



CANADIAN SOCIETY OF RESPIRATORY THERAPISTS
SOCIÉTÉ CANADIENNE DES THÉRAPEUTES RESPIRATOIRES

Proceedings from the Canadian Society of Respiratory Therapists Annual Education Conference

May 26–28, 2016 • Ottawa, Ontario

We are pleased to present a select number of abstracts from the proceedings of the CSRT Annual Education Conference. Held in Ottawa, Ontario, May 26 to 28, 2016, this conference included topics delivered by international, national and regional individuals with expertise in various areas of respiratory therapy practice, including quality assurance, patient safety, evidence-based practice, patient and family centred care, research and innovation. As evidenced by the following abstracts, the work of our colleagues in 2016 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* in order to continue building the body of knowledge specific to our profession. Please note these abstracts have not been peer reviewed.

KEYNOTE SPEAKERS

01 OPIOID-INDUCED RESPIRATORY DEPRESSION

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Opioid-induced respiratory depression, commonly defined as a respiratory rate of less than 8 breaths per minute with a lowered blood oxygen saturation in the context of opioid administration, has been feared since the first days of opioid use in clinics. Mediated by the same μ -receptors responsible for opioid analgesia, this relatively low (0.5%) but highly preventable source of morbidity and mortality is always a risk. While the administration route of the opioid is not related to the incidence of respiratory depression, very potent, long-acting preparations and infusions put the patient at risk, as does the co-administration of certain drugs—especially sedatives or drugs having a significant impact on opioids metabolism through CYP450 or change in renal function. Relatively healthy patients are rarely victims of opioid respiratory depression. However, the “very” patients (very young, very old, very obese and very sick) and patients with sleep apnea, are more susceptible. They should be closely evaluated / monitored to ensure adequate pain control without respiratory depression. In the setting of opioid-induced respiratory depression, one could try non-pharmacological approaches, such as non-opioid pain control (pharmacological or other) and verbal/physical stimuli, while carefully monitoring the patient. Should opioid reversal be needed, naloxone should be given by any trained health professional, in small boluses of 40-100 mcg every 2 minutes, titrated to respiratory drive, not awakening nor pain control.

PLENARY SESSIONS

02 MAKING A DIFFERENCE: NOT JUST RESPIRATORY CARE

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Becoming a respiratory therapist was an easy decision. The fast-paced environment, high adrenaline situations and ever-changing technology is intensely attractive. Treating many patients every day, working against strict time constraints, and helping the healthcare team manage a disease is exciting. Our healthcare system is fantastic at managing disease. The problem is just that. “Disease management” is only one part of the patient's care. Related to a unique personal experience, one teenage girl's devastating diagnosis forced the staff at BC Children's Hospital to open its eyes to the true meaning of holistic patient care. With many road blocks along the way, we were given no option but to make her life in hospital the most enjoyable we could. Taking her out to the mall for her craved poutine snack, to her high school graduation dance, and to the fabric store to buy her favorite patterns were just a few of the items we helped to check off her bucket list. Working together in a multidisciplinary team with the support of the patient, her family, and local community, we were able to help make her last days the most memorable and enjoyable days possible. After becoming such an integral part of this patient case, I now know what complete patient care truly means. Becoming a therapeutic partner with individuals, families, and communities, I, along with many of my respiratory therapist colleagues, were able to achieve the most rewarding experience of our careers to date.



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STUDENTS' FORUM

03

PREPARING FOR CLINICAL

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This retrospective review of personal clinical experience is aimed at helping SRTs entering their clinical year better understand what is expected of them and help with their transition from classroom to clinical. The transition can be difficult for some, and my goal is to try to bridge the gap between knowledge and practice. As a recent grad, I will share my experience throughout my 8-month clinical; the good, the bad, the ugly. I will talk about what to expect during different rotations, focus on a couple pathologies and ventilation strategies, and when and how to start looking for a job. I am by no means an expert, but hopefully some of my experiences will not only help the SRTs in their clinical year, but also give them hope and encouragement on their paths as they join this wonderful career.

04

CLASSROOM TO CLINICAL: MORAL & TRAUMATIC CHALLENGES

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Throughout your classroom years as student, you will be warned about the challenges you may encounter in your clinical year. However, it is not until you are put in that trauma bay or moral dilemma that you are ultimately forced to face the inevitable. For some, an easy task—but for others, it's difficult to cope or isolate themselves from overwhelming emotions. The expectation of what students may encounter clinically in terms of moral, ethical, and traumatic cases is touched upon in the classroom, but the reality of being put in that position is understated. For a young student to see a child at the bedside of their deceased father may hit closer to home than they would expect. Or for a student, who is also a mother, discontinuing care on a newborn may ultimately be too much to cope with. Or when a decision is made in a patient's care plan that you disagree with—as a student, how do you stand up to or handle this ethical dilemma? The expectation versus reality of situations such as these are examples that students need to be enlightened about. This will allow them to be more prepared with tools and coping mechanisms when expectation becomes reality in their practicum year.

