRT FCSRT

Saskatchewan Health Authority, Saskatoon, SK

Respiratory Therapy in Saskatoon is expanding and growing with current and upcoming employment opportunities within the Saskatchewan Health Authority. Saskatoon has three acute care hospitals a growing community presence and a brand-new children's hospital, the Jim Pattison Children's Hospital of Saskatchewan, opening in the fall of 2019. This session will highlight the respiratory therapy growth road map and discuss the innovations occurring within respiratory therapy in Saskatoon. This session will focus on the opportunities for employment and career growth for respiratory therapists in Saskatoon.

THURSDAY, MAY 9, 2019 – EDUCATION STREAM

11

IMPLEMENTING AN INTERPROFESSIONAL, COLLEGE STUDENT-LED PULMONARY REHABILITATION PROGRAM

C Bishop BSc RRT, T Fournier BEd RRT FCSRT CRE CTE, J Doucet BSc RRT; DA Nagel RN PhD

New Brunswick Community College; University of New Brunswick, Saint John, NB

Taking part in applied research at the college level is a brand new or foreign concept for many respiratory therapists. This session will look at our recent application to do applied research at our college. We will describe the process followed to apply for research funding from a national funding agency (NSERC and CIHR) as we required this grant funding to create a research project with the potential to become a permanent interprofessional community placement. We created this project to help solve the issues of the general lack of pulmonary rehabilitation available, a lack of community placements for our students, and to increase the student's awareness of the importance of self-management in chronic disease. As respiratory therapists, working full time as program instructors, it was challenging for us to create this opportunity for research and for knowledge sharing. We would like to share the challenges we experienced and use this opportunity for ideas and feedback with respect to this project.

**12
WHEEZY WILL AND HIS TWO DADS: BUILDING DIVERSITY INTO RESPIRATORY THERAPY EDUCATION****N Pendergast RRT BPEd CRE MPH FCSRT
Dalhousie University, Halifax, NS**

Will is 8 years old and is brought into the emergency department at the local hospital by his concerned parents. Despite providing Will with his rescue inhaler multiple times throughout the day, he continues to have chest tightness and cough. This scene occurs daily in Canada, as asthma is a leading cause of pediatric emergency department visits in Canada. This situation is certainly simulated in respiratory therapy education programs across the country, helping to prepare future respiratory therapists to care for children with an asthma exacerbation. This case is about caring for a child with asthma, and his family. A unique feature of Will's family is that he has two dads. The case is not about diversity and inclusion; but it is. This presentation will discuss diversity and inclusion in respiratory therapy education in Canada. Highlighting simulation cases used currently in the presenter's program, the presentation will discuss how building diversity into clinical cases can help provide a safer and more inclusive learning environment for all students, especially those from marginalized communities. Also, by representing diverse members of the community in clinical cases, students may be better prepared to care for patients and families from marginalized communities. Some of the marginalized communities included in clinical cases include Indigenous peoples, racial minorities, lower socioeconomic groups, LGBTQ2S+, and new Canadians. The professional practice of respiratory therapy in Canada is guided by the National Competency Framework (2016). In this framework, it clearly states that Respiratory Therapists must "carry out their professional tasks with respect for the rights and dignity of all individuals and without any form of discrimination." Also, a Core Competency of all Respiratory Therapists in Canada should include "demonstrating empathy and respect towards patients and families" and "establishing partnerships with patients and families." However, how often do respiratory therapy education programs include diverse and marginalized communities in their programming? An environmental scan will be conducted of respiratory therapy programs across Canada to share information on the extent of diversity and inclusion of marginalized communities in current programming. There will be time allotted at the end of the presentation for sharing of ideas and strategies to enhance diversity and inclusion in respiratory therapy education.

**13
BRINGING THE CLASSROOM TO THE COMMUNITY****T Scott BSc RRT RCPT(p) MEd; J Gallant BSc BHSc RRT
Dalhousie University; IWK Health Centre, Halifax, NS**

As educators, we continually explore various teaching modalities to encourage students to become active participants in their learning. "Bringing the Classroom to the Community" is a project that is assigned to a respiratory course which is evaluated. This form of experiential learning empowers the student to participate in lung health education in the community. The educational goals of this project are twofold for the schools, as it promotes the necessity to students to be advocates for health promotion and it aligns with the requirements of the National Competency Framework core competencies. With modern information technology, a wealth of knowledge relating to health concerns is readily available to the public. However, there remains a need, or a preference, for personal interaction when seeking information about lung health issues especially with the most vulnerable population being the youth. Smoking education is prevalent in the community but with the increase of vaping and now with the legalization of cannabis, there is a greater need for health care providers to educate and empower the youth in taking control over their health. The qualitative data collected over

15 years from this project articulated the demand for the RRT students presenting to the community and the benefit to the RRT students in reinforcing how important community education is. Bringing the classroom to the community not only promotes collaboration and teamwork among students; it also provides an opportunity for students to provide resources to the community.

**14
RETURNING STUDENTS: CREATING A RECIPE FOR SUCCESS****M Patey RRT
Southern Alberta Institute of Technology, Calgary, AB**

Respiratory Therapy programs often receive far more applications than seats available. Due to the nature of this, there is a significant demand for any spots that may become available within the duration of the program. The majority of Respiratory Therapy programs across the country are a minimum of 3 years in length. As this is a significant period, situations arise that may require students to withdraw from their program. Some of these reasons are academic in nature while others may be due to medical issues, maternity leave, mental health issues or financial and accessibility reasons. When students fail to complete a program, given the opportunity, they may want to return later to complete their studies. Deciding whom the best candidates to occupy these valuable seats becomes a challenge. Many institutes across the country struggle with how to manage students who endeavor to return to their programs after they have been withdrawn. Where do these students fit? How do the institutes assess the maintenance of knowledge and skills for them to be successful moving forward? Has the student overcome the issues that had them withdraw in the first place? Are they the best candidate to occupy a sought-after seat? The Respiratory Therapy program at SAIT has developed a "Returning Student Policy" which lays out the expectations and requirements for students who have a desire to continue, and complete, their RT program experience. SAIT feels this clearly policy identifies challenges that students may have, as well as recognize the steps that students have taken to overcome whatever personal adversity caused them to withdraw in the first place. This presentation will share information with educators as to what has worked well for the SAIT Respiratory Therapy program in regard to returning students.

**15
FOSTERING CITIZENSHIP IN OUR STUDENTS****K Spurr BSc RRT MHI CCRP FCSRT
Dalhousie University Halifax, NS**

INTRODUCTION: The Lung Association and its provincial organizations across Canada lead and promote lung health, as well as the prevention and management of lung disease. Included are a number of lung health programs and initiatives that provide opportunities for leadership and citizenship for respiratory therapists and students. One such initiative is the Sleep Apnea Refurbishment Program which was developed at the Lung Association of Nova Scotia (LANS). Obstructive sleep apnea (OSA) is a chronic condition characterized by the periodic reduction or cessation of breathing during sleep causing recurrent arousal from sleep and hypoxemia. The health, social and economic consequences of unmanaged OSA are substantial. The gold-standard therapy for the management of OSA in adults is continuous positive airway pressure (CPAP). Those with OSA who have underlying lung disease or are unable to tolerate CPAP, are treated with bi-level positive airway pressure (BiPAP) therapy. Unfortunately, these devices are costly and can be unaffordable for those with low income or without private health insurance. The LANS manages a refurbishment program of pre-used CPAP and BiPAP machines donated to them or through the Lions Club. An opportunity existed for undergraduate respiratory therapy students to participate in the refurbishment process.

PURPOSE: To examine the importance of social responsibility to respiratory therapy education and practice by describing opportunities for student engagement in community organization initiatives related to respiratory health, and the impacts of a community collaboration on students, patients with a respiratory disorder and non-profit organizations.

APPROACH: Members of the non-profit organizations who participated in the gathering and distribution of pre-used CPAP or BiPAP machines, respiratory therapy students who contributed to machine refurbishment, and recipients of CPAP or BiPAP will be invited to complete a survey about the impact of this community collaboration on their lives. Data collected through survey and interview will be analyzed and shared.

OUTCOMES: Achievements, challenges and impacts will be measured using qualitative and quantitative approaches.

CONCLUSION: Community collaborations have the potential to positively impact the lives of people with chronic disease, the experiential learning of students, and the satisfaction of persons who serve non-profit community organizations.

THURSDAY, MAY 9, 2019 – LEADERSHIP STREAM

16 TEAM BASED QUALITY IMPROVEMENT: RELEASING TIME TO CARE

G Gill BA RRT MHA, J Anderson BSN RN

Vancouver General Hospital, Vancouver, BC

It has been well established that quality improvement initiatives in healthcare provide patients with safer and more efficient care. Releasing Time to Care (RT2C) is a quality improvement program that has been adopted by Vancouver Coastal Health upon learning of the success of the program in England where it was initially developed in 2007 by the National Health Service. The core areas of the program are: safety and reliability of care, patient experience and outcomes, value and efficiency, and team performance and staff well-being. The RT2C program supports multi-disciplinary front-line staff to lead change at the point of care by offering tools to develop valuable skills in quality improvement. It empowers staff to ask challenging questions about healthcare practice, collect and analyze data to inform decision making, and streamline the way they work. This presentation will showcase completed TBQI projects that have successfully implemented change within healthcare practice in order to provide more efficient patient care and enhancing staff well-being simultaneously. Gurprit and Jennifer will share the success of their team, a collaboration between a critical care RN and RRT, in establishing quality improvement measures within the intensive care unit at VGH successfully. They hope to demonstrate the importance of Respiratory Therapy representation in quality improvement movements and multidisciplinary collaboration in leadership initiatives.

17 AN EPIC TALE

K Hassall RRT MEd BSc FCSRT

St. Joseph's Healthcare, Hamilton ON

In today's technological world, many hospitals are striving towards a fully integrated electronic patient chart. This presentation shares the journey of a Respiratory Therapy department through the transition from a mostly paper-based charting system to an almost fully electronic patient chart. The presentation will discuss the various challenges that the Respiratory Therapy department faced during the design, implementation and post-implementation management of the electronic medical

record as well as the many benefits to having an electronic charting system in place. The presentation will end with the sharing of lessons learned and suggestions for consideration to any Respiratory Therapy department or leadership team that is about to embark on the design and implementation of an electronic medical record.

