University of Pittsburgh Pulmonary Critical Care Fellowship Mechanical Ventilation Preceptorial Course
VA Hospital, Building 29, 2nd Floor, Learning Exchange (Opposite Medical Library) - March 23-25, 2017 (Thu-Sat)

PRE-LECTURE READING ASSIGNMENTS - To optimize the learning experience, one should **READ** the pre-lecture reading assignment **BEFORE** coming to lecture as indicated below. The articles are in the fellows' drive in designated folders.

DAILY SCHEDULE & PRE-LECTURE READING ASSIGNMENTS

DATE		Thursday, March 23, 2017			
MODULE / TIME		COURSE UNIT	LECTURE TOPIC	SPEAKER	PRE-LECTURE READING ASSIGNMENT
0.0	8:00-8:25		Introduction & Pretest	Lee	
1.1	8:30-9:30	Unit 1 - Pulmonary Physiology & Physics of Applied Mechanical Ventilation	Ohm's Law, Equation of Motion & Alveolar Pressure Learning Objectives: 1) Explain & Apply Ohm's Law 2) Explain & Apply Equation of Motion 3) Distinguish Paw, PIP, Palv, Ppl	Lee	Hess Ch. 1 Hess Ch. 4
9:30-9:50			**BREAK**		
1.2	9:50-10:50		Natural Decay Equation, Time Constant & Autopeep Learning Objectives: 1) Explain & Apply Natural Decay Equation 2) Explain Time Constant & V-Time Curve 3) Explain & Assess for Autopeep	Lee	Hess Ch. 26
1.3	10:55-12:15		Test Lung Praxis I – Ppl, Tau & Autopeep Learning Objectives: 1) Explore Equation of Motion & Estimate Ppl 2) Explore Natural Decay Equation & Estimate Tau 3) Assess for Autopeep MV Clinical Simulation I Learning Objectives: Participants are blind to objective.	Lee & Rowley Kriner & Seam	
12:15-1:00		**LUNCH BREAK**			
2.1	1:00-2:00	Unit 2 - Modes of Mechanical Ventilation & Architecture of Delivered Breaths	Overview of the Modes of Mechanical Ventilation Learning Objectives: 1) Explain Advantages & Disadvantages of AC, SIMV, Spontaneous Modes 2) Explain Advantages & Disadvantages of P Control, V Control & V-Targeted Breaths	Kriner	Ventilator Manual Ch. D
2.2	2:05-3:05		Triggering the Inspiratory Breath Learning Objectives: 1) Explain Time, Pressure & Flow Triggering 2) Explain & Recognize Ineffective Triggering 3) Explain & Recognize Auto Triggering	Lee	Leung 1997 Nava 1995
3:05-3:25			**BREAK**		
2.3	3:25-4:10		Terminating the Inspiratory Breath Learning Objectives: 1) Explain Time, Pressure & Flow Termination 2) Explain & Recognize Premature Cycling 3) Explain & Recognize Delayed Cycling	Seam	Tassaux 2005
2.4	4:15-5:30		Test Lung Praxis II – Basic Modes, Triggering & Terminating the Breath Learning Objectives: 1) Differentiate Spontaneous, AC & SIMV Modes 2) Assess for Ineffective & Auto Triggering 3) Assess for Premature & Delayed Cycling MV Clinical Simulation II Learning Objectives: Participants are blind to objective.	Lee & Rowley Kriner & Seam	
6:15-8:15		**RECEPTION & Introduction to Preceptorials for Mechanical Ventilation** Wyndham Hotel 100 Lytton Avenue (Oakland)			

