



CANADIAN SOCIETY OF RESPIRATORY THERAPISTS
SOCIÉTÉ CANADIENNE DES THÉRAPEUTES RESPIRATOIRES

Proceedings from the Canadian Society of Respiratory Therapists Annual Conference May 11–13, 2023

We are pleased to present a select number of abstracts from the proceedings of the CSRT Annual Conference. Held in Prince Edward Island from May 11 to 13, 2023, this conference included topics delivered by individuals with expertise in various areas of respiratory therapy practice.

As evidenced by the following abstracts, the work of our colleagues in 2023 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Please note that these abstracts have not been peer-reviewed.

TO SPEAK OR NOT TO SPEAK: HAVING DIFFICULT CONVERSATIONS ABOUT PALLIATIVE CARE

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Palliative care is an approach that helps people live their best lives after receiving a life-limiting diagnosis. There are many in health care and the wider community who are confused about the meaning and intent of palliative care. Questions include, what care will be offered, and when it should begin. Respiratory therapists (RTs) are in the thick of things when patients are dying of respiratory disease. In intensive care units for any age, RTs work with the health care team, patient and family continually, supporting every breath until there are no more breaths. In primary and community care, RTs collaborate with their patients, their support network, health care team and community to help maximize the quality of life for those with limited respiratory reserves until those reserves run dry. Through it all, RTs often recognize the need for difficult discussions to occur. These conversations often begin by a patient asking, “What is the most likely outcome?” or “What will it look like?” Some RTs know that certain questions need to be asked, such as, “Who will help you?” or “How will decisions be made?” Family, friends, patients and even health care providers can find these conversations too difficult to manage and so they do not occur. This uplifting workshop will provide insight into the palliative approach and discuss RTs potential role in implementing and supporting decision-making through gamification (the use of the “Hi!” game <https://commonpractice.com>) to initiate discussion with patients, families and team members.

MORAL INJURY: RTS’ EXPERIENCES DURING THE COVID-19 PANDEMIC

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Moral injury has been defined as a profound psychological, social and existential distress that some people experience after situations in which their moral values are violated (Litz et al., 2009). Playing a vital role in Canada’s health care response to the COVID-19 pandemic, respiratory

therapists may be at an elevated risk for moral injury given widespread exposure to varied potentially morally injurious events during the pandemic. For example, some health care workers have reported having to provide care that they perceived to be futile and having to enforce no visitor policies as morally injurious events (Riedel et al., 2022; Xue et al., 2022). Critically, moral injury is associated with a host of deleterious impacts to mental health and functioning, including incapacitating feelings of guilt, anger, shame and betrayal, a shattered sense of identity, a loss in belief in the world as a just place, and symptoms of depression, anxiety, post traumatic stress disorder (PTSD) and suicidality (Litz et al., 2009). Our research group has spent the last 2 years surveying and interviewing Canadian Respiratory Therapists to better understand their experiences with moral injury during the COVID-19 pandemic. In this lecture, we will define moral injury, including its shame and betrayal subtypes, discuss factors associated with moral injury, share quantitative and qualitative results of moral injury in respiratory therapists during the pandemic, and offer practical suggestions for how respiratory therapists can monitor themselves and their colleagues and seek support as needed.

AN RT SPECIFIC APPROACH TO NEONATAL CHEST X-RAYS

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Respiratory therapists are key resources in the multidisciplinary team that care for neonates requiring resuscitation and intensive care after birth. They are relied on for their expertise in airway management, assisted breathing and cardiovascular stabilization. The neonatal chest x-ray remains the most common diagnostic imaging procedure in the neonatal intensive care unit (NICU). New x-ray machines with point of care image viewing and electronic medical records that make x-ray images available to all providers have greatly improved access to the information that an x-ray contains. While often used for medical diagnosis, x-rays also contain an abundance of non-diagnostic information that can be used by respiratory therapists to plan and optimize their management of the



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neonate's airway, breathing and circulation. This presentation combines evidence and practice from the relevant literature and outlines a structured approach specifically for respiratory therapists. It breaks down the assessment into "layers" of the patient (ie. soft tissue, bones, lungs, heart, lines/tubes) to extract maximal information relevant to the respiratory care of the neonate. The respiratory therapist can then consider the information and apply it to optimize their care and troubleshoot complications. This presentation walks through how to apply the approach and includes actual neonatal chest x-rays in mini case studies. The attendee will leave with both an RT-specific and effective approach and experience applying it to real case examples. They can apply the approach to neonatal patients to optimize the effectiveness of their care and reduce the morbidities associated with neonatal respiratory intensive care.