18 STUDENTS ADVANCING PRACTICE

H Tighe BA RRT

St. Paul's Hospital, Saskatoon, SK

Education is an integral part of the healthcare system and the respiratory therapy profession. Student respiratory therapists are a fixture within our hospitals and come to us to learn as much as they can from this rich clinical environment. While students gain valuable knowledge and experience during their clinical time, there is also an opportunity for them to educate us. By implementing learning outcomes and assignments meant to challenge students to look into best practice on topics integral to RT practice, students can actually foster policy change and challenge staff and departmental administrators to take a second look at the way we practice. This can even lead to tangible change in achieving up-to-date evidence-based practice. One assignment fostering this goal occurs during the first half of the 3rd year student's clinical year. The students are tasked with a team project aimed at researching a new advancement or a debated topic within current practice. They must find best evidence and compare this research to what is actually done within the clinical site. We then ask them to consider why or why not practice matches evidence found in their research and we also ask them to come up with ways to ensure that best practice is followed or implemented. In previous years this project has provided a challenging learning experience for the students as well as a valuable learning opportunity for the RT staff and administration. The students present to their classmates, the CSC and their presentations are also open to staff and the leadership team. Through this assignment we are encouraging the next generation of respiratory therapists to be inquisitive and progressive in the ways they develop their practice. It also ensures that students and staff don't become complacent in practice and continue to advance the profession together.

19 RTS CAN MAKE A DIFFERENCE IN SHORT TERM PROCEDURES

L MacIsaac RRT

BC Children's and Women's Hospital, Vancouver, BC

The concept of a pain-free procedure for children has been part of the Children's Emergency departments for over 10 years and there is significant supporting this practice. There is evidence of this practice in the dental literature where they use 70/30 % mixture in children in short term procedures. One of the areas that the Respiratory Therapist are working with are the Spinal Muscular Atrophy (SMA) children and the current administering of Spinraza. The SMA children have a mutation in the SMN1 gene, this leads to a reduction of SMN protein. This protein will result in a loss of function of neuronal call and a progressive muscle wasting and mobility impairment. The Spinraza is an intrathecal injection which allows the Spinraza to reach the central nervous system. When we started the injection these children would have the procedure in the PICU. A hospital wide team worked to move these patient to the Medical Day unit. Many of these children are respiratory Compromised and on Noninvasive ventilator support. In working with BCCH and the Ministry of health how did we use the skills set of the Respiratory Therapist to provide safe pain free procedure. How did we incorporate the RT's into the planning of patient procedure, post recovery and assessment on needs for respiratory support at home.

20

MONTHLY EDUCATION BLITZES – HELP FOR CON ED IN A CENTRALIZED DEPARTMENT

K White RRT MScCH(c)

St. Michael's Hospital, Toronto, ON

BACKGROUND: Our healthcare environment is ever changing. In a centralized department, it can be challenging to keep up with changes to policies, procedures, guidelines, equipment, and workflow processes in all of the clinical programs and areas. In attempts to mitigate some of these challenges, a monthly education “blitz” program was developed, where education sessions of mixed teaching approaches are held on a weekly basis to support a monthly theme.

OBJECTIVES: The goal of monthly education blitzes is to provide staff with the opportunity to review current policies, procedures, guidelines related to the clinical programs that relate to the theme of the month. In consideration of adult learning theory, these sessions would individually consider the most appropriate teaching strategy to meet the objectives (i.e. hands-on, low technology simulation, didactic, interactive discussions, etc.). The monthly themes would continue annually, including updates to content.

METHODS: Broad topics were selected based on staff input. Focus group discussions and informal staff surveys generated a broad list of topics of interest and relevance to the staff. Further discussions with the leadership team resulted in narrowing and grouping the topics into nine monthly themes. These nine themes were then sub-divided into weekly categorized topics related back to the theme of the month. Experts from within the organization and consultation with experts in the field occurred to allow for variety to the facilitation. Recognizing that not all staff would be attending these sessions, they would be either 1) video recorded (with consent), or 2) presentations would be emailed out to the group. Either the video or the presentation would subsequently be uploaded to the staff desktop. Program evaluation to be completed utilizing the CIPP [1] evaluation framework.

RESULTS: Initial qualitative feedback gathered informally through small group discussions is seemingly positive. Engagement with facilitators has only proven to be challenging at times of busy clinical surge, otherwise also positive. Formal results from the program evaluation are pending at this time.

DISCUSSION/CONCLUSION: At this point, the general thought is that the monthly blitz strategy is a positive approach to delivering continuing education for a centralized department. Depending on the results of the formal evaluation, there may be further opportunity to look at this approach on a broader scale, to include program managed departments as well. There may also be inherent learning occurring within the facilitator group which will be determined with the utilization of the selected evaluation framework [1].

REFERENCE

1. Stufflebeam, D., L. (2004). The CIPP model for evaluation. International handbook of educational evaluation (pp. 31-62) Kluwer Academic Publishers. doi:10.1007/978-94-010-0309-4_4

21

FOSTERING RESILIENCE AS LEADERS

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Respiratory Therapists face numerous stressors in their care-giving role that challenge the psychological capacity of “resilience.” To mitigate the negative impact of low resilience, developing and fostering resilience is emerging as a key to improving positive outcomes for individuals and the workplace environment. It is crucial that leaders be able to identify variables impacting resilience and be informed of evidence-based practices that may be utilized to foster resilience in the workplace. This session will provide leaders with insight into the key emotional intelligence

competencies that contribute to resilience, discuss psychosocial and environmental variables that challenge resilience, and review current practices that have been demonstrated to promote resilience.

THURSDAY, MAY 9, 2019 – RESEARCH AND INNOVATION STREAM

22

BREATHING BETTER AT HOME: A NEW APPROACH TO TECHNOLOGY ENABLED CHRONIC DISEASE MANAGEMENT

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INTRODUCTION: It is estimated that Chronic Obstructive Pulmonary Disease (COPD) affects 2.6 million Canadians and is costing the healthcare system 1.5 billion annually. Funded by the Office of the Chief Health Innovation Strategist through a Health Technologies Fund, the Breathing Better at Home (BBH) initiative aims to relieve this economic and social burden. The BBH initiative is a single-center randomized controlled trial evaluating three different strategies (Standard Care [SC], Self-Monitoring [SM], Remote Monitoring [RM]) for the management of COPD. This initiative provides valuable insight into the feasibility of a technology enabled self-monitoring program. Evaluation of these management strategies in relation to Hospital Admissions (HA), Emergency Department (ED) visits, Length of Stay (LOS), and workload will provide a useful framework for the development of future chronic disease self-management programs.

METHODS: Enrollment of 122 patients, to be followed for 6 months, was completed in September 2018 with patients divided into three study arms. The SC arm is routinely followed by a respirologist in the COPD clinic. Patients in the SM and RM arms are given technology to monitor their vital signs and COPD symptoms as well as a comprehensive action plan that directs care. The RM arm is supervised by a Respiratory Therapist (RT) who contacts patients weekly. The SM arm is not monitored and there is no clinician-initiated contact. In the event of any clinical issues, patients in the RM and SM arms are encouraged to contact the RT during regular business hours and after hours their family doctor or ED. Validated tools including the St. George's Respiratory Questionnaire, the Bristol COPD Knowledge Questionnaire, Partners in Health Index, as well as self-reported ED visits, HA, and LOS are assessed at baseline, 3 and 6 months.

CONCLUSION: Independently, self-management and remote-monitoring solutions have been associated with lower ED rates and reduced HA. These solutions may not be sustainable or have limited potential for spread and scale. The BBH initiative will be completed March 2019 with preliminary data expected to be available in early 2019. It is anticipated that this data will support the hypothesis that a technology enabled self-monitoring program is both feasible and safe. This talk will describe the research methodology, current findings and future initiatives being considered at MSH for technology enabled self-management.

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RTS AND VASCULAR ACCESS: EXPANDING RESPIRATORY THERAPY PRACTICE INTO QUALITY IMPROVEMENT

T Tram RRT CHT

University Health Network, Toronto, ON

The successful establishment of intravenous access (IV) can be difficult, especially during medical emergencies. During these times, securing IV

access quickly and safely is vital for the rapid delivery of fluids and medications; and can ultimately be lifesaving. Intraosseous (IO) needle insertion is a reliable alternative when IVs are unattainable. Presently, the use of IOs as a bridge to vascular access during medical emergencies is best practice, in the current Advanced Cardiac Life Support algorithm, and should be the first method of choice when vascular access cannot be established by traditional means. Current literature suggests that there are universal barriers to IO use in a clinical setting, despite having obvious benefits. As IO insertions are an Advanced Practice for RTs, and with RTs being present at every medical emergency; the RT group presents as an excellent opportunity to integrate IOs into resuscitative practice. The consistency of their presence will provide added support to the advocacy of the skill when needed, support to clinicians, and expand RT skills to IO insertions. The purpose of this quality improvement (QI) project was to train 10 RTs that work clinically at the Princess Margaret Hospital site at UHN to be proficient in IO insertions, and to create an approved education package by the College of Respiratory Therapists of Ontario. A needs assessment was performed with the distribution of a clinician survey to assess current barriers to IOs in surrounding peer hospitals/units. A "train the trainer" session was completed, RTs trained, and interest for expanded education to nurses garnered. This further emphasizes the positive outcomes that expanding RT practice can have on skill, scope of practice and interprofessional relationships. An informal interview with RTs post training was used as a process measure to evaluate the training itself. A review of this project will highlight key concepts in QI such as identifying gaps, developing an idea, implementing change, and how to measure success. Discussion will provide insight on the impact of bridging the RT role from a clinical setting into the QI stream on RT practice, profession and improved patient care; and share experiences on getting started and lessons learned. As healthcare is ever evolving, the tandem progression of RT practice and proficiency in all realms of patient care (clinical and non-clinical) is crucial to maintaining excellence in both patient care and advocacy.

24 ESOPHAGEAL PRESSURE GUIDED PEEP OPTIMIZATION SIGNIFICANTLY IMPROVES OXYGENATION AND INTRA-PULMONARY SHUNT IN PREGNANT AND OBESE PATIENTS, WITHOUT INCREASING DRIVING PRESSURE

E Rohrs RRT BSc PhD(c)

Royal Columbian Hospital, New Westminster, BC

PURPOSE: Obese and pregnant patients admitted to the ICU are challenging to ventilate because of increased chest wall and abdominal pressures. This decreases lung compliance and exacerbates atelectasis, contributing to lung injury. While optimizing PEEP is one of the cornerstones of lung protective ventilation, the higher pressures needed in these patient populations creates a challenge for ventilation management. Esophageal pressure is demonstrated to be a good measure of pleural pressure and can be used to determine the amount of pressure directly transmitted to the alveoli.

METHODS: This is a retrospective case series of 18 obese and pregnant ICU patients. PEEP, driving pressure, P (A-a) O₂ gradient and PaO₂/FiO₂ ratios on admission to the ICU were compared to those values after PEEP optimization using esophageal pressure manometry.