05

COPING WITH SHIFT WORK AND SLEEP DEPRIVATION

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Shift work and extended working hours is common practice amongst many healthcare professionals, including respiratory therapists (RTs). They respond around-the-clock to high stress situations, which can lead to major consequences if the worker is not getting an adequate amount of sleep. Working within an ever-changing schedule, such as the day/day/night/night rotation that many RTs work, can change a person's natural circadian rhythm, leading to sleep deprivation. This, in turn, can lead to safety concerns for both the worker and their patients. Sleep deprivation also presents a major concern to both healthcare workers and their employers, resulting in millions of dollars per year in lost income, absenteeism, reduced productivity, compensation costs and attrition due to disability, death, or employee relocation. Safety of the worker and the patient is of utmost concern. The worker must be cognizant and alert to be able to fulfill their duties in a safe and effective manner. This can be statistically proven by the increase in needle stick injuries, which double when a worker is

severely sleep deprived. There is an increase of 28% in general incidences over the course of a night shift, all attributed to sleep deprivation of healthcare workers. Education is an important key to bringing awareness of what sleep deprivation is, its effect on the human body, safety concerns, and ways to cope with working within a changing schedule in order to avoid some of the associated pitfalls.

06

DEALING WITH DEATH

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At the 2015 CSRT conference in Calgary, a question was posed to new grads during the student forum: "What do you feel like school hadn't prepared you for?" All former students in the panel agreed that they felt the least prepared to deal with death. At the 2016 CSRT conference, I plan to assist new students as they prepare to deal with death, dying, and the families of those who have just passed through personal stories and experiences. My goal is to help students be better prepared for the transition from simulation, where a "patient" doesn't make it, to a hospital setting where a live person is in front of you, rather than a plastic doll. Hopefully this talk can open up channels to allow students to share their experiences and gain support from others. This talk can hopefully empower students to feel more confident going into their clinical placement and provide them with a better understanding of what to expect in terms of end-of-life.

07

CLINICAL EVALUATION OF STUDENT PRECEPTOR RELATIONSHIPS

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Student preceptor relationships are a vital component to how a student respiratory therapist develops their clinical knowledge and skill set, interpersonal skills, attitude, and overall clinical competence. Conflicts within this relationship pertaining to communication, interpersonal conflict, and attitude can be a deterrent to the student and may affect their performance as a respiratory therapist. Currently, there is no evaluation of this relationship for respiratory therapy students across Canada. By conducting a national evaluation and comparison of this relationship via an online survey sent to students and preceptors, supported with a literature review on student preceptor relationships, problem areas will be identified with suggestions for improvement as to better future student preceptor relationships.

EDUCATORS' FORUM

08

PRECEPTORS: GROWING THE NEXT GENERATION

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Preceptoring is the basis of how the RT profession is propagated. It has been demonstrated in the literature that graduates integrate into their practice the knowledge, skills and attitudes role-modeled by their preceptor. As such, quality preceptoring is crucial to maintaining and increasing the importance of our profession in healthcare. A review of the literature also reveals the student-preceptor relationship is a key component to ensuring a quality graduate and the delivery of quality patient-care—both by the preceptor-student pair and in future graduate. In short, strong preceptors create strong students, who in turn create strong professionals in the workplace. So when is the best time to instill the core skills of preceptoring? As many RT students begin in the preceptor role shortly after graduation the SAIT RT program has targeted preceptor development to be introduced at this key moment—the final week of the RT program prior to graduation. In a novel approach combining small workshops with

Abstracts

simulation, core preceptoring skills are developed. This presentation will outline how preceptor training was integrated into the SAIT RT program and how simulation was used as a key tool to solidify essential preceptor skills. Student feedback on this experience will be used to explore the success of this approach.

09

PLASTIC TO PEOPLE: A STUDENT'S TRANSITION

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As students, one of the most uncomfortable moments on our first day is when we walk into a patient's room and they acknowledge our presence. As strange as that may sound, until this moment we've spoken to nothing more than plastic – so a real, breathing human being can come as quite a shock. Of course, as students we know that the patients we care for are just like us, but until we step into that room, the whole picture hasn't really come into focus. The goal of this presentation is to provide the educators a better understanding of that switch that students have to deal with continually throughout the clinical year. Each interaction, like each patient, can be very different than the last, and can cause a continuous shift in thinking and understanding of patient care. Educators need to understand that no matter how advanced a simulation lab is, until you place a real patient with real problems in front of a student they can never fully see it as you do. This presentation will cover a broad range of not only patients – from end-of-life to newborns – but also clinical experiences that I have found myself in as a student and felt overwhelmed in. The goals for the presentation are to not only help the educators run a more effective simulation, but to also educate the clinical RTs who are working one-on-one with students, on how to guide students through these new experiences.

10

EVOLVING RT CLINICAL EDUCATION: PEER LEARNING

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BACKGROUND: Increasingly, many health professions are exploring the use of peer learning models in clinical education. Peer learning can be defined as students learning from and with each other in both formal and informal ways. Traditionally, at University Health Network (UHN), respiratory therapy (RT) clinical education has been provided using a 1:1 student-to-preceptor ratio. However, with recent clinical placement demands exceeding supply, the UHN RT department has implemented a 2:1 student-to-preceptor model where a focus on peer learning becomes a key component of program success. The benefits of peer learning commonly discussed in the literature include an increased depth of knowledge gained from peer discussions, student leadership development, competence, critical thinking, teamwork, and communication skills.¹ The shift towards facilitative student directed models have become apparent worldwide, particularly in the disciplines of occupational and physiotherapy.² As the ways in which successful peer learning is understood and enabled may be different in different professions, a RT specific exploration of peer learning is a necessary step in the development of this model.