PROCEDURAL SEDATION AND PICCS TO PRIVATE CLINICS

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From 2020 to 2022 peri-operative service delivery was dramatically reduced (globally), resulting in increased surgical wait time for patients. This exacerbated an already backlogged system at this tertiary care pediatric facility. A pilot project was proposed and funded as a novel approach to use a separate (private) facility with available capacity to safely deliver high quality [government funded] health care to patients with no reduction in the standard of care. This satellite facility provided their own nursing and ancillary staff, along with physical space, anaesthesia and surgical equipment. Anaesthesia and surgical personnel rotate through the satellite campus from the main site with one service providing care each day, in an allotment of 2 days per week. While this may have helped to work through the case load, only patients meeting certain criteria are able to receive care at this satellite location. Eligibility for satellite location surgery includes ambulatory surgery patients, greater than 6 years old, ASA 1, no pre-operative sedation requirements from Oral and Maxillofacial (OMF), Dentistry, Urology, Plastics and Orthopedics specialties. Metrics and backlog will be discussed to evaluate if this pilot has been effective and whether it will continue. Meanwhile, within the tertiary care facility, Pediatric AAs have expanded their scope of practice and skills. Other areas of focus have been the AA Sedation, during normal operational hours on inpatient floors and the procedure room of the OR. The AA team members also have become essential to the Resource Vascular access, and Peripherally Inserted Central Catheter (PICC) teams. To cover all of these new responsibilities, offer 24/7 on call coverage, while maintaining baseline duties, the compliment of AAs has increased from 3.6 to 5.4 FTE. This increase in staffing allowed for coverage of all offsite procedures within the building and at the satellite site, which runs OR lists 2 days per week. With evolving demand and increasing complexity of care and technology the Pediatric AA has become a critical member of the peri-operative team.

USING VIRTUAL-PATIENT SIMULATION TO IMPROVE SPEAKING UP

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Challenging authority through speaking up to ensure patient safety is a difficult yet essential aspect of interpersonal communication and patient care. Existing interventions for speaking up are inconsistent though prior experience appears to be important for speaking up in the future. To provide experience and improve speaking up behaviour in respiratory therapy students an intervention was developed that integrates a Gamified Virtual Simulation (GVS) with curriculum on patient advocacy and a high-intensity in-person simulation. Both the rate of speaking up and the proper use of CUS (Concerned, Uncomfortable, Safety Incident) were improved in students who completed the virtual simulation when compared with those in the control group. Students better understood how to speak up, escalate a challenge and appeared more confident. This presentation will summarize the published research and describe new results from the ongoing research

collaboration further investigating this intervention between the Northern Alberta Institute of Technology (NAIT) and Southern Alberta Institute of Technology (SAIT) respiratory therapy programs. It will also describe how a virtual patient simulation can be developed and integrated into an RT program or hospital-based education program.

THE USE OF SIMULATION TO SUPPLEMENT PRACTICUM TIME

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The health care industry is projected to grow due to a variety of factors, including an ageing population. Certain barriers exist to increasing enrollment at training institutes such as limited clinical opportunities for learners to train. Simulation-based learning is an emerging practice in the education of health care students and workers that may help mitigate training barriers while still ensuring competence. This presentation will summarize the current literature regarding the use of simulation to replace clinical time. The presentation will also describe the findings of a research study that was conducted at NAIT whereby 25% of students' pediatric intensive care unit (PICU), and 40% of students' OR rotations were replaced with simulation time and student performance was then measured on summative performance evaluations. The presentation will conclude by discussing opportunities to optimize the integration of simulation and clinical-based training for RT students.

EXPLORING PRACTICES USED DURING DIFFICULT MASK VENTILATION

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Effective bag mask ventilation requires a tight seal between a patient's face and the resuscitation device mask (Higginson & Parry, 2013). Facial hair can impede the tight seal and cause gas leakage around the mask and face leading to inadequate ventilation (Alkan et al., 2021). The presence of facial hair is an independent predictor of difficult and impossible mask ventilation (Khetarpal et al., 2009; Gavish et al., 2020). Current practice for providing bag mask ventilation to patients with facial hair varies by institution and by individual health care provider. The research group conducted a literature review to identify current practices for bag mask ventilation in patients with facial hair. The review identified a gap in the literature and a lack of procedural consistency. The result being that Clinicians, Registered Respiratory Therapists (RRTs) and Anesthesia Assistants (CCAAs) have developed their own management strategies based on their professional experiences. The research team created a national survey to investigate the experiences and practices of RRTs and CCAAs related to airway management of patients with facial hair. Pictures for the survey were taken at the college's lab to depict different adjuncts used to mitigate the burden of facial hair in bag-valve-mask (BVM) scenarios. RRTs and CCAAs will have the opportunity to partake in the anonymous survey using SurveyMonkey®. Survey distribution will take place using email lists and social media associated with Canadian Regulatory Colleges and professional regulatory bodies. The data obtained from this investigation can be used to inform clinicians with future airway management of patients with facial hair. If indicated, the research may lead the team to future investigations of standards of practice for managing airways with facial hair.