RESULTS: PEEP is significantly higher after esophageal pressure optimization ($p = 0.000$) with no resultant increase in driving pressures ($p = 0.38$), despite an increased plateau pressure. The PaO₂/FiO₂ ratio is significantly improved ($p = 0.031$). FiO₂ is significantly reduced ($p = 0.000$) and there is a significant improvement in P(A-a) O₂ gradient ($p = 0.016$).

CONCLUSION: Esophageal pressure guided PEEP optimization results in higher PEEP and plateau pressures, significantly improving oxygenation and intra-pulmonary shunt in obese and pregnant ICU patients without increasing driving pressure.

25 WHAT IS THE VALUE OF AN RT? A COLLABORATIVE RESEARCH INITIATIVE

T Telenko RRT BTech, R Sorensen RRT FCSRT CAE MSc

Alberta Health Services, Edmonton, AB

There is an emerging need for knowledge that can inform practice in the profession of respiratory therapy. Not only will this knowledge serve to inform practice it will also satisfy the political imperative to have access related data to meet the needs of healthcare administrators, governments, and funding bodies. Our profession, our patients, and ultimately our administrative and funding bodies are rightfully demanding more. The Respiratory Therapy Practice-Based Outcomes Initiative (RT-PBOI) was implemented to explore, measure, evaluate, articulate and foster the value that respiratory therapists contribute to the provision of evidence-informed respiratory care. Partnering RT-PBOI organizations (Alberta Health Services, College of Respiratory Therapists of Alberta, Canadian Society of Respiratory Therapists) are collaboratively seeking to examine the value that respiratory therapists contribute to health care teams and patient outcomes in the provision of respiratory care. RT-PBOI is committed to addressing the challenge of translating this knowledge into action at the patient outcomes level as well as at the administrative level. This project seeks to create a process that is active and responsive to the changing needs of patients and the landscape of health care in Alberta.

26 COMMUNITY AND ACUTE CARE SETTINGS: EXAMINING ATTITUDES OF RTs AND RT STUDENTS IN BC

C Field RRT MA BSc

Thompson Rivers University, Kamloops, BC

BACKGROUND: As a requirement for a Masters in Leadership studies, an action research project was conducted in partnership with Thompson Rivers University (TRU). This partnership resulted in a desire to focus on RT students and community settings.

OBJECTIVES: This research sought to examine how the TRU RT program could improve the readiness of its graduates to work in Community Settings. This required the examination of current attitudes amongst student and practicing RTs in regard to community roles and settings, particularly when compared to acute care settings.

METHODS: A sequenced, multi-method approach of surveys followed by focus groups was conducted. Surveys were distributed to three separate groups: current clinical TRU RT students, current pre-clinical RT students, and all current registered RTs in BC. Following survey collection two focus groups were conducted. Participants from five distinct groups were invited: current TRU RT program staff, current Clinical Site Coordinators, experienced RTs currently working in community settings, recent graduates from the TRU RT program currently working in community settings, and current employers of RTs in community settings.

RESULTS: One hundred ninety-seven currently registered RTs and 12 current clinical TRU RT students participated in the survey. A total of 10 participants took part in two focus groups. Amongst those surveyed there was general agreement on community setting roles and challenges when compared to acute care. Interests and disinterests in Community and Acute Care Settings were varied and often contrasting, and RTs became interested in Community Settings for many reasons.

DISCUSSION: While there existed a wide and often contrasting variety of attitudes towards community settings, the majority of respondents saw Community Settings as interesting and challenging. This was made more significant by the fact that the majority of respondents self reported as working in acute care settings. Additionally, amongst Community Setting stakeholders there was a strong desire for change when it came to improving the readiness of future graduates to work in Community Settings

CONCLUSIONS: Results suggest that a majority of RTs in BC see Community Settings as an interesting and challenging setting to work. To support anticipated increases in opportunities and complexities within Community Settings, changes to how graduates are prepared are needed.

27 THE PEDIATRIC AIRWAY SIMULATION SCORING RUBRIC (PASSR): A TOOL TO ASSESS PEDIATRIC AIRWAY MANAGEMENT SKILLS

R Correia RRT BSc MHS, K Reise RRT BSc, CM Walsh MD MEd PhD FRCPC

Hospital for Sick Children, Toronto, ON

AIM: This talk will present the methods and study design for a follow-up validation study to “Pediatric respiratory therapy (RT) education: a comparison of clinical versus simulation-based training,” which aims to examine evidence of validity and feasibility of the Pediatric Airway Simulation Scoring Rubric (PASSR) for use as a tool to assess the effectiveness of individuals performing a pediatric airway simulation. Additionally, we will discuss the practical applications and potential limitations of the original study results that examined student respiratory therapists’ (SRTs) pediatric rotation. Lastly, we will reflect on our experiences as RTs involved in the research process.

METHODS: The PASSR validation study is a prospective observational multi-centre study. Participants include practicing registered RTs from SickKids and student RTs from Michener Institute of Applied Health Sciences, Canadore College, and St. Clair College. Level of participant expertise is defined by RT practice experience: novice (SRTs with knowledge though no pediatric clinical experience), intermediate (SRTs who have completed pediatric RT training) and experienced (practicing pediatric RTs). Participants complete a demographic questionnaire and a high-fidelity pediatric airway simulation scenario involving airway management of a child with a fever who seizes. Participants are expected to demonstrate bag-valve-mask ventilation, communicate with a confederate physician the need for intubation, prepare intubation equipment, and assist the physician with intubation while identifying and correcting common procedural errors. Simulations are video-taped and rated by two blinded experts and two live experts during the scenario using the PASSR. Evidence of validity and feasibility of the PASSR will then be evaluated.

DATA COLLECTION: To date, we have enrolled 64 participants with a target sample of 85. Data collection for 55 intermediate participants is complete; we are aiming to finish data collection for the remaining 21 participants (9 novice and 12 expert) by June 2019.

IMPLICATIONS: Establishing evidence of validity, and feasibility of the PASSR will support use of the tool for the assessment of both student and staff performance with respect to airway management in a simulated setting.

WORKSHOPS: THURSDAY, MAY 9, 2018

28 HOME VENTILATION WORKSHOP

E Khor RRT, V Adam RRT

BC Provincial Respiratory Outreach Program; National Program for Home Ventilatory Assistance, Vancouver, BC

Home ventilation devices for non-invasive ventilation are being used increasingly for many years across Canada. They are used for treating different types of respiratory problems. This presentation will cover the use of Bi-level devices for treating chronic hypoventilation, and how it can affect adult and pediatric patients. It’s important to understand

the different pathologies touching these patients as it is important to know how these Bi-level devices work and the data they are providing. Bi-level devices provide us with ventilatory data using different software platforms. The question is, what can we do with this data and is it advantageous to use them in the follow-up of the patient at home? This workshop will provide an introduction to the different types of pathologies requiring home ventilation from a long-term perspective and a download interpretation workshop with the two manufacturers providing Home Bi-level devices in Canada. At the end of the workshop, the participant will be able to recognize who are the patients at risk of chronic hypoventilation and what are the first steps to take in regard to the data provided by the Bi-level devices.

29 YOU ARE NOT THE BOSS OF ME! HOW THE USE OF COGNITIVE BEHAVIOUR THERAPY CAN FACILITATE BEHAVIOUR CHANGE

A White Markham RRT CRE CTE

Canadian Network for Respiratory Care, Toronto, ON

Respiratory therapists, whatever their role, work with people, and frequently these people need to make a change in their life, e.g. quitting smoking, taking medications, using oxygen, studying for an exam, passing a practical assessment. Cognitive behaviour therapy takes a practical approach to solving problems that prevent behavioural change, including unhelpful thoughts, unconscious or conscious beliefs, CBT helps people examine what is happening in their lives, their interpretation of what’s happening, and their response. By breaking down these factors, using problem-solving and other concrete techniques, CBT provides skills that allow people to make good choices and sustain healthy behaviours.

This workshop will use experiential learning (observation, activity, reflection) to explore the use of cognitive behavioural therapy (CBT) in respiratory therapy education. The workshop will begin with a short didactic session covering information about CBT (what it is, its pros and cons). Case scenarios and large group discussion will be used to allow participants to examine the links between how thinking and feelings drive behaviour, and how behaviour drives thinking and feeling in both our clients’ and their own lives. Small groups will work through various cases and examine various strategies that can be and are currently being used in respiratory therapy to facilitate change in thinking and behaviour through cases. Opportunity for observation and practice will be provided through simulation. The workshop will end with time for participants to reflect on how this approach applies to their practice.

30 COMMUNICATION ACROSS THE INTENSIVE CARE UNIT – AN INTERDISCIPLINARY APPROACH

**G Gumprich BSc MHSc S-LP, T Vigliotti RRT BHS
St. Paul’s Hospital, Saskatoon, SK**

Communication disability is prevalent among patients in the intensive care unit (ICU), due in part to the nature of intubation for mechanical ventilation and the ICU environment; frequent sensory, motor, language, and/or cognitive comorbidities in critically ill patients; and the limited systemic supports currently in place to facilitate effective patient-provider communication. Communication disability is associated with negative psychological and behavioural impacts and with reduced quality of care for patients. Difficulty communicating due to mechanical ventilation is reported by patients as the most distressing and most remembered symptom experienced while in ICU, and is consistently associated with increased levels of frustration, anxiety and sleeplessness in this population. Nonspeaking mechanically ventilated patients are typically limited to communication using nonverbal responses to yes/no questions, mouthing words, and gestures. Other strategies are seldom employed and when they are implemented, exchanges are brief in length, mostly nurse-directed, and rarely result in

the patient's complete message being understood. To improve the frequency and quality of communication interactions between healthcare professionals and mechanically ventilated patients, St. Paul's Hospital implemented an Augmentative and Alternative Communication (AAC) intervention program. The pilot program is driven by an interdisciplinary team of nurses, respiratory therapists, and speech language pathologists. The strategies implemented by this team include: communication training for ICU staff, creation and placement of a Communication Access Cart in the ICU, and bedside SLP consultation. This presentation will provide an overview of developing an AAC intervention program. It will explore the strategies and tools used to facilitate communication between patients receiving mechanical ventilation and care providers and will share the successes and challenges of this important work.

31 MENTAL WELLNESS: CARE FOR THE CAREGIVER

B McAllister RN
Conestoga College, Kitchener, ON

The goal of this workshop is to connect with health professionals about why mental health and wellness is important to them and to those they interact with. By building awareness and skills, health professionals can identify that mental health is not something that should solely be focused on when one has a problem, but that mental wellness is something that should be fostered and built upon like physical health. By making mental health an approachable topic – through definition, discussion and exploration – the health professions can improve communication and trust within their professional teams and equip them with skills to address their own, their colleagues and their patient's mental health and wellness. The Council of Ontario Universities published a study related mental health and addiction strategies in 2017 citing that mental health challenges are one of the most pressing issues in post-secondary education. By looking at the responses and needs of the post-secondary learners, it is possible to extrapolate that the newest members of our professional teams, established practitioners, and our patient populations will be experiencing similar challenges with mental health and wellness. By identifying personal barriers to achieving effective ways to address these challenges in our lives, we can better understand mental health and wellness.

