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# Foundational Workshops and Masterclasses Guide

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## How to Use This Guide:

Attendees have the opportunity to take part in up to six, 45-minute workshops and masterclasses. Each session below lists its clinical leads, a summary of what will be covered and the learning objectives participants can expect to achieve.

**Foundational Workshops (FW)** are hands-on, equipment-based sessions that build core practical skills. They are designed to be accessible to physicians, respiratory therapists, nurses and allied health professionals working with children, adults or both. No prior experience is assumed. Whether you are new to long-term ventilation or have decades in the field and want to revisit first principles, these sessions are for you.

**Masterclasses (M)** are advanced sessions that build on your foundational knowledge using case-based discussion, expert panels and focused skills practice. They offer a unique opportunity to learn directly from national and international experts in the field.

While we will do everything we can to accommodate your preferences, all sessions are subject to availability.

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## **Foundational Workshop 1:**

Non-Invasive Ventilation with the Latest Provincially Available Equipment.

### **Leads:**

Dr. David Zielinski MD

Anojian Balendra RRT

### **Session Summary:**

The growing range of non-invasive ventilation devices creates new challenges for clinicians. Ventilator availability may change with provincial contracts, equipment-pool decisions, new technologies, and device recalls, while hospital equipment may differ from what is available in the home. Although many ventilators offer similar modes and settings, their terminology and behaviour can vary considerably. In this hands-on workshop, participants will use test-lung models and devices from multiple manufacturers to explore common NIV modes and optimize key settings, including IPAP, EPAP, backup rate, inspiratory time, trigger and cycle sensitivity, and rise time. Practical simulations will emphasize device-specific differences and a systematic approach to improving ventilation and patient–ventilator synchrony.

### **Learning Objectives:**

- Explain how core NIV settings—including IPAP, EPAP, backup rate, inspiratory time, trigger sensitivity, cycle sensitivity, and rise time—affect ventilation, patient comfort, and patient–ventilator synchrony.
- Compare commonly used NIV modes across bilevel devices and life-support ventilators, recognizing important differences in manufacturer-specific terminology and device behaviour.
- Apply a systematic approach to initiating and optimizing NIV using test-lung simulations and devices from multiple manufacturers, including when transitioning between hospital and home equipment.

**Foundational Workshop 2:**

Optimizing Airway Clearance with the Latest Provincially Available Equipment.

**Leads:**

Prof. Tiina Andersen PT PhD

Renata Vaughan RRT

**Session Summary:**

Effective airway clearance is a cornerstone of respiratory care for children and adults with neuromuscular disease and other causes of impaired cough, yet the equipment landscape is shifting as new mechanical insufflation-exsufflation devices become available through provincial funding programs. This practical, hands-on session will build participant confidence with the cough assist devices now reaching patients' homes. Participants will work directly with the equipment to complete a full device set-up, adjust pressures, timing, triggering and oscillation settings, and interpret patient response at the bedside to optimize comfort, synchrony and therapy adequacy. Through guided demonstrations, case-based practice and troubleshooting, attendees will leave able to recognize where settings — and devices — reach their limits, and how to adapt therapy accordingly.

**Learning Objectives:**

- Independently set up a newly available, provincially funded mechanical insufflation-exsufflation (cough assist) device.
- Interpret patient response at the bedside and adjust settings to improve comfort and synchrony and to ensure adequacy of therapy.
- Recognize the limitations of the available settings, their impact on therapy, and the differences between the devices offered.

### **Foundational Workshop 3:**

Ventilators, Circuits, Settings and Safety: The Home Invasive Ventilation Survival Guide for Children and Adults.

#### **Leads:**

Sandy Fodey RRT

Dr. Reshma Amin MD

#### **Session Summary:**

As the number of children and adults requiring home invasive ventilation continues to grow, clinicians are increasingly challenged to manage a wider variety of ventilators, particularly in the wake of recent global device recalls. Whether you're new to home ventilation or looking to expand your expertise, this highly interactive, hands-on session will help you build confidence with the invasive ventilators currently used across Canada. Participants will explore the unique features of different devices, compare ventilator capabilities, and gain practical experience with ventilator settings, circuit configurations, and alarm recognition and troubleshooting. Through guided demonstrations and hands-on practice, attendees will leave with increased knowledge and skills needed to safely and effectively support children and adults receiving invasive ventilation at home.

#### **Learning Objectives:**

- Get hands-on with the home invasive ventilators used across Canada and compare how each device operates.
- Navigate key ventilator settings and apply them to common clinical scenarios.
- Build and compare different ventilator circuits while exploring the practical advantages and limitations of each configuration.
- Put their troubleshooting skills to the test by identifying and resolving common ventilator alarms across different devices and circuit types.

