Mech Vent Master Class

Fundamentals of Mechanical Ventilation for the Practicing Intensivist

Faculty

Burton Lee MD
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Michael Keller MD
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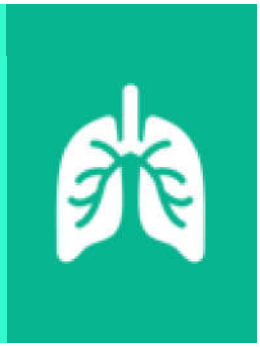

Fundamentals of Mechanical Ventilation for the Practicing Intensivist

Agenda

Wednesday April 15

8:00 – 8:20	Introduction to the Master Class course		Burton Lee
8:20 – 9:40	Physiology of Breath Delivery: Ohm's Law, the Equation of Motion and Alveolar Pressure		Burton Lee
This presentation and small group work introduce Ohm's Law and expands its fundamental principles to derive the Equation of Motion. The physiologic principles of the Equation of Motion are applied to define, distinguish and identify the pressures commonly seen in mechanical ventilation.			
9:50 – 11:10	Physiology of Expiration: Natural Decay Equation and the Expiratory Time Constant		Michael Keller
This presentation and small group work introduce the Natural Decay Equation and its application to the expiratory phase of the respiratory cycle. The Natural Decay Equation will be utilized to construct the volume-time curve during expiration and define the expiratory time constant. The physiologic principles will be applied to methods for clinical identification of the expiratory time constant and insufficient time for expiration.			
11:20 – 12:35	Practical Session I	Equation of Motion Bench Simulations Clinical Simulations	Michael Keller Nitin Seam Souvik Chaterjee Eric Kriner
The practical session utilizes passive and programmable lungs for mechanical ventilation simulation to demonstrate principles derived from the equation of motion and clinically apply fundamentals of mechanical ventilation in clinical scenarios.			
12:35 – 1:20	Lunch		
1:20 – 3:00	Passive Expiration & Putting the Equations Together		Burton Lee
This presentation and small group work apply Ohm's Law and the Natural Decay equation concepts to construct the expiratory Pressure-time, Flow-time & Volume-time Curves			
3:10 – 4:10	Application of Ohm's Law to Normal Pressure Control Waveforms		Souvik Chaterjee
This presentation and small group work apply the principles of Ohm's Law to construct the inspiratory pressure-time, flow-time and volume-time waveforms in pressure limited breath with set pressure target			
4:20 – 5:30	Practical Session II	Natural Decay Bench Simulations Clinical Simulations	Michael Keller Burton Lee Souvik Chaterjee Eric Kriner
The practical session utilizes passive and programmable lungs for mechanical ventilation simulation to demonstrate principles derived from the natural decay equation and apply them in clinical scenarios.			

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Thursday April 16

8:00 – 9:45	Application of Ohm's Law to Normal Volume Control Waveforms		Souvik Chaterjee
This presentation and small group work apply the principles of Ohm's Law to construct the inspiratory pressure-time, flow-time and volume-time waveforms in volume limited breath with constant and decelerating flow			
9:55 – 10:55	Application of Ohm's Law to Normal Volume Targeted Waveforms		Nitin Seam
This presentation and small group work apply the principles of Ohm's Law to construct the inspiratory pressure-time, flow-time and volume-time waveforms in pressure limited breath with an adaptive pressure target			
11:05 – 12:35	Practical Session III	Bench Simulations Clinical Simulations	Michael Keller Nitin Seam Souvik Chaterjee Eric Kriner
The practical session utilizes passive and programmable lungs for mechanical ventilation simulation to apply Ohm's Law to constructing normal waveforms and apply the effects of patient effort in clinical scenarios			
12:35 – 1:20	Lunch		
1:20 – 2:20	Asynchronies of Initiating the Breath		Nitin Seam
This presentation will define the types of discordance during breath initiation. The recognition, clinical implications and recommendations to correct trigger discordance will be explored.			
2:30 – 4:20	Asynchronies of Flow		Eric Kriner
This presentation will define the types of discordance during breath delivery. The Equation of Motion will be applied to recognize abnormalities. The clinical implications and recommendations to correct discordance during breath delivery will be explored.			
4:30 – 5:30	Asynchronies of Terminating the Breath		Michael Keller
This presentation will define the types of discordance during breath termination. The recognition, clinical implications and recommendations to correct cycle discordance will be explored.			

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Friday April 17

8:00 – 9:10	Asynchronies during Expiration		Eric Kriner
This presentation will define the types of discordance during expiration. Natural Decay and Ohm's Law will be applied to recognize abnormalities. The clinical implications and recommendations to correct discordance during expiration will be explored.			
9:20 – 10:50	Practical Session IV	Bench Simulations Clinical Simulations	Michael Keller Nitin Seam Souvik Chaterjee Eric Kriner
The practical session involves small group work to identify abnormal patient-ventilator interaction and recommendations for its correction. Programmable lungs are utilized for mechanical ventilation simulation to apply patient effort and interaction in clinical scenarios			
11:00 – 12:15	Lung Protective Ventilation Strategies – Beyond 6 ml/kg		Burton Lee
This presentation will apply the physiologic effects of abnormal patient ventilator interaction to lung protective ventilation strategies. Clinical scenarios are utilized to demonstrate how patient effort may impact and effect the clinical management of mechanical ventilation in patients with acute lung injury.			
12:15 – 12:30	Conclusion		Burton Lee