FRIDAY, MAY 10, 2019 – ANESTHESIA ASSISTANCE STREAM

32 PACEMAKERS IN THE OPERATING ROOM

J Patton RRT CCAA
Thompson Rivers University, Kamloops, BC

Have you ever asked yourself why is there so many concerns with a patient with a pacemaker? How long do pacemakers last for? How does a pacemaker function and what do all the letters mean when referring about a pacemaker? Why is the patient's heart rate low if they have a pacemaker in? Why do anesthesia assistants need to know about patients with pacemakers and what is the difference between an internal cardiac device and an implantable cardiac defibrillator? Hemodynamic stability is something that an anesthesia assistant is tested to help maintain on a daily basis. Knowledge of the normal cardiac cycle and rhythm interpretation is part of the daily monitoring that we do on each of the patients that we see every day. When patients enter the operating room and they have a pacemaker or a defibrillator implanted, what are some of the basic pacemaker/defibrillator tips that can help you in caring for these types of patients. Are there any concerns that the team should be aware of when dealing with a patient that has an

implantable device in their chest? It is seen more often now, that more patients of all age groups are coming to the operating room with some sort of "cardiac" device inside their chest. What implications does cautery have with pacemakers? What about when someone has an implantable defibrillator and cautery is needed. Is there something that needs to be done to the device? Can you shut a pacemaker or a defibrillator off easy? Cardiology or cardiology techs are not staffed at all sites or work the night hours when fewer people are around, so having some basic pacing knowledge could help you in the future with patient care. A patient needs to go for an MRI and they have a pacemaker/defibrillator in. Are pacemakers/defibrillators safe in this setting? As a profession that assists with remote procedures, having the knowledge of what these devices do is essential is patient care and safety. There are many topics regarding pacemakers and anesthesia that will be discussed in this talk. Some case examples will be presented and reviewed to highlight some important points that have been discussed.

33 MEDICAL ASSISTANCE IN DYING (MAID) AND ORGAN DONATION IN ONTARIO - A COMMUNITY HOSPITAL'S EXPERIENCE AND THE ROLE OF THE RRT AA

R Bryan RRT CCAA AEMCA- PCP AIV
Mackenzie Health, Richmond Hill, ON

On June 17, 2016, the Federal Parliament of Canada passed Bill C-14, establishing the legislation to regulate the practice of MAID Medical Assistance in Dying. There is a very well-defined legal frame work on how MAID is administered, who can provide the service, informed consent, eligibility criteria, waiting period and choosing to withdraw from MAID, monitoring and reporting on medical assistance in dying and independent reviews, and conscientious objection. Ontario has legislation that mandates MDs to inform the Trillium Gift of Life Network if they know about any death that could result in organ or tissue retrieval so the TGLN can ask the patient and family about organ donation. This includes MAID patients. As such we are starting to see organs being donated from MAID patients and their care from end of life to organ retrieval is being carried out in the perioperative setting. Anaesthesia Assistants working the in the perioperative setting may be asked to participate in this process by providing technical assistance to the MAID and TGLN teams for vascular access and/or arterial line insertion for blood pressure monitoring and blood sampling during the MAID process. For patients that are lung donor candidates the anesthesia care team may be ask to support the MAID and TGLN Teams with lung care post pronouncement of death which includes ETT intubation and alveolar maintenance and lung recruitment via mechanical ventilation therapy until the lung(s) are surgically retrieved. This talk will discuss the role of AAs during the perioperative care of MAID patients that have chosen to donate their organs post death and review the interoperative protocol for lung retrieval.

34 CANNABIS USE IN THE PERIOPERATIVE PERIOD - ANESTHESIA CONSIDERATIONS

R Bryan RRT CCAA AEMCA-PCP AIV
Mackenzie Health, Richmond Hill, ON

With the advent of the regulation and legalization of the sale of Cannabis for recreational use in Canada it is anticipated that there will be a dramatic increase in the consumption and use of Marijuana in a variety of forms in the general population. This has created growing concerns that more patients may present to OR under its influence either acutely intoxicated and or chronic use and little is understood about perioperative anesthesia considerations and risks. Anesthesia Assistants are front

line anesthesia care providers and will experience caring for patients that are acutely intoxicated or chronic users of marijuana. AAs should endeavor to understand the potential perils and pitfalls of the use of Cannabis in the perioperative setting and how its use can impact the perioperative anesthesia care plan and patient safety.

FRIDAY, MAY 10, 2019 – ACUTE CARE STREAM

35 ADVANTAGES AND CHALLENGES OF BEING A FLIGHT RESPIRATORY THERAPIST IN REMOTE NORTHERN COMMUNITIES

**B Colter RRT, A Morin BSc RRT
Keewatin Air, Winnipeg, MB**

In the most remote areas of Northern Canada, respiratory therapists are sometimes battling extreme cold and limited personnel, supplies and equipment for medevacs that present with their many challenges. From relying on word of mouth and a simple triage in order to prepare for a possible critical situation, to being pushed out of the comfort zone of basic day to day by having to perform the most advanced skills of the scope of practice. The need to think about the logistics of space and the lengthy flights may also present an issue. Working as a team with the flight nurses and medics, the respiratory therapist shows flexibility and must be accommodating to the whole spectrum of patient population; proving that they play an integral role in the critical care team. From preterm births thousands of kilometers from tertiary care, bronchiolitis and RSV in pediatric patients, to traumas, head injuries, and complex overdoses in adults, the respiratory therapist skillset, knowledge and expertise have been found to be a valued part of the critical care air ambulance team in Nunavut. Many Canadian air ambulance services use Flight Nurses and Paramedics exclusively for their patient care. This presentation will discuss how and why the role of the respiratory therapist has become so essential in the North, and the opportunities this presents for the profession in the future.

36 FAMILY PRESENCE DURING RESUSCITATION: THROUGH THE EYES OF HEALTHCARE WORKERS, FAMILY MEMBERS, AND PATIENTS

**E Knott BSc RRT
Alberta Health Services, Edmonton, AB**

Family presence during resuscitation (FPDR) is a recent topic of interest within the field of patient-centered care. Research regarding feelings and impact of FPDR towards healthcare workers, family members and patients has been lacking. This presentation focuses on the impact of FPDR on all three groups of individuals involved. The majority of Healthcare workers have witnessed FPDR and yet they believe that there are barriers that prevent them from implementing it and it may hinder their ability to perform to their best ability. Family members have their own barriers put on them by the perceived risks by healthcare workers despite their wanting to be present. Mental health detriments are one of the risks put forward as a barrier for FPDR despite the research showing that there is improved mental health outcomes post FPDR. Patients perspective is a interesting one as its unlikely their wish for FPDR has not been vocalized prior and survival rate is low but it still important to allow the patient to maintain autonomy during FPDR. Improvements that increase the frequency of FPDR are educating healthcare workers on the topic, having policies and support workers for the family during the resuscitation. Overall healthcare workers can be approving of it pending the installment of improvements within their care center and they can see the benefits of

FPDR. Family members may fare better after losing their loved ones when they participate in FPDR with lower anxiety and PTSD rates and patients approve of their family members being present as long as it does not interfere with their care. Due to this, FPDR is a practice that should be initiated in all health centers due to the high chance of benefits and low risks.

37 ASTHMA MANAGEMENT: EVIDENCE-BASED REVIEW OF THE EFFICACY OF COMPLEMENTARY MEDICINE

**K Irving SRT
Southern Alberta Institute of Technology, Calgary, AB**

Today, various inhalers and anti-inflammatory medications are the mainstay of asthma management. These have unarguably shown great success in reducing exacerbations worldwide. With this being said, we now know Asthma control involves a much more multifaceted approach, including not only physiological control, but also lifestyle adaptations. Triggers vary person to person and can range from purely environmental, such as an allergen exposure, all the way to anxiety-induced exacerbations. This therefore provides a challenge for Respiratory Therapists to find what management options works best for their patient. But what options are people using to complement their current therapy, and do they really work? This brings to light the controversial topic of complementary and alternative medicine. The key word is “complementary” as oppose to “alternative,” meaning that their uses are being done alongside your prescribed inhalers. When it comes to supplementing Asthma treatments there are many different therapies available, three popular ones include: Halotherapy, Acupuncture and Mindfulness meditation. This presentation will explore recent evidence-based research done on each of the three proposed therapies, as to discuss their efficacy for managing respiratory symptoms associated with chronic Asthma. This topic is of importance because if beneficial, it may lead to an overall improvement in quality of life for asthmatic patients. Not only this, but it can be a safe add-on that Respiratory Therapists or other health care professionals can recommend to further the chances of symptom control on top of regularly taking bronchodilators.

38 DON'T LEAVE THINGS TO CHANCE

**ME Roth RN BScN
Conestoga College, Kitchener, ON**

Healthcare is fast becoming increasingly complex. Daily, all members of the healthcare team must prepare graduates who are “adept at coping with the growing body of knowledge, rapid advances in science and technology as well as the economic constraints that continue to result in massive health care changes” [1]. There is a daily challenge to prepare clinically competent practitioners who not only must survive, but also thrive in an ever-changing, multi-faceted system. Preceptors play an important role in the transition of students / interns to the practice setting. However, the preceptorship experience has been perceived as challenging and stressful by preceptors. One research study suggested that the role of preceptorship “requires considerable time and effort” [2 p. 93] and preceptors often find it difficult to balance their “caring and teaching roles without compromising one or the other” [2 p. 92]. It is a fact that preceptors influence students by acting as role models, “socializing” students into the workplace and supporting their acquisition of knowledge, skills and attitudes. For students to develop a strong identity as a Respiratory Therapist, they need early and frequent exposure to excellence in practicing professionals. Consideration must be

given to find ways to facilitate connections between students and RTs which will foster realistic expectations for students. Preceptors must be learner focused, the way they are client-focused [3] and must be empathetic towards learner needs. The preceptor's ability to consider clinical situations with an open mind and from several perspectives that will enable students to develop their own critical-thinking abilities. Actions, specifically the manner in which the preceptor interacts with colleagues, patients, families, physicians, and other health care professionals, demonstrates professionalism. To be professional is also to be knowledgeable about the precise work of a Respiratory Therapist, while being respectful of patients and coworkers. To be professional is to be ethical in practice, to be prudent and careful in clinical judgments and to possess a large measure of practical wisdom. Students look to their preceptors for their ability to handle situations and put considerable faith in their wisdom as a practitioner. Being a preceptor requires commitment to intentionally share knowledge and expertise with others.