## **Foundational Workshop 4:**

Basics of Device Derived Data and Beyond.

### **Leads:**

Dr. Ron Butler MD

Mark Thompson RRT

### **Session Summary:**

Device-derived data is now central to the management of long-term ventilation, but compliance summaries and detailed downloads remain under-used because clinicians are often unsure how to read them. This hands-on workshop is built around three case studies of patients in their late teens and early twenties whose conditions span both pediatric and adult practice: Duchenne muscular dystrophy, complex cerebral palsy and spinal muscular atrophy. Each case pairs a short clinical summary with compliance and detailed reports illustrating problems such as leak, elevated AHI, patterns of use, trigger and cycle asynchrony, and artifact. Once the issues have been identified and solutions proposed, participants review follow-up reports demonstrating the effect of the changes made. Participants rotate through five stations, including workstations loaded with manufacturer download software, for direct experience navigating breath-by-breath data.

### **Learning Objectives:**

- Apply a structured approach to reviewing a ventilator compliance report.
- Interpret a detailed device download report, describing both what it shows and where its limitations lie.
- Navigate manufacturer download software to review and interpret breath-by-breath data.
- Identify common patterns of leak, asynchrony and artifact, and propose the setting changes needed to address them.

## **Foundational Workshop 5:**

### **Understanding and Troubleshooting Ventilator Alarms.**

#### **Leads:**

Dr. Aaron St-Laurent MD

Valérie Tétreault RRT

#### **Session Summary:**

What to do when alarming alarms alarm. This hands-on session will focus on the teaching and troubleshooting high-priority alarms for the non-invasively and invasively ventilated patient. Session will commence with a brief presentation on alarms, what they tell us and mindfully setting them to ensure safe and effective ventilation for your patient. Following this, three case studies will be undertaken in small groups to increase clinician comfort with managing active alarms: troubleshooting a circuit disconnect alarm, troubleshooting a non-ventilated mask alarm and transitioning a patient and their alarms from one ventilator to another.

#### **Learning Objectives:**

- Identify high-priority alarms and explain why they trigger.
- Set and prioritize alarms for the ventilated patient.
- Troubleshoot high-priority alarms, including non-ventilated mask and circuit disconnect, and safely transition a patient and their alarm settings from one ventilator to another.

## **Masterclass 1:**

Advance Care Planning (ACP).

### **Leads:**

Dr. Danielle Kain MD

Dr. Chris Parker MD

### **Session Summary:**

Advance care planning conversations in long-term ventilation carry unique complexity — balancing prognostic uncertainty, evolving patient goals and the practical realities of ventilator-dependent living. Led by Dr. Danielle Kain MD (Palliative Care) and Dr. Chris Parker MD (Critical Care), this workshop introduces the Serious Illness Conversation Guide as a practical, evidence-based framework for approaching ACP and goals-of-care discussions with ventilated patients and their families.

Following a brief overview of the Guide's structure and components, participants will observe a live role-play demonstrating its application in a ventilation-specific scenario. The remainder of the session is dedicated to small-group practice, where participants will apply the framework with colleagues under tutor guidance, followed by a facilitated debrief to consolidate learning and address individual questions.

This interactive format is designed to build practical comfort and confidence in leading these conversations, equipping participants with a transferable communication tool for use in their own clinical practice.

### **Learning Objectives:**

- Describe the components of the Serious Illness Conversation Guide as an approach to guiding ACP and GOC conversations with ventilated patients and their families.
- Recognize how the Guide is applied in a ventilation-specific scenario through a facilitated role-play demonstration.
- Practice the Serious Illness Conversation Guide in small-group role-play with peer and tutor feedback, and consolidate that learning in a facilitated debrief.

**Masterclass 2:**

Weaning from Prolonged Mechanical Ventilation.

**Leads:**

Dr. Ian Fraser MD

Marc Bellerose RRT

**Session Summary:**

Weaning from prolonged mechanical ventilation rarely fails for a single reason. This case-based masterclass takes an interprofessional approach to those barriers, working through real cases with combined physician and respiratory therapy input. Discussion moves between the technical detail of weaning strategy and the whole-patient factors that determine whether it succeeds. Deliberately kept small to promote discussion, the session uses live audience polling to surface how participants would manage each decision point, then unpacks where and why practice diverges.

**Learning Objectives:**

- Assess weaning readiness and select an appropriate weaning strategy for the individual patient.
- Apply an interprofessional approach to weaning, recognizing the distinct contributions of medicine, respiratory therapy, nursing, and allied health.
- Identify the common and critical barriers to weaning from prolonged mechanical ventilation, spanning respiratory, physical, nutritional and neurocognitive domains.