OBJECTIVE: We aim to study how *successful* peer learning is defined by the preceptor and students in the RT clinical environment, in order to understand how it is enabled in practice based education.

METHODS: A qualitative descriptive study using a demographic questionnaire and single episode semi-structured interviews with preceptors and students (estimated n=20) will be conducted during the 2015/16 RT student clinical year.

EXPECTED RESULTS: Through a greater understanding of what successful peer learning is, the results of this study will assist us in developing a framework to facilitate successful peer learning in the RT clinical setting.

IMPACT: This study will aid in the development of the 2:1 model in a way that is specific to the profession of RT although the strategies utilized may prove insightful for other professions.

REFERENCES

1. Currens & Bithell. The 2:1 clinical placement model: perceptions of clinical educators and students. *Physiotherapy* 2003;89:204-18.
2. Rindfleisch, Dunfee, Cieslak et al. Collaborative model of clinical education in physical and occupational therapy. *J Allied Health* 2009;38:132-42.

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RAM CANNULA IN A 3D-PRINTED NEONATAL NOSE MODEL

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A new interface, the Neotech RAM Cannula, is now available to use as a non-invasive nasal interface for the neonatal population. The simplicity of its design does not require the use of head gears and other facial adjuncts to stabilize the interface, making it ideal in the prevention of pressure damage to the face and allowing for cranial development. However, a 20-40% leak must be present when using this interface to allow for exhalation, resulting in loss of set pressures when providing non-invasive respiratory support. Interestingly, there have been many centers trialing the Neotech RAM Cannula, with limited evidence supporting this therapy. The current study uses a 3D printed model of a nose to mimic the 20-40% leak when using the RAM cannula to provide CPAP and BiPhasic ventilation on a variety of neonatal ventilators. The results show that the premie-sized RAM cannula exhibits significant pressure loss, which is likely due to the tapering of the inner diameter of the opening of the prongs. The inner diameter of the tubing is 4.0 mm, while the inner diameter of the prongs is 3.5 mm, creating a significant loss of flow and thus generating a loss of pressure compounding the loss of pressure from the leak. The newborn-sized prong was consistently able to conserve most of the set pressure when a 20% leak was present when used in conjunction with the Servo-i and the Babylog VN500. The research team suspect that this may be due to the position of the pressure sensor within the ventilator circuit, or the algorithm that these companies decide to use to generate non-invasive ventilator pressures, or a combination of the two.

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MAN-IKIN ON THE RUN: IN SITU SIMULATION

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In situ simulation allows teams to practice together in their genuine working environment while providing innovative opportunities to identify areas for quality improvement. Simulation education in general has gained a substantial positive presence in education literature over the last decade. While there is literature highlighting the benefits of in situ simulation over simulation laboratory education sessions, its adaption into curriculum and continuing education remains limited. In addition to traditional uses for in situ simulation (mainly education and team training), this workshop will focus on expanding the role of in situ simulation to identify latent safety hazards (LSTs) with the goal of ultimately providing better quality health-care to the patients. By identifying the potential challenges and barriers and discussing the application of evidence-based practice tips for a successful in situ simulation program in their institutions, participants will have the opportunity to apply knowledge gained from this workshop into their own practice environment.

13

OPTIMIZING EVALUATION IN HIGH FIDELITY SIMULATION

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The purpose of high fidelity simulation in respiratory therapy education is to help learners combine knowledge and practical skills gained in previous courses in preparation for real world clinical practice. The intent of this action research project was to investigate the effectiveness and objectiveness of learner evaluation methods used in the high fidelity simulation course offered as part of the curriculum of a three-year Respiratory Therapy

advanced diploma program. A comprehensive literature review supported the theoretical framework of this project. A mixed-method approach to data collection was used. One paper-based questionnaire was completed by 47 participants to identify learner satisfaction with the simulation experience. An online questionnaire was completed by 16 participants to identify learner satisfaction with the evaluation methods and to gather suggestions for improvement. The qualitative component of the project involved two focus groups exploring 7 participants' impressions of how evaluation practice in the course affected their learning process and competence in preparation for formal assessment. Data analysis found that the majority of participants were generally satisfied with the current evaluation process and considered the practice objective and effective in helping learners achieve their learning goals. Areas for improvement have been identified, and practice improvements such as team and communication skills assessment, student self-reflection assessment, and changing the grading system from a numerical grade system to a pass/fail system were suggested. The project offers suggestions for future research, including the development of a standard evaluation rubric in high fidelity simulation in respiratory therapy in Canada based on the national competency profile for entry to practice.