IMPROVING INDIGENOUS CULTURAL SAFETY COMPETENCES IN TEAMS

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The Canadian health care system, rooted in colonial policies and practices, is hampered by systemic racism and continues to harm Indigenous people (Turpel-Lafond, 2020). To improve the delivery of health services

for Indigenous people, change must occur on individual and systems levels. Vancouver Coastal Health (VCH) is a complex system comprised of 14,000 employees, including approximately 180 respiratory therapists who provide comprehensive health care services across a large geographic area. VCH recognizes that widespread Indigenous-specific stereotyping, racism and discrimination exist in the B.C. health care system, and is taking action on many fronts to address the issue as an organization. A research project was initiated seeking an answer to the question, "How might VCH support allied health leaders to improve Indigenous Cultural Safety (ICS) competencies in themselves and the teams they lead?" The researcher engaged 54 allied health leaders via an anonymous survey (with a 57% response rate) and conducted two subsequent on-line focus groups.

The research identified nine initial findings:

1. Leaders are aware of their own, their colleagues', and clinicians' competency gaps.
2. Leaders are taking action and incorporating Indigenous Cultural Safety learning opportunities in variety of ways.
3. Significant barriers to improving Indigenous Cultural Safety competencies exist:
 - a. VCH has identified many organizational priorities and these compete with the time required to complete Indigenous Cultural Safety education.
 - b. There are differing levels of current Indigenous Cultural Safety competencies among leaders and clinicians and that complicates education delivery.
 - c. There is a lack of interpersonal and/or relational connection with ICS subject matter, Indigenous Health partners and the subject matter of systemic racism.
4. Leaders consider it vital to embed Indigenous Cultural Safety learning and the journey toward improving the competencies purposely into daily work for themselves and clinicians.
5. Leaders want Indigenous Cultural Safety to be a highlighted priority.
6. Leaders want to learn and commit to cultural safety improvements as a team.
7. Leaders value a connection to the Indigenous Health team.
8. An Indigenous Cultural Safety competency toolkit and information about upcoming sessions ranked highest among the suggested resources.
9. Leaders have insight into measuring the effects of improved Indigenous Cultural Safety competencies:
 - a. Clinician satisfaction
 - b. Objective performance
 - c. Monitoring course enrollment, completion rates and suggestions for changes
 - d. Collecting data and feedback from patients, clients, residents and Indigenous Patient Navigators.

These findings were compared with established peer-reviewed literature on ICS competency improvement strategies and led to six key recommendations that VCH has begun to implement.

HARMONICAS FOR HEALTH (AND HAPPINESS)

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Harmonicas for Health is an innovative virtual program created by the Chronic Obstructive Pulmonary Disease (COPD) Foundation in the US. It is a way to provide COPD education and breathing exercises to COPD clients through the process of teaching them to play the harmonica. Interior Health Kamloops Community Respiratory is the first in Canada to run the COPD Foundation's Harmonicas for Health Program. We feel that it is very meaningful to use "and Happiness" (our own tagline) due to the reported benefits to the improvement of mood. We will go through the process of how we found the program, started it, and how it has grown. We will discuss the promotion of the program, how it gained international

attention and our future plans for expansion and research. The online program is designed to be delivered 1 h a week, for 5 weeks. It allows clients to participate from the comfort of their home anywhere in our geographically large health authority. HHH enhances, and is an extension of, some of the work performed in Pulmonary Rehabilitation Programs. The benefits of the program are clients learn how to have better control of their breathing, strengthen abdominal muscles for a more effective cough, boost self-confidence, relieve stress, socialize with others and have fun. This program could be attended by any clients with COPD, as clients do not have to have any musical experience to participate. Best of all, the harmonica can be taken anywhere so that clients can continue playing even on their own.

USE OF VIDEO LARYNGOSCOPY AS A TEACHING TOOL FOR NEONATAL INTUBATION: A SYSTEMATIC REVIEW

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Introduction: Endotracheal intubation and positive pressure ventilation following delivery are required in 32.9% of neonates <31 weeks gestational age and in 5.9% of older newly-born babies (1). Competency in intubation is therefore important, yet opportunities for learners to develop this skill in the clinical environment are limited. Conventional laryngoscopy (CL) provides a direct view of the airway during intubation. Unfortunately, supervising instructors cannot simultaneously view the airway making it difficult for them to support learners. Video laryngoscopy (VL) allows both learner and supervisor opportunity to view the airway during intubation attempts and permits instructors to provide feedback accordingly.

Objectives: This systematic review explores whether VL-supported learning is superior to CL for the development of skill in neonatal intubation.

Methods: Systematic searches of MEDLINE, EMBASE, CINAHL and the Cochrane Library were conducted without language restrictions. Studies published between January 2011 and November 2021 were examined. Randomized controlled trials (RCTs) comparing the effectiveness of VL versus CL for supporting neonatal intubation learning were included. Rate of successful intubation was the primary outcome measure. Both authors collaboratively extracted study data and conducted risk of bias assessment.