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39 WHY ISN'T SHE BREATHING? A SURPRISE DIAGNOSIS OF WOUND BOTULISM: A STORY FROM AN RRT WORKING IN KENYA

A Lievaart RRT

Tenwek Hospital, Kenya, East Africa

M. came to Tenwek Hospital after being involved in a motorbike accident 10 days prior. She seemed to have a normal clinical course; however, post-op, was failing her daily Spontaneous Breathing Trials. Her caregivers were stumped. Different differential diagnosis were tossed around, cervical spine injury from the accident – but the CT was normal, Phrenic Nerve injury but from where? In a hospital where resources are limited, finding a diagnosis is hard. You are limited by the number of ventilators and no long-term care units to accept long term ventilated patients. The staff needed a diagnosis to make a prognosis. The staff continued to ponder and the RRT reached out on social media with a brief description of symptoms. An RRT from back in Edmonton responded – what about wound botulism?

This talk will also explore what it is to be the only RT in a 300-bed hospital in rural Kenya. Annette Lievaart has had to create a role for herself. This discussion will explore the balance between education and work. Encouraging others who do not have RT training to be comfortable with Ventilators, ABG's and other skills that RT's generally are responsible for.

40 MET BY CHANCE? ADAPTING EXISTING METS FOR PEDIATRIC PATIENTS

J Gallant BHSc BSc RRT Dr Kristina Krmpotic, MD, MSc, FRCPC
IWK Health Centre; Dalhousie University, Halifax, NS

BACKGROUND: While the regionalization of pediatric critical care services that improved care and outcomes for critically ill children, as many as 50% of critically ill children require resuscitation and stabilization in regional or community hospitals prior to their transfer/transport to pediatric tertiary care centers. It is thus imperative for healthcare

providers who work in non-pediatric hospitals who care for pediatric inpatients to have pediatric assessment and recognition skills, as well as the capacity to initiate the management of critically deteriorating children. This is especially important in regional or community hospitals, which will require intra-facility transport. In fact, the Canadian Pediatric Society has come out with the position statement that "Hospitals caring for pediatric in-patients should implement and train Rapid Response Teams (RRTs) with expertise in pediatrics." This presentation will share with members of the CSRT skills to adapt existing adult-focused RRTs/METs, in order to meet pediatric specific needs surrounding the assessment, recognition and early assessment of the clinical deteriorating child.

RATIONALE: We believe this presentation will be of interest to the members of the CSRT since:

- There are limited resources and funds for pediatric specific MET/RRT programs
- While most centers have METs/RRTs, they may lack the experience and resources to care for critically ill children, including a lack of expertise in the pediatric assessment, recognition and initial management
- We believe that it is possible to adapt existing programming, and develop tools to help adult METs/RRTs assess and manage pediatric patients

TAKE HOMES OF PRESENTATION:

- Following our presentation, viewers will be more versed in:
- Early identification of children who are at high risk for clinical deterioration
- Recognition of early signs and symptoms of the clinically deteriorating pediatric patient, and when to seek assistance
- Knowledge surrounding management of common critical pediatric-specific conditions
- Adapting existing MET/RRT infrastructure to better support education, identification and early management of the critically ill pediatric patient

FRIDAY, MAY 10, 2019 – CHRONIC
DISEASE MANAGEMENT STREAM

41 CYSTIC FIBROSIS: OBSTACLES WITH PALLIATIVE CARE

D Meena SRT

Southern Alberta Institute of Technology, Calgary, AB

BACKGROUND: Cystic fibrosis (CF) is an autosomal recessive disorder with respiratory, pancreatic, hepatobiliary, gastrointestinal, renal, endocrine, and genitourinary complications, with 90% of patients dying from pulmonary infections. The disease process consists of recurrent pulmonary exacerbations requiring intensive treatments and once resolved, time-consuming and physical exhausting therapy is required.

DESCRIPTION: It is important to recognize the challenges associated with providing proper palliative care for the CF population. Palliative care is initiated when end-of-life is approaching but for cystic fibrosis patient, this time-line is uncertain. Methods to predict mortality include Liou's 5-year survivorship model, a "parsimonious" modified Liou's model using four of the nine prediction factors, and predicted vs actual FEV1. These methods are dated and flawed in their efficacy of predicting mortality. Additionally, CF patients undergo daily intensive therapies including, and not limited to, chest physiotherapy, inhaled medications, and antibiotic administration. The challenges with the

intense daily regime include denial, where patients see treatment as a cure, and defeat, where the treatments become a significant burden and the patient decides to terminate all, or select treatments. The creation of a “concurrent care” model would provide immense benefit; rather than passive participation in palliative care efforts, CF patients would be encouraged to be active in their care. The creation of educational tools and courses to educate healthcare professionals on the proper time to discuss palliative care, and how to carry out these conversations.

CONCLUSIONS: When discussing the importance of palliative care, it is important to remember that delayed or improper care can have negative effects on the patients’ health throughout the terminal disease phase as well as hinder family coping. As members of the CF multidisciplinary care team, respiratory therapists must recognize the importance of proper palliative care and ensure the expectations, goals, and wishes of the patient are being respected.

42 PULMONARY PRE-HAB

K Bevan RRT BHSc BTM

Vancouver Island Health Authority, Vancouver, BC

Post-operative pulmonary complications are known to have a big impact on morbidity and mortality in many patients undergoing invasive surgical procedures. These complications increase hospital length of stay and resource utilization. Preoperative pulmonary rehabilitation (“pulmonary prehab” or “PR”) has been identified as a potential way to avoid these impacts and mitigate recovery complications in at-risk patient populations. Positive prehabilitation results in the fields of open-heart, abdominal and orthopedic surgery has prompted research into the benefits for patients undergoing lung resection procedures. Recent studies show promise that PR can be similarly effective in reducing post-operative complications in lung cancer patients. With these results and recent increased interest surrounding PR, RTs may have a future role in promoting, assisting and/or evaluating patients undertaking pulmonary prehab regimens in preparation for invasive surgery.

43 SCREENING FOR DYSPHAGIA IN COPD ASSESSMENTS

**L Higoy BMR (RT) RRT CRE CTE, M Burrows BFA MSLP R.S-LP
Alberta Health Services, Edmonton, AB**

Chronic Obstructive Pulmonary Disease (COPD) clients frequently present with dysphagia which often can lead to exacerbation such as aspiration pneumonia and possibly hospital admission. In fact, COPD exacerbation is a leading cause of hospital admission and it is associated with longer hospital stays, increased intensive care admissions and mortality. COPD has a significant impact on the healthcare system not only in Canada but also globally. It is crucial for both COPD clients and the healthcare system to prevent this condition in the community setting. In a rural community setting, it is typical to have a shortage of clinical rehabilitation specialists, such as speech-language pathologists. Because of this, dysphagia symptoms may not be identified until they are severe. Pulmonary rehabilitation programs often include this issue through the nutrition education component, but it is minimally introduced to COPD clients. The Eating Assessment Tool (EAT-10) is a screening tool used to identify clients with dysphagia. If a score of 3 or higher is recorded, further dysphagia assessment is suggested. It is a rapidly administered, simply calculated, and easy to use scale which has excellent internal consistency, test-retest, reliability and criterion-based validity. The presenters will discuss on how dysphagia can lead to COPD exacerbations and how early intervention may prevent future complications like aspiration pneumonia. The presenters will also discuss the integration of the EAT-10 into a routine respiratory assessment in a rural community setting.

44 DYSPNEA MANAGEMENT ONLINE LEARNING MODULE

R Sorensen RRT FCSRT CAE MSc

Alberta Health Services, Edmonton, AB

Despite access to several tools, resources and guidelines, significant barriers exist for Respiratory Therapists to effectively use dyspnea management strategies in several practice settings. Barriers include; patient decisions that deviate from evidence-based medicine, knowledge on interprofessional practice, and physician medication ordering practices. A linear approach simply wouldn’t address the complexity, so our team had to come up with a creative online solution. The Dyspnea Management Project developed a gamification strategy within an online learning system to address a variety of knowledge gaps in Dyspnea Management. In this session we will briefly review the current literature and practice tools on dyspnea management, as well as how to modify a gamification strategy to incorporate respiratory therapy practice grounded in clinical storytelling. The rest of the session will focus on how branching logic was critical in the development of the module, and advice for those who may want to build their own gamification strategy for an online learning initiative.

45 TAKING CONTROL OF YOUR HEALTH IN THE HOMECARE SETTING

S Morgan BHSc RRT, A Khan RRT CRE CTE

RANA Respiratory Care Group, Calgary, AB

In the constantly-evolving worlds of sleep medicine, PAP therapy and home oxygen, there are many tools available that patients can utilize on their own, supplemental to their clinical treatment. The home care environment is changing as technology becomes more accessible to patients, but what are the benefits, and what are the risks of patients having access to their own information? Several studies suggest that the more patients are engaged, the more likely they are to comply with the recommendations of their healthcare professional. But is too much information a barrier to proper treatment? In this session, we will review the current literature on patient compliance and explore how it applies in the home care setting. Taking this one step further, we will then review a variety of tools that assist patients in the home with PAP compliance and oxygen therapy. These tools include proprietary software from PAP manufacturers as well as non-proprietary software for patient use. This session will also cover a review of a therapy developed by Dr. A Lohmann, a discussion on the benefits of pulmonary rehab as it relates to home oxygen compliance and a review of home SpO₂ monitoring for oxygen patients. We will conclude our session by examining the benefits and risks of each tool from the perspective of both the patient and healthcare practitioner, including a couple of case reviews showing the impact of patients taking control of their own health in the home care setting.

46 VENTILATOR ADJUSTED LEAK SPEECH: A SUNNYBROOK PERSPECTIVE (SPONSORED BY MEDTRONIC)

J Nardi RRT CRE

Sunnybrook Health Sciences Centre, Toronto, ON

Working in a busy trauma centre, treatment of devastating c-spine injuries can be common. Often it is difficult for these patients to regain a sense of purpose and quality of life. One such way to return autonomy to these patients is to help them achieve the ability to speak while on mechanical ventilation. The respiratory therapists in the Tory Trauma Program at Sunnybrook Health Sciences Centre in Toronto have

developed an algorithm to restore speech in appropriate chronically ventilated patients. This may involve the use of a one-way valve in the ventilator circuit along with various ventilator setting adjustments to achieve the optimal amount of flow through the patient's upper airway in order to vibrate the vocal cords, thus producing phonation. The process for producing speech in these chronically ventilated stable patients along with safety considerations for using this approach will be discussed.