DATE		Friday, March 24, 2017			
MODULE / TIME		**COURSE UNIT**	**LECTURE TOPIC**	**SPEAKER**	**PRE-LECTURE READING ASSIGNMENT**
2.5	8:00-8:55	Unit 2 - Modes of Mechanical Ventilation & Architecture of Delivered Breaths (Continued)	**Pressure vs. Volume Breaths** Learning Objectives: 1) Recognize the Effects of Changing Physiologic Conditions for Pressure vs. Volume Breaths 2) Recognize the Advantages & Disadvantages of Pressure vs. Volume Breaths	Lee	Hess Ch. 6
	9:00-930		**Volume Targeted Breaths: Autoflow, VC+ & PRVC** Learning Objectives: 1) Recognize the Effects of Changing Physiologic Conditions for Volume Targeted Breaths 2) Recognize the Advantages & Disadvantages of Volume Targeted Breaths	Seam	
2.6	9:35-10:50		**Test Lung Praxis III – Volume, Pressure & Volume Targeted Breaths** Learning Objectives: 1) Draw Normal Volume, Pressure & Volume Targeted Breaths 2) Draw Volume, Pressure & Volume Targeted Breaths with Changing Physiologic Conditions 3) Recognize Advantages & Disadvantages of Volume, Pressure & Volume Targeted Breaths **MV Clinical Simulation III** Learning Objectives: Participants are blind to objective.	Lee & Semaan Kriner & Seam	
10:50-11:10			**BREAK**		
2.7	11:10-12:00		**Normal Ventilator Wave Forms** Learning Objectives: 1) Draw Normal Volume Waveforms 2) Draw Normal Pressure Waveforms 3) Draw Normal Volume Targeted Waveforms	Lee	Correger 2012 Colombo 2011
12:00-12:45		**LUNCH BREAK**			
3.1	12:45-2:00	Unit 3 - Assessment of the Mechanically Ventilated Patient	**VALI, Goals of Ventilation & Goals of Oxygenation** Learning Objectives: 1) Relate the Mechanisms of VALI to the PV Curve 2) Assess for Goals of Ventilation 3) Assess for Goals of Oxygenation	Seam	Ventilator Manual Ch. A Ventilator Manual Ch. B Ventilator Manual Ch. C
3.2	2:10-3:00		**Patient-Ventilator Synchrony I** Learning Objectives: 1) Recognize Trigger, Inspiratory, Expiratory & Cycle Asynchronies in Volume Breaths. 2) Recommend Ventilator Modifications to Correct Common Asynchronies in Volume Breaths.	Kriner	Giltrap 2013 Hess 2014
3:00-3:20			**BREAK**		
3.3	3:20-4:10		**Patient-Ventilator Synchrony II** Learning Objectives: 1) Recognize Trigger, Inspiratory, Expiratory & Cycle Asynchronies in P & V-Targeted Breaths. 2) Recommend Ventilator Modifications to Correct Common Asynchronies in Pressure Breaths.	Kriner	Tobin 2001 Thille 2006
3.4	4:15-5:30		**Test Lung Praxis IV – Asynchronies of Flow, Triggering & Cycling** Learning Objectives: 1) Recognize Autopeep 2) Recognize Flow Starvation 3) Recognize Ineffective & Auto Triggering 4) Recognize Premature & Delayed Cycling **MV Clinical Simulation IV** Learning Objectives: Participants are blind to objective.	Lee & Semaan Kriner & Seam	

DATE	Saturday, March 25, 2017				
MODULE / TIME		**COURSE UNIT**	**LECTURE TOPIC**	**SPEAKER**	**PRE-LECTURE READING ASSIGNMENT**
4.1	8:00-8:50	Unit 4 - Advanced Concepts in Mechanical Ventilation	Emerging Concepts of Mechanical Ventilation in ARDS I Learning Objectives: 1) Explain Concepts of Stress and Strain & Delta P 2) Set Optimal PEEP Using Stress Index, Best Compliance & Esophageal Pressure	Kriner	Chiumello 2016 Grasso 2004 Sahetya 2017 Talmoor 2012
4.2	9:00-9:50		Emerging Concepts of Mechanical Ventilation in ARDS II: APRV Learning Objectives: 1) Use of APRV to Prevent ARDS 2) Set and Troubleshoot APRV Settings	Kriner	Andrews 2013 Maxwell 2013 Nieman 2015
9:50-10:10			**BREAK**		
4.3	10:10-10:55		Work of Breathing, Diaphragmatic Fatigue & Diaphragmatic Atrophy Learning Objectives: 1) Use the Campbell Diagram to Frame Work of Breathing 2) Relate P-time Product, P-time Curve, Work of Breathing & P-volume curve 3) Explain Diaphragmatic Fatigue & Atrophy	Lee	Levine 2008 Hess Ch. 27 Sassoon 2004
4.4	11:00-11:30		Pmus, PAV & NAVA Learning Objectives: 1) Compare Work of Breathing on AC, SIMV, & PS 2) Explain Pmus & PAV 3) Explain EAdi & NAVA	Lee	Kondil 2010 Terzi 2012 Younes 2007
4.5	11:35-12:50		Test Lung Praxis V – Optimal PEEP, APRV & PAV Learning Objectives: 1) Explain Optimal PEEP by Ppl, Compliance & Stress Index 2) Explain APRV & Set Patient on APRV 3) Explain PAV & Set Patient on PAV MV Clinical Simulation V Learning Objectives: Participants are blind to objective.	Lee & Semaan Kriner & Seam	
5.0	12:50-1:00		Post-Test		

PARTICIPATING FELLOWS

	Group	FELLOW		Year
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GROUP ASSIGNMENTS

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C	Clark	Eric Nolley Dan Zank Tomeka Suber Mary Assad
D	Lamberty	Emmett\ O'Brien Elizabeth Sacks Alison Lennox Muhammad Tahseen