Results: Four RCTs met the inclusion criteria, two incorporating cross-over designs. Each examined the effectiveness of VL versus CL, with concurrent supervisor support, as a tool for learning neonatal intubation in medical residents. All studies reported significantly higher intubation success rates with VL.

Conclusion: VL combined with real-time supervisor feedback is an effective tool for supporting the development of neonatal intubation skill. Future investigations should include learners from all professions whose scope of practice includes neonatal intubation (eg, respiratory therapists).

ADVANCED PRACTICE RESPIRATORY THERAPIST... THAT EXISTS?

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Health care is constantly changing in our world today with increasing hospital admissions, bed management issues and staff shortages. The Shared Health Inter-facility Transport Team in Manitoba was created in 2000 to help alleviate these stresses on the Manitoba Health Care system to provide the best possible care for Manitoba patients. The initial inception of the team was made up of respiratory therapists across the province specializing in: neonatal/pediatrics/adult care, anesthesia, chronic care, acute and critical care from tertiary and community facilities. This presentation aims to introduce the role of the Advanced Practice Respiratory Therapist in Manitoba and to open dialogue for future respiratory therapy development and recognition in neighboring jurisdictions across Canada.

PTSD AMONG SRT IN CLINICAL PLACEMENT

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Since the onset of COVID-19, many aspects of the health care world have come to light. It's been highlighted how incredibly hard health care professionals work to ensure the best treatment and care of their patients and the lengths they will go to for those in need. On the less positive note, the enlightenment into how poor health care workers mental health can be has also occurred. This issue has long been ignored by the general public, hospital administration and the health care workers themselves. Outside of the pandemic times, very few studies have explored one of the most prominent occupational hazards for health care workers... experiencing trauma. Moral distress, stressful environment, insufficient support are all factors that contribute to the rising statistics of health care workers (HCW) experiencing negative psychological effects, such as post-traumatic stress disorder and secondary traumatic stress. Pre-pandemic, the prevalence of PTSD in both sexes among health care workers was an average of 14.8% (general population is around 4% - 8%) with students and younger workers suffering the brunt of this number. When experiencing the death of a patient, that number jumps to 30%. During the pandemic, this number increases yet again, to a high of 40%. As respiratory therapists, we are often included in the most traumatic of cases. We witness a variety of injuries and illnesses, while attempting to treat in a calm and rational manner. We are taught an incredible amount of information in school; from how to speak with individuals to how to treat the sickest of patients, how to properly cope with what we see on a daily basis and maintain our own mental health, is not expanded upon enough. This is a major void that is negatively impacting the well-being of all RT's in Canada. Focusing on students, exploring methods for preventing mental health crises while in clinical placement will not only benefit the student immediately as they gain their footing in the field, but also in the long term as they establish their careers. This needs to include ways to self-regulate their mental health, methods of self-treatment for when the work environment weighs on them emotionally, and how they can bring these tools into the workplace to help educate and improve the well-being of the staff around them as well. The long overdue discussion on how to help improve the mental health of HCW is just starting, expanding the already existing mental health aspect of the RT curriculum needs to begin as well, to help not just treat the problem, but also prevent it.

CASE STUDY: 43-YEAR-OLD FEMALE OPEN LEFT HEMICOLECTOMY

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This case study outlines the operative care of a patient admitted with a partial bowel obstruction in an afterhours scenario. Her past medical history includes Pierre Robin Syndrome with cleft palate and Scoliosis with corrective surgery for both, as well as the removal of her Harrington Rods and previous challenging inductions. The presentation aims to discuss and review the anesthetic considerations of her past medical history for both intraoperative and post-operative management; including various plans of induction, the ASA difficult airway algorithm, as well as the choice of the post-operative pain control plan of care.

VALIDATION OF THE PEDIATRIC AIRWAY SIMULATION SCORING RUBRIC

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Student respiratory therapists (SRTs) must complete pediatric training as a part of their clinical internship. Despite limited opportunity to practice and retain those skills, pediatric airway management is one of the most critical skills that health care teams expect graduate RTs to provide

in emergencies. Simulation may be a means of providing more accessible clinical preparedness. Our original study, "Pediatric student respiratory therapy education: a comparison of clinical versus simulation-based training," aimed to determine whether RT students who have received simulation-based training in pediatrics demonstrate similar performance in pediatric airway management skills in a simulated setting. We sought to expand and strengthen the original research study by now evaluating the reliability and validity evidence of the scoring tool (the Pediatric Airway Simulation Scoring Rubric, or PASSR) that we designed to assess performance during pediatric airway simulations carried out as part of the original study. As part of the validation process, 15 pre-clinical (2nd year) respiratory therapy students from the Michener Institute and 15 RRTs practicing in pediatrics (from SickKids) completed the airway simulation with two live evaluations and two video evaluations of their performance using the PASSR. Participants were stratified into novice (pre-clinical), intermediate (SRTs completed pediatric rotation from the original study) and experts (RRTs) categories. The study's data analysis is underway, with manuscript preparation to follow, and our objective of this presentation is to share the findings from our secondary validation study described here. This tool may be used across Canada to evaluate the performance of SRTs or RRTs in pediatric airway management and is the first validated tool specifically focused on the role of an assistant in airway intubation.