LEADERS' FORUM

14 LEADERSHIP SKILLS BEYOND RESPIRATORY THERAPY

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Respiratory therapists are born leaders. In all areas of clinical and private practice, they are frequently forced to make critical decisions in team based and independent situations. The core of their learning and ongoing development is largely based in communication and critical thinking strategies. This presentation will review the essential competencies that enable respiratory therapists to be leaders beyond their realm of clinical proficiency. It will discuss the attitudes, skills and knowledge that are required to move clinicians into leadership positions within and outside of healthcare. Using case study reviews from respiratory therapists who have evolved their careers in varied pathways, traits and competencies will be revealed to assist emerging leaders in considering their leadership development.

15 LANGUAGE EFFECTS ON QUALITY HEALTH SERVICES

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In healthcare, there are many important aspects that play a part in the quality of care a patient receives. As our population continues to diversify, we are more frequently providing care for patients that may not speak English as a first language, or at all. Identified as language barriers, this presentation will review the challenges that we currently face in providing quality care to these groups and the impacts it has on both the healthcare system and the patient. Historically, those who do not speak the language of majority are found to be of poorer health. A review of various literature will discuss the issues that exist within the healthcare system and the influence it has on patients, communities and populations. The gaps and barriers in which research wasn't able to identify the discrepancies between these groups will be identified. As a respiratory therapist, the inability to communicate and understand a patient can significantly impact the course of treatment, investigations and, most importantly, the quality of care. There are many projects and agencies that tackle this issue directly, and an introduction will provide a resource to clinicians working directly with patients and language barriers.

16 INTO THE FIRE: AN RT IN EBOLA COUNTRY

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In the spring of 2013, Ebola struck West Africa for the first time. Within a few months, the outbreak was spiralling out of control. I travelled to Sierra Leone to work in an Ebola treatment centre run by Save the Children. In this talk, we will look at the history of this dangerous virus, the social and political factors that played a part in the severity of this particular outbreak, how I became involved, the inner workings of the hospital, and some stories from my personal experiences and those of my colleagues while fighting this disease on the front lines. For anyone who has considered relief work in a low resource environment, this will be an inside look at what it's really like to put yourself in harm's way in a foreign land.

17 MENTORSHIP: SUPPORTING NEW STAFF

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Transitioning from a student to a professional role can be challenging and stressful without a standardized orientation and mentorship process. Fraser Health Authority became aware of these challenges and developed a mentorship process to overcome these issues. This presentation will outline how Fraser Health Authority has implemented the mentorship process for new hires, along with the specific tools used to help orientate staff in the workplace. Implementation of the mentorship process will be discussed, including an outline of the process itself, which consists of mentee/mentor roles and responsibilities, different learning and teaching styles, and stages of mentorship. We will discuss the challenges that the new hires and staff faced prior to implementation, followed by the differences after a standardized mentorship process was initiated. Specific examples of challenges and successes before and after the mentorship process was implemented will be discussed. The mentorship process has helped new hires in Fraser Health Authority gain experience, build confidence, and improve competency, which ultimately allows new hires to optimize successful entry into their role in order to provide exceptional patient care.

18 USING GAMIFICATION TO ENGAGE AND MOTIVATE

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Building strong engagement and motivation while working towards a shared goal are some of the foundational traits on which the gaming industry is built. *Gamification* is the use of game elements and design in non-gaming contexts, and is rapidly spreading internationally as an exciting way to change established patterns of behaviour. This session is designed to provide participants with an understanding of how motivational theory and game design can engage patients, families, and those working within the health system to improve quality of care. Participants will be able to articulate the rationale for using gamification in a health improvement context; consider strategies to shift behaviour using extrinsic and intrinsic motivators; and explain the basic elements of games and how they can be applied in health improvement initiatives.

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BUILDING THE NEW OAKVILLE HOSPITAL: SHOW ME THE RT!

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The build of a new 1.6 million square foot hospital in Oakville, Ontario, from the ground up was an undertaking of magnificent proportions. It brought together a myriad of individuals from many fields, each with a unique and important contribution to the project. Within the healthcare organization, an interdisciplinary approach was required to identify specific hospital requirements for a state-of-the-art facility while providing vision and clarity to new and transferable processes. Externally, collaboration with builders, architects and consultants was essential for the design development process to ensure that patient care was nothing less than perfect once the building was fully functional. This presentation will demonstrate how respiratory therapists (RTs) played an integral role in the design and decision-making processes involved in the building and opening of a new facility. It will highlight the stages involved in this ambitious and massive project, along with the successes and challenges from an RT perspective. It will demonstrate how the direct appointment of RTs into redevelopment specialist and operational readiness roles played a major part in the successful transition to the new Oakville Hospital and future redevelopment projects. Additionally, there will be emphasis on how both the clinical expertise and leadership skills of RTs have contributed to the acquisition of nontraditional RT roles at Halton Healthcare.