**Masterclass 3:**

Voice Restoration in the Ventilated Patient: A Clinical Masterclass

**Leads:**

Dr. Lisa Wolfe MD

**Session Summary:**

For many patients, voice is the first thing lost when a tracheostomy is placed and often the last thing a care team gets around to addressing. In this interactive session, international expert Dr. Lisa Wolfe will review the upper airway and the physiological basis of speech, and explain how tracheostomy and positive pressure ventilation disrupt it. From there, the session moves to how a multidisciplinary protocol with physicians, respiratory therapy and speech-language pathology can contribute to voice training. Attention is also paid to understanding the metabolic challenges of leak speech and how to minimize the impact on gas exchange. Questions and interruptions are encouraged throughout.

**Learning Objectives:**

- Describe upper airway anatomy and the physiology of phonation, and explain how a tracheostomy and positive pressure ventilation disrupt each step.
- Understand how an integrated protocol with physicians, respiratory therapy and speech-language pathology can support voice training in the tracheostomy-ventilated patient.
- Understand the metabolic and gas exchange consequences of ventilating a patient through a leak.

**Masterclass 4:**

High Flow in Long-Term Ventilation.

**Leads:**

Dr. Kali Barrett MD

Lilya Chiang RRT

**Session Summary:**

The class will explore the principles of long-term humidified, heated, high flow therapy in the community setting for patients receiving long-term ventilation. Participants will review the current evidence for its use, apply their knowledge through case-based clinical scenarios, and take part in practical demonstrations of high flow equipment and setup. The session will focus on patient assessment, therapy optimization, troubleshooting, monitoring, and escalation indications.

**Learning Objectives:**

- Explain the principles of heated, humidified high flow therapy and its role in the long-term community management of patients requiring ventilatory support.
- Identify patients who may benefit from long-term heated, humidified high flow therapy in a community setting, including indications and contraindications.
- Assess flow, oxygen requirement, humidification, interface, comfort and adherence, and recognize the clinical signs that indicate a need for escalation.
- Troubleshoot common problems encountered with high flow systems and develop an appropriate follow-up plan for patients using high flow in the community.

## **Masterclass 5:**

### Tracheostomy Masterclass

#### **Leads:**

Dr. Yvonne Chan MD

Dr. Marcus Kargel MD

#### **Session Summary:**

A tracheostomy is often the most visible part of a person's care — and is also at high risk of preventable complications. This masterclass brings together clinical experts for a practical review of tracheostomy management in Long-Term Ventilation. Tracheostomy management will be reviewed from upper airway anatomy and tube design to strategies to prevent long term complications, to management of granulomas and beyond. With time built in for case discussion and open dialogue with the panel, participants are encouraged to bring their own challenging cases and will leave with practical strategies they can apply immediately.

#### **Learning Objectives:**

- Describe upper airway anatomy and tracheostomy tube design, and match tube selection to patient need.
- Apply practical techniques that reduce the risk of long-term complications.
- Outline approaches to granuloma prevention and management.

## **Masterclass 6:**

### **Mouthpiece Ventilation (MPV) and Alternatives**

#### **Leads:**

Dr. Charlenn Skead MD

Crystal Cousineau RRT

Dr. Doug McKim MD

#### **Session Summary:**

This masterclass explores MPV as a versatile, patient-centered alternative to mask NIV across a range of clinical populations — from progressive neuromuscular disease (ALS) to ICU weaning in spinal cord injury and Duchenne muscular dystrophy, including complex pediatric cases. Through case-based discussion, faculty will walk through the typical trajectory of escalating respiratory support, practical strategies for lung volume recruitment, and the use of MPV as a bridge therapy alongside nocturnal NIV. The session concludes with three hands-on breakout stations covering: (1) wheelchair-mounted ventilator setup and interface securement, (2) device-specific configuration and troubleshooting and (3) guided practice trialling MPV and LVR techniques firsthand. Participants will leave with practical, transferable skills for initiating and optimizing MPV in both community and acute care settings.

#### **Learning Objectives:**

- Describe the clinical progression pathway from nocturnal mask NIV to mouthpiece ventilation including appropriate monitoring parameters (downloads, oximetry, home MIC-VC and EtCO<sub>2</sub> measurements).
- Apply MPV strategies in weaning the "unweanable" ICU patients (e.g., SCI, DMD) including the use of lung volume recruitment (LVR) via bag and mouthpiece, and NIV initiation around a cuff-deflated tracheostomy.
- Identify scenarios where MPV serves as a bridge to combined nocturnal NIV and daytime MPV use, and troubleshoot common initiation challenges (device settings, interface selection).
- Demonstrate practical mounting and securement techniques for MPV systems on power wheelchairs, including comparison of commercial versus custom client-designed solutions.
- Perform initial MPV device setup, including selection of mode, volume, rate, and flow pattern appropriate to patient needs and interface type.