OXYGEN STEWARDSHIP PROGRAM: A DRUG, NOT A BAND-AID!

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Oxygen is a drug...period. As a drug like any other, oxygen requires a physician's order and comes with benefits and side effects that are polarities to manage. In many health care environments oxygen is used freely, applied without always having clinical indication, weaned hesitantly and not respected for its potential harmful consequences. Care environments throughout the past decade have begun to implement antibiotic stewardship programs, aimed at ensuring the appropriate use and rigor around said use of antibiotics. This is done to alleviate the over prescription and potential negative impact on patients. The same principles of this program can be applied across Michael Garron Hospital, for the prescription and appropriate utilization of oxygen. The oxygen stewardship program, with targeted interventions such as: a) prescribed saturation targets; b) education for clinicians including physicians on the benefits and hazards of oxygen prescription; c) standardized order sets; d) select treatment when these targets are not met; and e) the daily tracking and review of oxygen patients to assist with appropriate use and titration, is designed to ensure the oxygen supply is used appropriately, patients only get what they require and that as an organization we are conservers and stewards of this drug.

JOB SATISFACTION OF RESPIRATORY THERAPIST IN PRIMARY CARE

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Background: Respiratory therapists (RRTs) have a unique set of skills to work in primary care settings and manage chronic cardiopulmonary diseases. Given the 82% increase in COPD diagnoses over the past decade, the fact that over 10% of Canadians aged 35 and older are living with COPD and the primary care reforms in both Ontario and Manitoba, we would expect to see many RRTs to be working in primary care settings as part of interprofessional health teams. However, the opposite is true. According to both colleges, only 2% in Ontario and 1% in Manitoba work in this setting. Using a pragmatic approach, we investigate why so few RTs work in primary care in the provinces of Ontario and Manitoba by examining recruitment and retention. Recruitment and retention are going to be address by using Mottaz (1985) model of job satisfaction.

Following our analysis, we recommend possible ways of improving the recruitment and retention.

Methods: Semi-structured interviews were conducted between 2018 and 2019 with 19 RRTs, who self-identified as working in a primary care setting in Ontario and Manitoba.

Results: In Ontario, the setting where both intrinsic and extrinsic rewards was the most positively described was the hospital-based outpatient clinic, because they have all the advantages that comes with working in hospital setting work such as higher wage, vacation, etc. The workplace setting that had most dissatisfaction factors was the non-rostered clinics. This was mainly due to organizational rewards such as lower wage. In Manitoba, work dissatisfaction was mainly due to extrinsic rewards due to either the lack of social reward or lack of workforce.

Conclusion: For both provinces, government should consider integrating RRTs in a pay for service model. In Ontario, managers should create and fund full-time positions for respiratory therapists in Primary Care settings. Furthermore, RRTs in primary care settings should be compensated similarly as their hospital counterpart. In Manitoba, government officials should increase enrolment in RRTs education programs because there is a demand but a clear lack of workforce. Finally, Manitoba, RRTs should value the diversity of the profession and its ability to work outside of the acute care setting.

RRTS AND LPNS: TRAILBLAZERS IN NURSING LEADERSHIP

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Nursing managers are a large part of the health care team. They provide the nursing staff they lead with education, orientation and supervision. In today's complex and global workplace, health care leaders have a more challenging role than ever before. Nursing managers' job is to manage, and the need to empower, mentor, and coach their staff is needed to address these concerns brought forward by the COVID pandemic. Today's health care environment, especially in rural areas, is experiencing unprecedented reformation. COVID-19 burnouts resulted in nurses leaving the profession, resulting in job shortages, reduced health care services and huge nursing manager turnover. This unprecedented situation opened the doors of opportunity for other health care professionals, such as registered respiratory therapists and licensed practical nurses, to step into the management world. Not only due to nursing shortages, but these two professions are also proven to be inert leaders because of their flexibility and adaptability to new ways of thinking and delivering care. Leadership and relationship skills are essential to the future of health services organization in order to ensure a successful outcome for the patient it serves. RRTs employ approaches to practice that foster effective care in any health care setting, spanning across the continuum of care, such as critical thinking, systems thinking capacity, critical decision-making, collaborative team-based care, case management and care planning (Dubois et al., 2021). Although Canadian health care is now more open with non-nursing professions such as registered respiratory therapists (RRTs) and licensed practical nurses (LPNs) taking the role of nursing managers, these professions are still facing roadblocks and challenges. With nursing shortages, multi-professional collaboration is going to play an increasingly important role in health care today as there has been an increase in competition and requirements in management positions. According to Zaccagnini, higher education instruction is an essential factor in the professionalization of registered respiratory therapists (2021). Today, official professional statements have advocated for raising the entry-level diploma training to an undergraduate degree to meet the complex requirements of the health care environment and to remain competitive compared with other health care professions. This presentation will discuss the experience of nursing managers with an RRT and LPN background leading a nursing team in a rural health care setting. This presentation will unravel the roadblocks and challenges that

non-nursing professionals experience when managing and leading a nursing staff. The presentation will also discuss future recommendations for health care professionals other than nurses to be successful in their role and how the public will accept this innovation in health care.