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RESPIRATORY THERAPISTS WITHOUT BORDERS: HOW RESPIRATORY THERAPISTS GIVE BACK GLOBALLY

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There is a growing interest in respiratory therapy professionals who wish to give back globally and make strategic and sustainable contributions to improving respiratory health by sharing expert skills, knowledge and experience. Respiratory Therapists Without Borders (RTWB) exists to improve respiratory health through education advancement of local healthcare providers worldwide. RTWB balances on 3 pillars: Healthcare Education Partners (HEPs) that drive the existence of RTWB by identifying respiratory education gaps worldwide; the Professional Network (PN), which is a conglomerate of respiratory care professionals with a unified passion to advance respiratory health; and deployment teams that are formed to support the HEP with on-site training. Collectively, these 3 pillars enable RTWB to fill specific gaps in respiratory education for individual HEPs, enhance the professional network by sharing knowledge and experiences, and provide volunteers with enriching and impactful experiences abroad. The developing HEP network consists of 11 sites across 3 continents from reputed teaching hospitals to research groups. The growing PN is 215 volunteers strong from both public and private sectors, bringing bedside and managerial experience from around the globe to meet HEP needs. Since Canadian charity registration (July 2014), there have been 7 deployments. This presentation will outline the projects undertaken in each deployment, highlighting the successes achieved.

CRITICAL CARE

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INTRODUCING VOLUMETRIC CAPNOGRAPHY INTO THE ICU

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Volumetric capnography (VCap) is a powerful monitoring tool that can help support clinical decision making in the intensive care unit. The technology has been available for decades; however, difficulties in understanding

and interpreting the measured values have led to limited use in some intensive care units. VCap is the graphical representation of the CO₂ concentration (Y-axis) against the expired tidal volume (X-axis), and can be used to calculate dead space. VCap also provides information about CO₂ production, its transport by systemic circulation, its diffusion into the lungs, and its elimination via alveolar ventilation. A short review of capnography will be provided, as well as a thorough explanation of how VCap measures the exhaled volume of CO₂. A review of the current literature will be presented to help clinicians understand the clinical application of VCap and different ways it can be used in the intensive care unit (e.g., ARDS mortality, PEEP titration, dead space measurements, sepsis, etc.). Lastly, a case study will be presented to help further concrete the clinicians understanding and interpretation of the VCap values. With advances in VCap technology and an improved physiological understanding, we will hopefully see its increased use in intensive care units throughout the country.

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SEPSIS: AN UPDATE AND CASE-BASED REVIEW

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Sepsis is a life threatening medical condition characterized by a widespread, overwhelming inflammatory process that is triggered by infection. Each year there are more deaths associated with sepsis worldwide than myocardial infarction and any one type of cancer. Unlike many other life threatening conditions, sepsis is not selective—it occurs in young, healthy individuals as well as in the elderly. Despite advances in critical care medicine, this condition continues to have a huge financial impact on our healthcare system. What does this have to do with respiratory therapy? Of the clinical conditions associated with Acute Respiratory Distress Syndrome (ARDS), sepsis is the leading cause. Furthermore, mortality in sepsis is dependent on patients receiving appropriate treatment within hours of diagnosis. As such, it is imperative that healthcare professionals be able to recognize the signs and symptoms of sepsis. In acute and critical care areas, respiratory therapists are often consulted at the first sign of patient deterioration. Therefore, our profession is uniquely positioned to advocate for the early recognition and management of sepsis. This presentation will equip respiratory therapists with an understanding of the latest evidence based guidelines on the diagnosis and treatment of one of the leading causes of death worldwide.

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OXYGENATION OF THE CRASHING EMERGENCY DEPARTMENT PATIENT

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Risk stratification of an adult patient who requires emergency airway management is crucial to patient survival. Categorizing the patient's clinical state allows the emergency provider to prepare and initiate treatment for definitive airway security and management. The emergency provider must consider the patient's anatomical challenges, establish a strategy for proper positioning, and utilize accessible equipment in order to maximize this process. This presentation will review pre-oxygenation and peri-intubation oxygenation techniques for the adult patient. The goal of the emergency provider is to decrease a sick patient's risk of hypoxemia. Critical desaturation will put a patient at risk for hemodynamic instability and possibly, death. Once a patient's oxygen saturation reaches the end of the oxyhemoglobin dissociation curve's "plateau," the risk of precipitous desaturation and compromise is high. It is probable that a patient in respiratory distress will progress to hypoventilation and have periods of apnea. The need and intention to place a definitive airway in a critical patient during RSI or DSI will contribute to further hypoventilation and apnea. Pre-oxygenation and peri-intubation oxygenation will promote "safe apnea" during this period of critical care, thus preventing catastrophic desaturation.

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CHLOROHEXIDINE-BASED TRACHEOSTOMY CARE

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BACKGROUND: The use of chlorohexidine as an antiseptic cleaning agent has been proven in wound care, invasive procedures and dental use. Thus, the use of chlorohexidine as an antiseptic in tracheostomy care may decrease the amount of infection and promote tissue healing in early tracheostomies and developed stoma sites.

OBJECTIVE: To assess the application of chlorohexidine in tracheostomy care.

METHODS: A literature review of research on the application of chlorohexidine to tracheostomies showed no harmful outcomes. Chlorohexidine showed the ability to kill gram positive, gram negative bacteria and some strains of MRSA. The use of chlorohexidine is now being trialed and compared to standard tracheostomy care with normal saline. Therapists will judge how they like it, and a retrospective chart review will be performed. The ongoing results will be presented at the Canadian Society of Respiratory Therapy.