**Note: this session runs over two consecutive 45-minute sessions.**

**Masterclass 7:**

**Beyond the Ventilator: Diaphragmatic Pacing in 2026**

**Leads:**

Dr. Lisa Wolfe MD

**Session Summary:**

Diaphragmatic pacing has moved from a niche intervention to a realistic option for a growing group of patients, but selecting the right candidate and the right device remains difficult. In this interactive session, international expert Dr. Lisa Wolfe will review the nerve stimulators currently available and compare the technologies that distinguish them. The session then turns to patient selection, working through which pathologies are suited to pacing and how the underlying diagnosis determines which device is appropriate. Reported complications and long-term challenges are examined in detail. Participants are encouraged to submit cases in advance, which will be worked through together on the whiteboard, and to bring questions throughout.

**Learning Objectives:**

- Describe the diaphragmatic pacing systems currently available and compare the technologies that differentiate them.
- Identify the pathologies appropriate for treatment with a nerve stimulator, and match each pathology to the appropriate device.
- Anticipate and manage the complications and long-term challenges reported with pacing systems.

**Masterclass 8:**

**Pediatric Long-Term Ventilation Masterclass.**

**Leads:**

Dr. Maria Codesal MD

Faiza Said RRT

**Session Summary:**

The NCLTV Pediatric Masterclass is a clinically focused session designed to equip healthcare professionals with advanced strategies for managing complex pediatric respiratory support. Participants will first explore creative, site-specific interface customization techniques to optimize non-invasive fit and comfort. Through an evolving clinical case study discussion, attendees will analyze how a child's underlying pathophysiology dictates critical adjustments to ventilation modes, settings, and alarms as the patient transitions from non-invasive ventilation to tracheostomy and invasive ventilation. Finally, the session will tackle the complex ethical, clinical, and safety dilemmas surrounding 24/7 ventilatory support, bridging the gap between clinical theory and critical care decisions.

**Learning Objectives:**

- Identify creative, site-specific interface customization and fitting techniques in pediatrics.
- Analyze a clinical pediatric case scenario to navigate adjustments in ventilation modes, settings and alarms demonstrating how the child's underlying pathophysiology dictates optimal respiratory management.
- Evaluate the ethical, clinical, and safety dilemmas surrounding 24/7 non-invasive ventilation.

**Note: This session is designed for clinicians who work in pediatric long-term ventilation.**

## **Masterclass 9:**

### **Advanced Non-Invasive Positive Pressure Ventilation (NIPPV) Masterclass**

#### **Leads:**

Dr. Philip Choi MD

#### **Session Summary:**

Modern home ventilators offer complex modes such as Volume-Assured Pressure Support with Auto-EPAP, along with a multitude of advanced settings that can be used to improve patient comfort and synchrony while optimizing ventilation. However, understanding how to best adjust these complex modes can feel intimidating to many clinicians. Building on foundational knowledge, this Masterclass on advanced NIV will give participants greater familiarity with standard settings such as rise time and cycle sensitivity, while also exploring features found on modern home ventilators such as auto-EPAP and Ti min/max. Using case examples as a foundation, the session will include hands-on experience to help participants understand key differences between specific ventilator brands. Attendees will leave better equipped to individualize therapy for their most complex patients.

#### **Learning Objectives:**

- Describe the function of key advanced ventilator settings — including rise time, cycle sensitivity, Ti min/max, and PC Breaths ON — and explain how each influences patient-ventilator synchrony and comfort.
- Compare how advanced settings and their terminology vary across common home ventilator platforms, to support safe and confident device-specific decision-making.
- Apply a systematic approach to adjusting advanced settings — using VAPS-AE as a working example — to individualize therapy for patients with complex or evolving chronic respiratory failure.

**Masterclass 10:**

Developing a National Skills Program for Caregivers

**Leads:**

Dr. Peter Wijkstra MD PhD

**Session Summary:**

In the Netherlands more than 4,000 patients who receive chronic ventilatory support live at home, in a healthcare institution or a residential facility. They often require support from professional or informal caregivers. As a result, four Dutch centers for Home Mechanical Ventilation (HMV) have jointly developed a national education program for healthcare professionals, informal caregivers and patients. It is designed to meet the Dutch Practical Standards for HMV. Professional caregivers are required to successfully complete the course before they are authorized to provide care. The program is offered online at [www.ctbscholing.nl](http://www.ctbscholing.nl) and consists of three parts, one on adult patients, one on children and a program for delegated assessors. In this masterclass targeted for those interested in promoting LTV skills for professional caregivers, more detailed information about this program will be provided.

**Learning Objectives:**

- Describe the structure and content of a national education program for chronic ventilatory support.
- Identify the practical skills and competencies required of professional and informal caregivers working in home non-invasive and invasive mechanical ventilation.