47 HIGH FLOW FIRST (SPONSORED BY FISHER & PAYKEL)

S Buziak RRT MA

Halton Healthcare, Oakville, ON

Acute Chronic Obstructive Pulmonary Disease (COPD) exacerbation requiring hospital admission continues to be a challenge to manage while in hospital as well as post discharge into the community. Healthcare organizations are continuing to look at ways of efficiently and safely managing these patients through patient specific care plan development and organizational best practices to improve length of stay, decrease readmission and overall, provide exemplary patient experiences. Halton Healthcare introduced a corporate Innovation Grant program as part of our commitment to one of our strategic priorities, Innovation. This grant fosters an environment of continuous learning and innovation, and embraces the spirit of discovery. The RT department at the Oakville site used this grant to implement and evaluate the standardized use of nasal high flow therapy to treat admitted COPD patients for their duration of stay in hospital and further provide an opportunity for these patients to have access to this therapy at home throughout their ongoing recovery. This presentation will discuss the implementation of this evaluation, barriers, learnings, and plans moving forward on how we will provide care for this population in the near future.

FRIDAY, MAY 10, 2019 – CRITICAL CARE STREAM

48 COMIC STUDY

K Hassall Med RRT FCSRT, S Culgin MSc BPhEd/kin

St. Joseph's Healthcare Hamilton, Hamilton, ON

Endotracheal intubation and mechanical ventilation are lifesaving interventions that are commonly done in the intensive care unit (ICU). The act of intubating someone can cause laryngeal edema that, if extensive enough, can result in airway obstruction after a patient is extubated. To date, the only test that is available to predict this complication is the cuff leak test (CLT), however, its diagnostic accuracy is uncertain as there have been no randomized controlled trials (RCT).

This multi-center, pragmatic, double blinded pilot RCT is currently enrolling mechanically ventilated ICU patients deemed ready to be extubated at three centres in Canada, Saudi Arabia, and Poland. All eligible patients have a CLT done prior to extubation. The results of the CLT in the intervention arm are communicated to the treating physician, and the decision to extubate is left to the treating team. The results of the CLT for patients in the control arm are not communicated to the treating physician, and the patient is extubated as per extubation order, regardless of the CLT results.

Although clinical outcomes relevant for a future, larger COMIC RCT will be examined, the primary outcomes of the COMIC Pilot Trial are feasibility outcomes including: consent rate, recruitment rate, and protocol adherence. Clinical outcomes will include postextubation stridor, reintubation, emergency surgical airway, ICU mortality, in hospital mortality, duration of mechanical ventilation, and ICU length of stay.

Herein, we report the protocol for the cuff leak and airway obstruction in mechanically ventilated icU patients (COMIC) Pilot Trial, and discuss the feasibility of conducting a powered RCT to examine the impact of CLT on postextubation stridor and reintubation.

49 FROM RT TO PHD IN THE ICU: WHY RTS ARE SITTING ON THE EDGE OF GREATNESS

E Rohrs RRT BSc PhD(c), K Fernandez BSc, RRT
Royal Columbian Hospital, New Westminster, BC

No one understands how to ventilate a patient as safely and effectively as a Canadian Respiratory Therapist! Their superior knowledge and technical expertise positions them uniquely to be able to care for critically ill patients with as few sequelae as possible. The nature of this care attracts and develops strong creative problem-solving skills, and these are the skills that are vital to translating ideas into practice. Translational research involves taking an idea about physiology or equipment and applies that knowledge into new practice in order to improve outcomes. Much of the ventilation research that happens, happens outside of Canada and these research teams do not include RT's. One of the most successful ventilation research teams in the world is based in Toronto and does include an RT as senior member of the team. RT participation in world class research, particularly translational research, adds the unique hands on experience and a fundamental wealth of ventilation research knowledge. This will ensure that new methods and ideas will be practical and have a lower barrier to acceptance because the end-user has been part of the development. Stepping up into research and practice development roles will also provide role models and help create other avenues of professional pursuit outside of current front-line acute and community roles. This will raise the profile of our profession and we will no longer be the best kept secret of the ICU and rather be the front-line champion to new practice.

50 ORGAN DONATION AND END OF LIFE CARE

K Grondin inh

CIUSSS de l'Estrie-CHUS, Sherbrooke, QC

BACKGROUND: In the last 10 years, the number of deceased organ donors has increased by 42%. The number of people waiting for a transplant also increased during this period. The donor rate in Canada is still lower than that of several countries including the United States. Despite the fact that half of Canadians are able to donate blood only 1 out of 60 has done so. This raises several questions.

OBJECTIVES: To present some of the current statistics on organ donation, to present the challenge of medical aid in dying and organ donation and to promote the involvement of the respiratory therapist within the process.

DISCUSSION: A donor can save up to eight lives, improve the quality of life for up to 75 people and allow countless families to benefit including the loved ones of those who are awaiting an organ. What reflections can be made regarding the approach to medical assistance in dying?

51 MAP VS. NAP: THE IMPACT OF VENTILATION ON HEMODYNAMICS

E Richards BSc RRT

Bunnell Incorporated, Salt Lake City, UT

This lecture explores areas of potential physiological interaction with positive pressure ventilation. Images and subpleural microvideographs are used to highlight the consequences of this interaction. Current research will present the relative risk of death either increasing or decreasing depending on ventilator strategy. The effects of MAP on

Preload and Afterload will be reviewed, as will the surprising impact of NIV on lung disease prevention. The lecture will conclude with instruction on the most efficient techniques for optimizing lung inflation while minimizing the harmful effects of mechanical ventilation.

**52
RESUSCITATION OF 22 WEEK NEONATES:
FUTILE OR THE FUTURE?**

J Mohan RRT

Royal Columbian Hospital, Vancouver, BC

A retrospective view of one Neonatal Intensive Care Unit's experience around the resuscitation and ongoing care of a 22 week neonate. Beyond the concern for the health of an extremely premature infant at the time of delivery, thought must be given to their prolonged hospital stay and long-term recovery. In addition, the wellbeing of the families and health-care providers of these infants must be taken into consideration. The presentation will discuss current recommendations around resuscitation based on gestational age and changes of viability over time. Current practice in regard to code status and terminal wean will be explored. The ethical ramifications that evolve from resuscitating and caring for extremely premature babies will be considered along with dealing with end of life. The case of one 22 weeker in our NICU will be reviewed from both a clinical point of view but also from the lens of my personal experience with the baby, his family and the other health care team members.

**53
ASYNCHRONY EVERYWHERE! IMPROVING
DETECTION OF ONE OF THE MOST PREVALENT
ISSUES IN MECHANICAL VENTILATION**

T Piraino RRT FCSRT, T Pham MD

St. Michael's Hospital, Toronto, ON

Asynchrony during invasive mechanical ventilation is one of the most common issues in the intensive care unit. The presence of significant asynchrony has been shown to be associated with worse outcomes including length of mechanical ventilation, ICU stay, and mortality. Asynchrony is poorly recognized due to the requirement of visual detection, which is not possible at all times. This presentation will describe some of the technology currently available for detecting asynchrony, and the work currently being done to make them more accurate. Additionally, this presentation will include an interactive session for identifying and correcting common forms of patient-ventilator asynchrony.

FRIDAY, MAY 10, 2019 – FRANCOPHONE PRESENTATIONS

**54
LE DÉBRIEFING COMME OUTIL POUR
FAVORISER LE TRANSFERT DES
APPRENTISSAGES (ATELIER)**

M Audet t.r.a.

Collège communautaire de Nouveau-Brunswick, Dieppe, NB

Le débriefing est une étape cruciale dans la clarification et la consolidation des apprentissages effectués au cours d'une séance de simulation. Il s'agit d'examiner méthodiquement ce qui s'est passé et pourquoi. Mais comment peut-on assurer un réel transfert des apprentissages du contexte d'enseignement vers un contexte réel ? Cette présentation permettra d'explorer les diverses approches de débriefing et leur utilisation en fonction du contexte d'apprentissage. Elle détaillera les éléments clés des trois phases du débriefing, ainsi que les stratégies efficaces pour favoriser le

transfert des apprentissages vers un contexte réel. Cette présentation abordera aussi les éléments essentiels pour établir un climat propice à un débriefing constructif.

**55
L'IMPACT DE L'ÉMPATHIE: DE LA SORCLLERIE
A LA SCIENCE**

MA Bolduc, infirmier clinicien

CIUSSS de l'Estrie-CHUS, Sherbrooke, QC

L'utilisation de l'empathie lors de soins chez un patient instable n'est probablement pas votre premier réflexe. Pourtant, utilisé de la bonne manière, elle peut potentialiser les traitements pharmacologiques, favoriser la stabilité hémodynamique, améliorer la qualité de l'anamnèse et même induire le soulagement de la douleur. Cette présentation vise à démontrer comment l'utilisation d'une approche axée sur 7 critères peut améliorer la qualité des soins sans pour autant alourdir ou modifier drastiquement vos habitudes. Elle vise également à démystifier les préconceptions reliées à l'empathie et à son usage lors des traitements, et ce, avec un brin d'humour et de biologie.

**56
VASODILATEURS PULMONAIRES INHALÉS**

K Lavoie RRT

Institut de Cardiologie de Montréal, Montréal QC

Les vasodilatateurs pulmonaires inhalés, une bête noire lorsqu'il est temps de les administrer en inhalation. Depuis les 3 dernières années, il y a eu plusieurs études qui ont démontrées que les traitements de vasodilatateurs pulmonaires inhalés devraient être plus présent lors des chirurgies cardiaques et en soins intensifs afin de prévenir plusieurs complications due à l'hypertension pulmonaire.

Venez découvrir, les différents vasodilatateurs pulmonaires et leurs particularités. Ainsi, que les différentes techniques utilisées en anesthésie et aux soins intensifs à l'Institut de Cardiologie de Montréal.

SATURDAY, MAY 11, 2019 – DIAGNOSTICS STREAM

**57
PREDICTIVE VALUE OF PULMONARY FUNCTION
TESTS IN CARDIAC SURGERY: A SYSTEMATIC
REVIEW AND META-ANALYSIS**

M Koshy SRT, R Varghese SRT, S Thomas MD

St. Clair College, Windsor, ON; Fanshawe College, London, ON; University of Rochester, Rochester, NY

BACKGROUND: Pulmonary function tests (PFTs) help determine a patient's candidacy for cardiac surgery; however, their predictive value on postoperative outcomes is unclear.