PSYCHOLOGICAL SAFETY IN SIMULATION – HOW ARE WE DOING?

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Simulation-based education is a learning pedagogy used extensively by respiratory therapy and other health professional programs for teaching and learning of core and clinical competencies. There is also a dependence on simulation for acquiring collaborative competencies during interprofessional education experiences. Recently, there is an enhanced understanding and appreciation of the factors that contribute to a psychologically safe, or unsafe, simulation environment. Evidence is increasing around the enablers and barriers of psychological safety. This presentation will explore these factors including some key evidence-informed recommendations for helping to create a safer space for learners.

SPIROMETRY AS A DIAGNOSTIC TOOL: IS THE FIXED RATIO FROM GOLD STILL THE GOLDEN RULE?

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According to the Global Initiative for Chronic Obstructive Lung Disease (GOLD), using the FEV1/FVC ratio obtained from spirometry is the gold standard for diagnosing COPD. However, recent studies have shown that this definition tends to lead to underdiagnosis, overdiagnosis and misdiagnosis in certain groups of people. A few tools have been suggested in the literature to improve the accuracy of diagnosis. This presentation aims to discuss these alternative tools for diagnosing COPD and their feasibility for use in primary care; describe the use of Lower Limits of Normal for diagnosing COPD; describe CT Scan as an alternative for diagnosing COPD; and compare GOLD ratio with lingual lymph node (LLN) and computed tomography (CT) scan as alternatives for diagnosing COPD.

A NOVEL APPROACH TO DETERMINING OPTIMAL PEEP

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Background: Positive end expiratory pressure (PEEP) is the pressure that remains in the airways at the end of exhalation during invasive mechanical ventilation. This value can be set by the clinician to minimize ventilator-induced lung injury. As with any ventilation parameter, PEEP should be used judiciously and specifically tailored for each patient to promote lung protective ventilation. Determining the optimal PEEP for patients on mechanical ventilation is critical to improve overall oxygenation, pulmonary compliance and lung recruitment. Setting the appropriate PEEP avoids atelectrauma by preventing overstretching and cyclical closing of alveoli further lessening ventilator-induced lung injury (VILI). Despite all of the benefits in determining the optimal PEEP, there are inconsistent methods across intensive care units and many lack a standardized procedure.

Objectives: a) To share a novel approach in determining the optimal PEEP via a decremental PEEP study that balances oxygenation, compliance and driving pressure while minimizing ventilator-induced lung injury. b) To demonstrate how it can be performed quickly, safely and accurately in a

clinical setting with no specialized equipment. c) To review how to analyze PEEP tables to determine the optimal PEEP by identifying the linear portion of the curve and the upper/lower inflection points.

Methods: Our team has developed a novel methodology to determine the optimal PEEP in a step-wise approach that is safe, time-efficient (when compared with conventional techniques), potentially more accurate and requires no specialized equipment. This decremental method incorporates compliance, oxygen saturations, mean airway, plateau and driving pressures as well as the concept of linearity to best choose an optimal PEEP range, while allowing the medical team to consider the patient's pathology and clinical conditions before selecting the optimal PEEP. The study involves a retrospective review of 170 (pre-implementation) PEEP tables comparing traditional techniques to our method on ICU patients.

Results: The optimal PEEP selected by clinicians, the time it took to complete the study and the results from our Qualtrics survey data will be reviewed. Currently, we have 23 surveys completed by physicians and respiratory therapists across Alberta with more pending. Our team is planning to launch at pilot sites within Alberta this fall and collect post implementation data. We also plan to analyze post implementation tables performed on real patients across Alberta to observe if there are differences in the "optimal PEEP selections" by frontline therapists with their current method versus the novel algorithm.

Discussion: Optimal PEEP can be determined in many ways. Currently, no consistent standardized practice or gold standard exists. We hypothesize that the current methods being used direct to a lower optimal PEEP, an unnecessary use of higher FiO₂, impaired ventilation and potentially cause longer days on mechanical ventilation. Our decremental approach using basic ventilating pressure measurements and without the need for specialized equipment will permit the respiratory therapist to efficiently and more accurately determine an optimal PEEP leading to higher compliance and improved oxygenation.