CONCLUSION: Currently, the only research available for chlorohexidine-based tracheostomy care concerns insertion. Based on the current literature about using chlorohexidine-based solutions as the standard in ostomy and wound care, one can infer the benefits for tracheostomy care; however, further research is still required for the routine use of chlorohexidine. In summary, the practical application of chlorohexidine in tracheostomy care is safe, efficient, and cost effective.

NEONATAL AND PEDIATRIC

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TRANSITION OF THE PEDIATRIC PATIENT TO THE COMMUNITYC Gnanasabesan MSc(cand) BSc RRT¹, F Syed BHSc RRT²¹Holland Bloorview Kids Rehabilitation Hospital; ²SickKids Hospital, Toronto, ONcgnanasabesan@hollandbloorview.ca, faiza.syed@sickkids.ca

The continuum of care for medically fragile children, many of whom are technology dependent, requires the careful allocation of resources, respiratory supplies, equipment and/or oxygen. Balancing clinical care and the stability of a pediatric patient with quality of life opportunities is important. However, this brings tremendous responsibility and accountability to the respiratory therapists (RRTs) involved with this unique population. RRTs demonstrate advanced leadership in preparing for these transitions to the community to ensure that the children are not only stable when discharged from the hospital, but are able to be safely cared for by their caregivers and community care providers at home. This presentation showcases the diligence and extraordinary efforts of RRTs from an acute care hospital (SickKids) and from a long-term care rehabilitation hospital (Holland Bloorview Kids Rehabilitation Hospital), focusing on care pathways: models of care delivery that are geared towards rehabilitation and habilitation for the final discharge at home. Approaches that combine a model of family centered care, cultural sensitivity, use of interpreters and creative strategies will be illustrated. Case studies of children and their caregivers are presented to highlight the methods and approaches to overcoming the challenges faced when transitioning these patients into the community.

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TRACH SIMULATION COORDINATOR: A NEW ROLE

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In 2013, the Alberta Children's Hospital (ACH) in Calgary identified improving care coordination for children with complex airway needs (i.e., tracheostomies with or without mechanical ventilation) as a site-wide priority. A quality improvement project was initiated to enhance

service integration across the continuum of care, from PICU to community care. Gaps and challenges identified within the current system included: no integrated education curriculum or process to support families caring for children with complex airway needs in the community; acute care and hospice/respite care staff with limited awareness of community care standards and a lack of chronic ventilation expertise; and challenges in staff maintaining expertise given low patient volumes. To address these gaps, a new role was created to bring home respiratory and ventilation management and education expertise into the hospital and hospice/respite environments. The Trach Simulation Coordinator is responsible for leading development of a best practice educational suite for tracheostomy care and chronic home ventilation, tailored to each child and the caregivers involved in their care. Families will be supported by education, simulation, and navigation throughout the in-patient process so they are prepared to care for their child in their home and community. This role will act as the resource and support for both families and staff to address the unique airway needs of these complex children, so they can get home quickly, stay home with the services and supports they need, and be supported when they require hospital or hospice/respite readmission.

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NEONATAL EMERGENCIES AND THE RESPIRATORY THERAPIST ROLE

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This narrative reviews how the knowledge, skills and judgment of the respiratory therapist can be applied to the management of neonatal emergencies. The mnemonic "THE MISFITS" represents Trauma, Heart Disease, Endocrine, Metabolic, Inborn Errors, Sepsis, Formula Mishaps, Intestinal Catastrophes, Toxins, and Seizures. These categories represent broad differentials and a systematic approach to the recognition, emergency stabilization, and management of the common newborn emergencies.¹ In each of these categories, there are areas where the core knowledge, skills and judgment of the respiratory therapist can be applied. This includes, but is not limited to, physical assessments, interpretation of diagnostic testing, and performance of invasive procedures that can be applied to the stabilization and management and reduce morbidity and mortality. Similarly, it is shown how using "THE MISFITS" mnemonic can be applied to undifferentiated case studies to determine possible differentials.

REFERENCES1. T Brousseau and GO Sharieff, *Pediatr Clin N Am* 53(2006);69-84.

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COULD NON-INVASIVE NAVA BE MORE EFFECTIVE THAN CPAP FOR THE TREATMENT OF INFANTS 28-32 WEEKS GA WITH RDS?

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A 20-patient NICU pilot study was completed, comparing CPAP to non-invasive NAVA in infants 28-32 GA with RDS. The objective of the pilot study was to determine the adherence to the protocol. Infants with RDS are successfully being supported with CPAP. Non-invasive NAVA might present a strategy that improves outcomes with both synchrony and respiratory offloading compared to CPAP. Clinical outcomes were similar between groups and there were no adverse events. Adherence to the protocol was high, indicating that an RCT can be developed to assess if non-invasive NAVA can be used as a primary mode of respiratory support for infants 28-32 weeks GA. As clinicians well-known for the ability to respond and adapt to rapid changes in healthcare and technology, RTs are positioned well to critically examine and challenge EBUS assist practices. We believe we can translate this research to advance this area of practice in respiratory therapy.

CHRONIC CARE

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CHRONIC NOCTURNAL NON-INVASIVE VENTILATION IN COPD: WHERE DOES THE LITERATURE LEAD US?