METHODS: We performed a systematic literature review and study-level meta-analysis of prospective trials evaluating patients undergoing all types of cardiac surgery. We assessed the predictive values of PFTs on each of the following outcomes: mortality, ventilation time, hospital length of stay (LOS), intensive care unit (ICU) LOS and major adverse cardiovascular events (MACE). Abnormal PFTs were defined as GOLD spirometry criteria ≥ 2 . We used eight strategies to identify eligible trials including bibliographic database searches of MEDLINE, PubMed, EMBASE and the Cochrane Controlled Trials Registry until December of 2018. Two independent reviewers undertook decisions about study eligibility and data abstraction. Data were pooled using a Mantel-Haenszel random effects model and statistical heterogeneity was also calculated. Point estimates are reported with their associated confidence intervals (CI).

RESULTS: Nine prospective trials fulfilled our eligibility criteria representing 37,484 patients. We detected an increased mortality with abnormal compared to normal PFTs (2640 events; RR, 2.08 [CI, 1.28–3.38]; I2 = 62%; $p = 0.003$). Abnormal PFTs also predicted a prolonged ventilation time exceeding 24 hours (242 events; RR, 2.64 [CI, 1.96–3.56]; I2 = 0%; $p \leq 0.00001$) and hospital LOS exceeding 7 days (384 events; RR, 2.95 [CI, 1.63–5.35]; I2 = 68%; $p = 0.0004$). There was no statistically significant difference in ICU LOS greater than 24 hours (401 events; RR, 0.85 [CI, 0.40–1.83]; I2 = 68%; $p = 0.68$) or MACE (1517 events; RR, 2.83 [CI, 0.86–9.30]; I2 = 94%; $p = 0.09$).

CONCLUSION: Abnormal PFTs were associated with increased mortality compared to normal PFTs. Additionally, abnormal PFTs were associated with increased hospital LOS and increased ventilation time. Abnormal PFTs were not predictive of ICU LOS or major adverse cardiovascular events. The implementation of PFTs prior to cardiac surgeries has shown great promise as a tool for determining candidacy for patients undergoing such procedures.

58

ALS: EARLY DETECTION THROUGH SUPINE SPIROMETRY

L Higoy BMR (RT) RRT CRE CTE

Alberta Health Services, Edmonton, AB

Amotrophic lateral sclerosis (ALS) is a progressive and fatal disease of upper and lower motor neurons and, in most cases, death occurs from respiratory complications. The incidence rate of ALS is estimated to be 2/100,000 people per year and approximately 2500–3000 Canadians over 18 currently live with ALS. Non-invasive ventilation helps with the respiratory symptoms for ALS clients if their disease starts to progress and show remarkable respiratory symptoms such as orthopnea. Monitoring respiratory status is therefore critical to ALS management, as pulmonary function test are used to make decisions including when to initiate noninvasive ventilation. Maximal inspiratory and expiratory pressures are also vital in ALS monitoring but in some cases are difficult for clients that already lost their facial movement such as for bulbar ALS clients. Supine spirometry is a cheap and easy technique that can provide useful information towards diagnosing and monitoring diaphragmatic dysfunction mostly ALS. The presenter will discuss the benefits of supine spirometry as an integral part of a respiratory assessment in a community care setting especially with rural population. The presenter will discuss the important and integral FVC percentages that is very crucial to determine the proper respiratory symptom management for ALS clients such as noninvasive ventilaton and cough assist machines. The presenter will also discuss the procedures and processes on how to do supine spirometry in a community setting. The purpose of the presentation is to provide clinicians realistic perspective on doing supine spirometries in rural community setting in terms of procedure, processes, and all other different barriers that the community respiratory therapist faces on everyday work routine.

SATURDAY, MAY 11, 2019 – CARING
FOR THE CAREGIVER STREAM

59

INITIATION OF A CRITICAL INCIDENT STRESS MANAGEMENT TEAM IN LEVEL 3 NICU

A Skaley RRT

Stollery Children's Hospital, Edmonton, AB

INTRODUCTION: Health care workers experience stress in their work environments on a daily basis. Some stressors are beneficial, others can be debilitating. Introducing a peer support team like a CISM

team can help reduce stigma, boost morale, increase resiliency and decrease burnout within a unit. These teams are very prevalent and studied with EMS, military, police and fire services, but there is not much research with regards to using CISM teams in ICUs for health care workers.

METHODS: Pre-staff surveys and unit data collected before introduction of a multidisciplinary CISM team in NICU. CISM team initiated by steering committee using adaptive change techniques and collaboration with ACH and UAH PICU CISM teams. Team formed with application forms, grading system and references. Training done by ICISF and team initiated into RAH NICU and DS NICU in November 2017. Now research looking at pre and post initiation staff surveys, sick time, burn out, CISM team usage and turn over.

RESULTS: Research stats unknown at this time, will come out in January 2019. Increased resiliency and morale noted on unit, with fewer needs for CISM intervention over the year.

CONCLUSION: CISM is well researched and proven effective in many high-stress careers, and we are looking to show the need for it in our work environment. Forming a team is no easy task, but with CISM introduced in a few centers now, we have some trial and error to share from our experiences. So far we have seen a real use for our team and will continue our efforts.

60

DEALING WITH POST-TRAUMATIC STRESS DISORDERS AS RESPIRATORY THERAPISTS

K Hart SRT

Fanshawe College, London, ON

Hospitals are high stress, complex areas of employment. Post-Traumatic Stress Disorder (PTSD) is a psychiatric condition following exposure to a traumatic event(s) that results in fear and helplessness, among other emotions. PTSD is a common occurrence in Respiratory Therapists who deal with traumatic and emotional situations on a regular basis. Our goal should be to increase the discussion and promotion of resources to deal with PTSD, to support the mental-wellbeing of our healthcare workers.

61

RESILIENCE

C Matthews BSc (Agr) Dip Voc Ed, Cert EQ Coach

NewView Consulting, St. John's, NL

The old adage that “change is the only constant” has never been more relevant in our personal lives and workplaces. Over time our personal response to change, and how we navigate through it, can make the difference between a downward spiral into a negatively distorted, cognitive and emotional reality that can fuel psychological and physiological stress, or it can create an opportunity to develop and enhance the behaviors, competencies, and mindset required to master, and even lead, the continuous change that will define our reality for the foreseeable future. Before we can embark on any journey forward we must first determine where we are. This presentation is designed to increase participants' self-awareness of how they currently respond to change so that they can develop and refine tune their personal development strategy to become a more effective change manager or leader. The behavioral characteristics of three “change personality types” are introduced to discuss the situational context in which each response provides value. Four evidence-based practices utilized by change masters to build resilience through constant change are reviewed and discussed. The session will provide participants with supportive insight to build an action plan for improving personal resilience in order to manage themselves and those they lead more effectively.

62

HORIZONTALLY-TARGETED VIOLENCE IN HEALTHCARE

J Doucet BSc RRT, T Fournier BEd (Adult Education)
RRT FCSRT CRE CTE

New Brunswick Community College, Fredericton, NB

The Canadian Nurses Association defines violence broadly to include verbal and emotional abuse, physical violence and sexual harassment. Workplace bullying (including intimidation, harassment, victimization, aggression, emotional abuse, and psychological harassment or mistreatment) is included in this definition of violence. Workplace bullying in health and community care is now four times more prevalent than sexual harassment in this high-stress sector. This session aims to help the healthcare professional recognize acts of bullying in the healthcare environment; reflect on experiences as a target of, or silent witness to, bullying in healthcare; come to terms with the impact of workplace bullying on the target, the patient and the culture of healthcare settings; understand the legal ramifications of workplace bullying; and finally, analyze the parallels between post-secondary attrition and early workplace departure post licensure. The session will end with a discussion regarding creating a culture of belonging instead of accepting a culture of lateral violence.

SATURDAY, MAY 11, 2019 – CHRONIC DISEASE
MANAGEMENT STREAM

63

TREATMENT OF SEVERE EMPHYSEMA WITH ENDOBRONCHIAL ONE-WAY VALVES

A McDonald SRT BSc

Southern Alberta Institute of Technology, Calgary, AB

Lung volume reduction surgery (LVRS) is currently an invasive option for treatment of severe emphysema but in many cases it comes with an increase in morbidity and is limited in the type of emphysema it is able to treat. Recently, lung volume reduction via endobronchial one-way valve has become an increasingly inviting option as it has equivalent positive outcomes of LVRS with lower morbidity post procedure. This paper will discuss if endobronchial one-way valve lung volume reduction is a superior method of treatment in patient with severe emphysema when compared to other surgical interventions. Endobronchial one-way valves are placed in sedated and mechanically ventilated patients. Chartis balloon testing is done to determine if the target lung segment has any collateral ventilation with adjacent lung segments. Valves are usually placed in the upper lobes with flexible bronchoscopes causing atelectasis of alveolar acinus distal to the valve. Twelve months post procedure patients had clinically significant improvements in FEV1 and 6-minute walk test. Valve placement also showed increased quality of life using the St. George's Respiratory Questionnaire. The most significant post-operative complication has been the development of pneumothorax. Lung volume reduction using endobronchial one-way valves has the effectiveness and limited adverse events to become a commonly used treatment option for patients with severe emphysema.

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THE EMERGENCY DEPARTMENT ASTHMA CARE PATHWAY (EDACP) – A STANDARDIZED PATHWAY FOR TREATMENT OF ASTHMA IN ACUTE CARE SETTINGS IN ONTARIO

J Mackinnon BSc RRT CRE, E Wilmot RN

The Lung Association – Ontario, Toronto, ON

The disease burden of asthma is significant worldwide. Asthma affects over 3 million Canadians [1] and continues to be a leading cause of

hospitalization among children and youth with more than 6000 hospitalizations in 2015–2016 [2]. For every one of these hospitalizations, there were approximately eight emergency department visits [3]. The Emergency Department Asthma Care Pathway was developed as part of the MoHLTC Asthma Plan of Action in direct response to an inquest into the death of a teenager in 2000 from an asthma exacerbation. Research on current asthma practice in emergency departments show suboptimal use of objective measures, under-utilization of systemic steroids both in the emergency department, low referral rates to specialized asthma services and under-use of evidence-based guidelines [4]. The pathway is a standardized, evidence based clinical pathway for the treatment of acute asthma, developed and managed by The Lung Association – Ontario. The EDACP consists of two pathways: the pediatric and adult. Both clinical pathways are based on the Canadian Thoracic Society (CTS) asthma guidelines and other relevant clinical guidelines and literature. The pathways are designed to promote: appropriate assessment of the severity of the exacerbation; evidence-based asthma treatment; patient education prior to discharge; comprehensive discharge instructions; and arrangements for follow-up care. Implementation of the pathways is associated with a number of benefits including but not limited to reduced repeat emergency department visits and hospital admissions, potentially decreased length of hospital stay, improved asthma self-management and symptom control and improved efficiency in patient care and adherence to clinical best practice guidelines. Ontario hospitals will benefit from the adoption and subsequent implementation of the pathways.

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65

HYPOXIC DRIVE: CLINICAL REALITY OR MYTHTAKE?