Conclusion: Identification of the optimal PEEP using our novel method can be performed safely, efficiently and at the same time minimizing risk for ventilator-induced lung injury. Future studies will be required to determine clinical outcomes associated with the use of this novel PEEP titration method.

SAFETY OF IMMEDIATE EXTUBATION, AND FACTORS ASSOCIATED WITH DELAYED EXTUBATION, IN CARDIAC SURGICAL PATIENTS RECEIVING FAST TRACK CARDIAC ANESTHESIA: AN INTEGRATIVE REVIEW

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Background: Early Extubation (EE), within 8 h of cardiac surgery, is associated with improved resource utilization. Studies demonstrate that for patients receiving fast track low-dose opioid cardiac anesthesia (FTCA) protocols EE is as safe as conventional care. Defining the earliest time points for safe extubation may be further beneficial. This review seeks to determine if immediate extubation (IE, in the operating room), is as safe as EE. For some individuals receiving FTCA protocols extubation is delayed. Understanding factors associated with delayed extubation is important to perioperative planning and resource management. This review seeks to identify factors associated with delayed extubation.

Methods: MEDLINE, Cochrane Library, EMBASE and CINAHL (to March 2022) were searched. Studies pertaining to FTCA and IE, EE, or factors associated with delayed extubation were included. All authors extracted, appraised, and synthesized data. The main outcome measures were treatment outcomes and factors associated with delayed extubation.

Results: Six studies investigated treatment outcomes associated with FTCA and IE. One RCT reported that outcomes associated with IE were comparable to those of EE. Five observational studies reported incidence for 16 treatment outcomes associated with IE but did not make

comparisons to conventional care. Six observational studies assessed pre- and intraoperative factors associated with delayed extubation in FTCA patients. Thirty-seven factors were investigated and 22 were identified in at least one study. The most frequently reported factors were pre-existing cardiac insufficiency or renal disease, time on pump and cross-clamp time. Obesity and stroke were investigated but were not associated with delayed extubation. No study examined the influence of race, ethnicity or sex on outcomes.

Discussion and Conclusions: Evidence pertaining to treatment outcomes associated with FTCA and IE is weak. Observational studies cannot determine causation. Large multicentre randomized control trials are needed to determine the safety of IE. Although numerous factors have been associated with delayed extubation, several studies do not describe how or which factors were selected for examination. Therefore, certain factors may have yet to be evaluated. Future studies should improve transparency.

REMOTE MONITORING FOR HOME MECHANICAL VENTILATION

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Cloud-based patient monitoring systems are becoming increasingly prevalent for home mechanical ventilation. This need was made evident with the COVID pandemic as clinics adopted virtual visits and patients limited their in-person interactions. Advancements in ventilator technology also enabled this movement with built-in Bluetooth or cellular connectivity. These monitoring systems allow for alerts or notifications to the clinicians should the patient's ventilation parameters fall out of the desired range. These alerts can be tailored for each patient or the needs of the program. There is limited literature available suggesting how often patients should be monitored, which ventilation parameters to monitor or the duration of monitoring after initiating therapy. This presentation will discuss the Ontario Ventilator Equipment Pool's (VEP) experience with remote monitoring of home ventilation, focusing on the implementation, potential barriers, and possible future utilization of this technology.

STANDARDIZATION OF RT PROGRAM REQUIREMENTS ACROSS CANADA

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Respiratory therapists in Canada share the common goal of improving the lives of our clients. To train future RTs, schools adhere to the edicts of the National Competency Framework to help ensure programs deliver RT-specific education at a high standard. With this in mind the variance in program deliverables stands out as an area that can be improved on to the benefit of our students, employers, patients and our profession. With a more robust look at program requirements such as practicum hours and placements, at a national venue such as the CSRT conference, we can enable the necessary conversations among key stakeholders to bring the programs across Canada into greater accordance. This presentation will show the results of a Canada wide look at RT program differences and highlight areas of improvement that can only be effectively raised during a national forum such as this. This presentation will raise awareness of the issues and propose avenues for going forward with intent.

ACUTE CRITICAL EVENT DEBRIEFING (ACED)

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Debriefing is a mainstay of simulation-based medical education, yet it has failed to meaningfully translate into clinical practice following real-life events, despite demonstrating success in multiple other industries

and formal guideline-based recommendations (eg, the American Heart Association). Acute Critical Event Debriefing (ACED) should be a standard of care following real-life cardiopulmonary arrests, and also has many applications for use following other potentially critical and stressful events that health care workers experience in a hospital setting. In addition, little is known about systematic best practices for impactful development of an ACED program, implementation and *sustainability*. Within this presentation, a novel, standardized debriefing tool (Hotwash) will be described, which has been adapted for a variety of clinical settings. Based on a series of successful ACED implementations in a variety of settings within our own organization, this presentation will also describe key learnings and propose best practices to aid leaders and change agents in establishing a successful ACED program.