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Severe COPD is associated with chronic dyspnea, reduced functional capacity and quality of life, frequent hospitalizations and high mortality. A subset of patients will develop chronic hypercapnic respiratory failure. Non-Invasive Ventilation (NIV) has been well-established as a beneficial intervention in the acute setting in severe hypercapnic COPD exacerbations. However, data demonstrating the clinical benefit of long-term nocturnal home NIV in COPD have been less convincing, and often conflicting. Despite this lack of evidence, chronic NIV use is high in some parts of the world. New evidence suggests that NIV may confer a mortality benefit in chronically hypercapnic patients. Controversy remains regarding issues such as use of "high-intensity" NIV, physiologic goals of NIV, patient selection, and timing of initiation.

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OVERVIEW OF PROVINCIAL HOME VENTILATION MODELS: QC PNAVD / ON VEP

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The evolution of home mechanical ventilation over the last couple of decades has seen clinical practice change to meet the complex and unique respiratory needs of this patient population. There is an increased demand for home ventilation due to available technologies that support an expanding number of diagnoses. New and emerging specialized services and technologies for supporting the ventilator-assisted individual (VAI) at home will be discussed. An overview of two distinct provincial programs, Quebec's PNAVD and Ontario's Ventilator Equipment Pool (VEP) will be presented, with an emphasis on how each program is rising to meet the needs of VAIs, their caregivers, and clinicians. The participants will also have an opportunity to hear first-hand testimony from a ventilator-assisted patient.

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USING RESEARCH TO EFFECT CHANGE IN THE COMMUNITY: A CASE-BASED APPROACH

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Observational research is an alternative to the gold standard of randomized controlled trials within healthcare research, and its application to healthcare issue are warranted when interventional studies are unethical or impractical. While frequentist methods of analysis are well-suited to interventional medicine, their application to subjectively-collected observational data have been brought into question. Exploring alternative forms of methodology and analysis open avenues for the researcher to derive more appropriate inference from observational studies. Bayesian analysis has been presented as a more *flexible* method of analysis in modeling subjective data by incorporating prior information. Additionally, Respondent Driven Sampling (RDS) has been offered as a means of sampling and analyzing hard-to-reach populations in an unbiased manner. Using data collected from two large observational studies in British Columbia, the presenter will provide practical examples of the application of Bayesian analysis in comparison to frequentist analysis in the context of subjective data, as well as RDS methodology and analysis to derive unbiased estimation from a non-probability sample. With the acceptance and application

of these methods and analysis to observational data, the presenter hopes respiratory therapists may expand their contribution to evidence-based healthcare research.

DIAGNOSTICS AND THERAPEUTICS

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DROP THE NEEDLE: RT ROLES AND EXPERIENCES IN ENDOBRONCHIAL ULTRASOUND ASSIST

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Endobronchial ultrasound (EBUS) is a minimally invasive bronchoscopic procedure used for the diagnosis of lung lesions. When paired with transbronchial needle aspiration of the mediastinal lymph nodes, EBUS allows for the detection and staging of lung cancer. Although a relatively new procedure, it is now performed by bronchoscopists across Canada, generally assisted by nurses and respiratory therapists (RTs). EBUS is a largely undocumented area of practice for RTs in Canada. Without formal training programs or recommendations for competency, RTs assisting with EBUS are relying on their knowledge and skills in acute airway management and conventional bronchoscopy to develop this role. Providence Health Care's St. Paul's Hospital in Vancouver has been performing the two types of EBUS, linear and radial, for over six years. As RTs working in the area, we have been setting our own practice standards and self-monitoring for quality. With the number of EBUS cases performed rising annually, we have been challenged to routinely evaluate our processes and alter our practices to continue providing safe patient care. Examples of quality improvement initiatives implemented at our site include a pre-procedure checklist, enhanced patient monitoring with the use of end-tidal CO₂, and changes to scheduling and staffing to improve patient flow. Owing to the specialized nature of this role, seeking out the experiences of other RTs assisting with EBUS procedures was recognized as an important way to evaluate processes and improve quality of care. We designed a web-based questionnaire querying the general processes, staffing models, and training procedures occurring at the other eight EBUS sites across British Columbia. We will be sharing the responses to provide an exciting first snapshot of RT practice in EBUS assist. We further intend to use these shared experiences to open a dialogue on standardizing practice in this new and specialized field of practice.

ANESTHESIA ASSISTANTS

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THE EP LAB AND TEE RELATED PATHOPHYSIOLOGY: A REVIEW OF CASES

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Anesthesia Assistants performing procedural sedation and analgesia in the Cardiac Catheterization Lab can be very fulfilling and, at times, very challenging. Patients present with interesting medical histories and current cardiac status; decisions regarding minimal sedation vs deeper sedation have to be made. Length and type of procedure vary, and surprises could arise at any time. In this presentation, the learner will review a wide variety of information on cases which involve pacemakers, ICD's, EP mapping and Ablation therapies, as well as transesophageal echo (TEE) anatomy and pathophysiology.