D Swift RRT

The Ottawa Hospital, Ottawa, ON

In 1958, journalist Andrew Genzoli reported a letter received from a reader reporting the discovery of large footprints found by loggers and the legend of Big Foot began. In the 1950's, Dr E.J.M. Campbell delivered a lecture [1] to pulmonologists about the dangers and risks associated with giving too much oxygen in COPD, giving birth to the theory of "hypoxic Drive." The lecture was based upon a study that included only four patients and that later studies could not replicate. Never the less, the hypoxic drive theory became the gold standard in the treatment of COPD patients. The premise to the development of the "hypoxic drive" is that of a progression of pulmonary disease characterized by the increasing demand to increase minute ventilation to maintain a normal PaCO₂. As the disease progresses and the physiologic demand to increase minute ventilation exceeds the physiologic ability to meet the demand, something has to give. The patient slowly and progressively begins to drop their minute ventilation until they can successfully meet the ventilatory demands. This causes a drop in pH as the PaCO₂ begins to rise with a concurrent drop in PaO₂ [2]. The drop in PaO₂ triggers the increased production of erythropoietin and this, in turn, causes the

increase in red blood cell production. The increased RBC production allows for more production of HCO_3^- (bicarb) to buffer the effects of the elevated PaCO_2 and maintain a normal pH [3]. The increased Hb levels also increases the transport capability of both CO_2 and O_2 , maintaining a normal O_2 content with minimal change in SpO_2 or PaO_2 . At the same time, the lower PaO_2 (55–60 mm Hg) provides stimulus to the peripheral chemoreceptors which, in addition to the stimulus to the central receptors by dropping pH, provides the stimulus to maintain the physiologic balancing act. The physiologic balance created by the compensation mechanisms is a very delicate balance requiring constant adjustment. Effects of increased metabolic activity (exercise, infection, increased work of breathing caused by acute progression of the pulmonary disease), impairment of ventilation (bronchospasm, inflammation of the airways), physical deconditioning (debilitating SOB limiting exercise), poor nutrition and respiratory depressives (e.g. Alcohol, narcotics, benzo's) all effect the ability to maintain the balance. With the increase in RBC, the carrying capacity of CO_2 increases and it is in this stage that the effects of oxygen come in to play. Although there is documentation supporting a drop in minute ventilation secondary to the administration of oxygen [4], this is usually self limiting. What the administration of oxygen actually does is to take advantage of hemoglobin's stronger affinity to oxygen than carbon dioxide. The delivery oxygen in increasing amounts displaces more and more CO_2 from the Hb increasing the PaCO_2 . This is known as the Haldane effect. If the pt's pulmonary disease limits his ability to increase his minute ventilation in response to the rising CO_2 , the patient quickly becomes hypercarbic with a corresponding drop in pH. This drop in pH begins to impair respiratory muscles that are already severely challenged by the physiologic demands placed upon them. At the same time, oxygen being a very potent vasodilator causes pulmonary vessels constricted by a low PaO_2 , in an attempt to rebalance perfusion to unaffected lung tissue, to vasodilate [5]. This vasodilation causes increasing shunting with CO_2 rich blood to bypass the alveoli and not allow diffusion out of the lungs [6]. This causes further progression in the rise of PaCO_2 . The delicate balance can easily be upset and often leads to occult ventilator failure at home. By the time the patient arrives in hospital the decompensation process has begun and requires prompt medical intervention, including oxygen administration. The effects combined result in a progressive and fairly rapid decline in the patients ventilatory status which has the potential to lead to complete ventilatory failure. Often, the patient has utilized all of their compensatory abilities to survive (prehospital) and the progression of failure continues in the acute phase of their hospital stay. Clinician's often point to the administration of oxygen as being the cause. The hypoxic drive by itself in a very minor driver of the respiratory system but in the context of progressive failure prior to admission the effects of oxygen are multifactorial and do have a contributing effect to the speed of failure. Without complete medical treatment of the causes of failure the progression of failure is unrelenting – the speed of which is determined by the failure of compensatory mechanisms. While oxygen induced hypercapnia [7] is a multifactorial clinical reality, the “hypoxic drive “ theory is a Myth Take but still remains as an urban medical myth.

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MANAGING DYSPNEA IN PALLIATIVE CARE

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Managing dyspnea in palliative patients is essential to providing adequate comfort and symptom control. Refractory dyspnea is defined as a debilitating symptom of advanced pulmonary and cardiovascular disease that is described by difficulty in breathing at rest or with minimal exertion, despite optimal therapy of the underlying disease. The purpose of this presentation is to look at the research and evidence behind the various options for managing dyspnea, and various perspectives on what provides symptomatic relief versus what prolongs the end stages of disease. There is a fine line between delaying the inevitable and supporting one's comfort in the final days of their life. The evidence behind the following strategies will be discussed: oxygen therapy, pharmacotherapy, and various non-pharmacological interventions. Treating hypoxemia with oxygen therapy can provide no symptomatic relief for dyspneic patients, however treating non-hypoxemic patients with oxygen therapy can provide relief which supports the need for further clarification on the necessity of oxygen during palliative care. Ambiguity in regard to the evidence of pharmacotherapy for treating dyspnea is evident in various palliative care practice. Oral and parenteral opioid use of morphine and fentanyl in addition to anxiolytics may be used to manage dyspnea. Utilizing non-pharmacological interventions such as breathing and meditation strategies, and relaxation therapy may also be considered. Recognizing how to effectively manage dyspnea and clarify certain strategies that are currently available for palliative patients will be discussed. Perspective on managing dyspnea in regard to end stage Chronic Obstructive Pulmonary Disease (COPD) will be discussed.

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HOME VENTILATION: ARE YOU ALARMED?

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Ontario Ventilator Equipment Pool, Kingston, ON

The risk of a “No Alarm” condition resulting from inappropriate alarm settings has recently garnered attention. “Improperly Set Ventilator Alarms Put Patients at Risk for Hypoxic Brain Injury or Death” is listed by ECRI among the Top 10 Health Technology Hazards for 2019. Customizing user-adjustable alarms to a patient's respiratory parameters is an important risk-mitigation strategy for mechanically-ventilated individuals.

In Ontario, the number of individuals requiring home ventilation has steadily increased over the last three decades. Home care ventilators are increasingly more complex and offer a variety of alarms. However, user-adjustable alarms must be appropriately set if they are to be effective in mitigating the risks of occlusions, leaks, and breathing circuit disconnections including those with high resistance at the site of the disconnection [1]. The Ontario Ventilator Equipment Pool (VEP), as part of a patient safety initiative, developed tools for the respiratory therapist to help guide the setting of safe and effective alarms on the model Phillips Trilogy200 ventilator, a model of ventilator used in the province of Ontario. The tool kit consisting of a pathway and accompanying guide provides the respiratory therapist with practical recommendations for initial alarm settings using simulation models to demonstrate “No Alarm” conditions. The tools will be presented along with case study practical applications.

REFERENCE

- ECRI Institute. Executive Brief: Top 10 Health Technology Hazards for 2018. Available at: www.ecri.org/2018hazards

SATURDAY, MAY 11, 2019 – CRITICAL CARE STREAM

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NONINVASIVE VENTILATION FOR ACUTE HYPOXEMIC RESPIRATORY FAILURE (AHRF): EPIDEMIOLOGY AND CLINICAL PRACTICE

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The current and previous clinical practice guidelines do not provide recommendations for or against the use of NIV in the treatment of AHRF. This presentation will describe the evidence (or lack of evidence) surrounding this issue. The presentation will describe some of the physiological differences between treatment options and the evidence to support device choices. Additionally, the current practice of delivering NIV to patients in AHRF will be described with comparisons between worldwide data and Canada using the LUNG SAFE database which includes over 4500 patients with AHRF by one of its authors.

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IMPROVING PATIENT CARE THROUGH WORKING GROUPS – A TALE FROM THE VGH SPINE UNIT

I Hakanson BSc RRT

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Each year more than 1000 Canadians undergo a spine injury. Spinal injuries can be the most physically and psychologically devastating injuries. BC has the highest per capita number of spinal cord injuries in Canada with most of these cases involving multi-systems. The VGH Spine Program is a world leader in SCI treatment and research. It is also BC's only Spine-specific unit. Because there is only one hospital in BC that specializes in this population, RTs that come to VGH have to learn how to properly manage the complex respiratory needs of tracheostomized and ventilated patients with very little training. In addition, the VGH Spine Unit frequently has several ventilated patients under one RT at a time, all participating in a weaning process that is individualized to them. They also have very complex needs when it comes to other systems; therefore, effective communication with the interdisciplinary team is crucial to their rehabilitation, recovery, and quality of life. Using the working group model, I joined forces with some colleagues to seek to improve our practice and eventually bring all the disciplines together to create positive change in how these

patients are cared for, and in turn, improve both patient experience and morale of staff. This is the story of our spine unit, what we've learned so far, and how we will use the working group to implement meaningful change.

SATURDAY, MAY 11, 2019 – PLENARY SESSION

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CODE ORANGE: PROTOCOLS, PROCEDURES AND RRT PERSPECTIVES FOLLOWING THE TORONTO VAN ATTACKV Flores RRT, S Gennidakis RRT, H Kanji-Jaffer RRT, J Nardi RRT
Sunnybrook Health Sciences Centre, Toronto, ON

On April 23, 2018 in Toronto, ON, a rental van was deliberately driven onto the sidewalk near Yonge and Finch, killing ten people and injuring 15 individuals. Sunnybrook Health Sciences Centre's Bayview Campus, approximately 10 km away from the scene of the tragedy, received ten of the injured, activating a Code Orange Minor. In collaboration with local EMS and Police Services, teams from Sunnybrook's Tory Trauma Program and Operating Room (OR) triaged, assessed and treated multiple victims in what was perceived to be "organized chaos". Staff Registered Respiratory Therapists (RRTs), Anesthesia Assistants (AAs) and a student respiratory therapist (RT) played vital roles within the interprofessional trauma team, providing immediate care for patients in the emergency department, OR and critical care unit. From the original trauma survey, RRTs and AAs were actively engaged in the care of these patients (i.e. intubation and ventilation, intravenous and arterial line insertion). Supportive care was provided during intra-hospital transports to imaging, interventional radiology, the operating room and intensive care areas. Lessons were learned organization-wide, which lead to the revamping of existing policies and the development of new procedures, including enhanced training opportunities (i.e. simulations, table top exercises). This ensures that Sunnybrook staff in collaboration with emergency services are prepared for any future mass casualty incidents. Experienced RRT staff, an RT student, and RT leadership will share their perspectives on the activities in the trauma room, the immediate and long-term impact on the mental health of staff and the vital importance of team debriefing following an incident of this magnitude.