PEDIATRIC AEROSOL DELIVERY – A SCOPING REVIEW

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Objectives: Aerosolized medication during mechanical ventilation is common practice in both adult and pediatric/neonatal population. However, pediatric aerosol therapy comes with more challenges that will affect drug delivery. Some factors that influence the efficiency of drug delivery are directly under the purview of a clinician or therapist. However, there is still a lot of variability between clinicians or therapists within the same site and between different sites. The goal of this scoping review is to inform best practices for aerosol therapy and how they should be delivered. More specifically, the question that guided our research was: In pediatric and neonatal patients, what are the best strategies to optimised aerosol delivery while on mechanical ventilation?

Methods: A scoping review using the Joanna Briggs Institute (JBI) methodology was conducted in May 2021 in the databases CINAHL, EMBASE (Ovid) and Medline (Ovid). Where our initial search yielded 248 articles. After screening the title, abstract and full article with inclusion and exclusion criteria, five articles were analyzed.

Results: We were able to identify three main subjects that were discussed: the type of device used for administration, mechanical ventilation settings that should be used and finally the optimal placement of the nebulizer delivery system.

Conclusion: Of the three subjects mentioned above, we only found enough evidence to recommend using mesh nebulizer to increase aerosol deposition. For all other subjects, we either found conflicting results or outdated ones. This shows a large gap in the literature, especially because aerosol medications are routinely administered to mechanically ventilated pediatric/neonatal population.

CRITICAL CARE RTs' ROLE AND IMPACT ACROSS NORTH AMERICA

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Background: Respiratory therapists' (RTs) play a key role in airway and mechanical ventilation management in critical care. Although reports outline RTs' roles within the interprofessional team, which include airway management, mechanical ventilation, oxygen administration, other inhalational therapies and specialized procedures, confusion still exists regarding potential roles and impact RTs may have. Overall, the role of RTs, their regional practice variations and their inclusion in the interprofessional team have not been systematically summarized.

Objectives: The aim of this review is to map the breadth and depth of the literature which describes: 1) the role and impact of RTs in adult critical care; 2) the recommendations for their inclusion in the critical care team; and 3) differences in regional practice across North America.

Method: The present study was informed and guided by the Joanna Briggs Institute (JBI) methodology for scoping reviews. An elaborate search strategy was developed with a medical librarian to search for relevant articles in the Web of Science, Embase, CINAHL, MEDLINE and JBI Evidence Synthesis databases. Targeted websites were searched for grey literature, specifically relevant position statements, guidelines and reports from Canadian and American national, provincial/state RT associations and college registries. Studies and grey literature that explore and describe the specific and collaborative role of the RT in the critical care team across Canada and/or United States, published in English and French were included. Abstract screening and full-text review by two reviewers were performed.

Results: A total of 7052 citations were retrieved from the Web of Science (n=280), Medline (n=3066) Embase (n=1029), CINAHL (n=2649) and JBI Evidence synthesis (n=28) databases. After removing 1677 duplicates, 5375 citations had their abstracts and titles screened. After a full-text review of 437 articles, 107 articles were retained for data extraction. We are currently extracting data. Our data extraction form is guided by the Respiratory Therapy-Practice Based Outcome Initiative (RT-PBOI) conceptual model. This model includes key concepts relating to the value contributed by respiratory therapists to health care. Multiple studies evaluating RTs' role and impacts reported improved adherence to lung protective strategies, decreased mechanical ventilation time, re-intubation rates and complications.

Significance: A better understanding of the RT role and their impact in patient care will facilitate interprofessional collaborations and resource utilization to optimize delivery of critical care services. Establishing clear descriptions of RTs' role and impact in patient care will inform future research and opportunities to enhance RTs' knowledge and practice in respiratory care and science.

GLOBAL CITIZENSHIP IN RESPIRATORY CARE

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To enrich our curriculum and provide opportunities for student and faculty professional and personal growth, we explored opportunities to practice abroad and offered our students the experience of an international clinical placement. We spent 8 days in Antigua, Guatemala and had the opportunity to work at four different local clinics, caring for diverse patient demographics, from neonatal, pediatrics and geriatric cases to emergency situations. Students were offered the opportunity to work and learn in what we might call adverse conditions. They learned differences between the Canadian health care system standards and Guatemalan health care system, and came to appreciate the impact of environment on health and patient care approach. They came to understand patient care in underprivileged populations and the importance of empathy and compassion in the presence of language and cultural barriers. As faculty, we not only learned the afore mentioned along with our students, but also experienced a different aspect of teaching students in a different environment than our usual environment. This experience has given us a chance to better understand the applications of teaching and practising respiratory therapy in all that it involves when cultural differences and language barriers add a new dimension to the environment. Based on the success of this experience, we are planning to return to Guatemala in the summer of 2023, with a new group of clinical students.