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**MASSIVE TRANSFUSION PROTOCOL AND THE AA:
HOW TO STOP THE BLEEDING****H Syer BA(Hon) RRT-AA****Halton Healthcare, Oakville, ON****hmsyer@gmail.com**

We have all been there: a sudden snip, a post-partum hemorrhage, an ER trauma, a ruptured AAA. All of a sudden you are scrambling to cope with massive blood loss in an environment of escalating panic; tension is rising, vitals are falling, alarms are ringing. Though everyone wants to help, no one is quite sure of his or her role, or what exactly needs to be done. In this confusion, precious life-saving seconds are wasted, and the likelihood of survival decreases. At Halton Healthcare, we recognize that as a growing community hospital, we are caring for an ever-expanding patient population, and are offering healthcare services in larger settings than we ever have before. Our introduction of a vascular surgical program, as well as an expanding labour and delivery program, made us realize we needed to implement a massive transfusion protocol to best avoid the scenario described above. This presentation will provide the basics on massive blood loss, and what is meant by a massive transfusion protocol. It will identify the key staff members necessary to carry out such a protocol, and highlight in particular the role of the Anesthesia Assistant. Lastly, it will discuss how the protocol went from concept to reality within Halton Health Services, and hopefully will inspire those listeners who do not have such a protocol to take the lead in their own institutions to make theirs a reality as well.

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**ANESTHESIA ASSISTANTS YESTERDAY, TODAY AND
TOMORROW****JA Robblee BSc MBA MD (FRCPC)****University of Ottawa Heart Institute, Ottawa, ON****jrobblee@ottawaheart.ca**

It has been well established that an anesthesia care team (ACT) provides safer, more effective and more efficient care than an anesthesiologist working alone. Although the incidence of direct anesthesia mortality in uncomplicated cases is low (estimated to be 1/200,000) the incidence increases with the complexity of the patient or the complexity of the procedure. An ACT directed by an anesthesiologist may consist of physician residents, fellows or non-physician certified nurse anesthetists or technicians. In Canada, the Canadian Anesthesiologists Society (CAS) has endorsed the Anesthesiologist/Technician model. The traditional role of the operating room respiratory therapist (RRT) included providing technical support to the anesthesiologist for the proper use and maintenance of the anesthetic gas machine. The role of the Anesthesia Assistant (AA) is relatively new, and although there is variation in scope of practice and regulations between provinces, the most common roles include providing technical support to the Anesthesiologist for complex anesthesia equipment; providing airway management assistance; and monitoring the patient's hemodynamic status, blood, fluid and pharmacological therapy. The AA provides physiologic surveillance of the stable patient under general anesthesia, regional anesthesia and for procedural sedation. The role of the AA is evolving and expanding—training requirements are becoming more rigorous, and there is demand for specialty credentialing. As patient care becomes increasingly complex, the demand for AA will continue to increase.

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**THORACIC SURGERY CASE AND OTHER POTENTIAL
IATROGENIC COMPLICATIONS IN THE OR & ICU****P Triantafillou RRT AA****Horizon Health Network, Saint John, NB****peter.triantafillou@horizonnb.ca**

Anesthesia Assistants see a wide variety of cases every day. Thoracic surgery cases usually present with interesting preoperative diagnostic workup and testing, which we don't get to see 10 minutes before the patient enters the OR. In this presentation, the learner will go back in time and review how this patient got to us and how our actions could have caused some major issues. When working in the OR and ICU, we hopefully all realize that the simple actions we perform may have detrimental consequences. A review of other iatrogenic cases will be also be discussed.

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AA CERTIFICATION PROCESS: AN OVERVIEW**J Cox RRT AA-CSRT FCSRT****Eastern Health of Newfoundland and Labrador, St John's, NL****jessie.cox@easternhealth.ca**

CSRT's Blueprint of the Profession demonstrated that certification of advanced formalized education is a priority of respiratory therapists. As such, Anesthesia Assistants are respiratory therapists, nurses and other appropriately qualified healthcare professionals that enter an area of practice known as Anesthesia Assistant after completing a recognized educational program. This session is designed to provide participants with an understanding of why the Anesthesia Assistant Certification Workgroup was formed, who are the working group members, and what unique perspective they bring to the working group. There will also be discussion on the implementation of national standards for anesthesia assistants including the AA Educational Framework, the validation of the competency framework, the implementation of a national exam and a process for the accreditation of schools that offer the AA program.

PROGRAMME FRANCOPHONE

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**LES RISQUES RELIÉS À L'OXYGÉNATION CHEZ LES PATIENTS
MPOC****M Champagne inh****Hôpital Charles-LeMoine CSSS-Montérégie -Centre, Greenfield
Park; Collège Ellis – Campus Longueuil, Longueuil, QC****mathieu_champagne@rrsss16.gouv.qc.ca**

La présentation fera une révision du transport des gaz respiratoires dans l'organisme ainsi qu'une description de certains mécanismes physiologiques présents lors de l'administration d'oxygène chez une clientèle MPOC (ex.: l'altération du rapport ventilation/perfusion, l'effet Haldane, la diminution de la drive respiratoire). Ces mécanismes peuvent entraîner une hypercapnie et accentuer la détérioration clinique d'un patient.

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