

2023-2024 Surgical Critical Care Fellowship

Master Schedule

Week	Topics (Learning Objectives in Goals and Objectives Document)	Readings Asynchronous	Other Learning Modules Asynchronous	Case Live	Thursday Didactics Live	Evaluation	Mapped to Goals and Objectives Document
1	<ol style="list-style-type: none"> 1. Respiratory failure 2. Ventilator modes 3. Initial ventilator settings 4. Hypoxemic and hypercarbic respiratory failure 5. ABG interpretation 6. Noninvasive ventilation and high flow oxygen 	VAMKF: Chapter 8, 62	<ol style="list-style-type: none"> 1. Mechanical Ventilation Explained Clearly - Ventilator Settings & Modes (Remastered) 2. Ventilator Modes Explained! PEEP, CPAP, Pressure vs. Volume 3. Mechanical Ventilation Explained Clearly 3 of 5 4. Mechanical Ventilation Explained Clearly 4 of 5 5. Mechanical Ventilation Explained Clearly 5 of 5 	1	Orientation	Task simulation central lines	Vent 1-3 PCPS
2	ARDS ARDSnet protocol PEEP	VAMKF Ch67 ARDSnet article	Stress Management Video 1 <ol style="list-style-type: none"> 1. Introduction to ARDS in mechanical ventilation 2. Obama Discusses Managing Stress 3. Ventilator Pearls Explained Clearly 	2	First Research meeting, define interests, talk about timeline	LEAF 1 Due	Vent 2,3, 4
3	Minute Ventilation definition		Stress Management Video 2 <ol style="list-style-type: none"> 1. Prone Positioning for Acute Respiratory Distress Syndrome (ARDS) 2. Avoiding Intubation – Role of NIV and High-Flow Oxygen Systems 	3	Mindfulness: Time to do Ch 1 in workbook	LEAF 2 Due	Vent 2, 3,4

			3. Stressing The Importance of Dealing With Stress				
4	Bilevel Airway Pressure Release High Frequency Oscillatory ventilation	CTSCC Part XIII, pp: 639-643: Advanced Techniques in mechanical ventilation	1. The Evolution of Lung Protective Ventilation in ARDS 2. Remembering Berlin: ARDS moving forward	4	Month wrap up Monthly evaluations SICU Journal Club		Vent 2-4
5	Measuring transpulmonary pressure Sedation and neuromuscular blockade	VAMKF Ch3 CTSCC Anesthesia in the critical care Unit e-material AND VAMKF Ch 35	Ventilator Pearls Explained Clearly Part 2	5	Fatigue mitigation video Discussion Picking problem for a clinical practice guideline	IRB visit (need to get prior approval) LEAF 3 Due	Vent 3 PBLI
6	ECMO overview AA and VA ECMO	VAMKF Ch 42, p200	Stress Management Video 3 1. Dr Jay Winner Stress Management for Healthcare Professionals 2. What is ECMO? The basics explained. 3. VV vs VA ECMO Explained! 4. Hybrid ECMO Strategies - VVV vs VVA vs VAV	6	Research meeting, discuss ideas, make research question, literature search		
7	Spontaneous Breathing Trial Measuring readiness for liberation from mechanical ventilation Use of adjunctive tests Use of proportional assist ventilation (PAV)	VAMKF 63 p380 MIND Ch 2 MINDW Ch 2	1. Weaning mechanical ventilation - Does the Mode Matter? 2. ICU Bootcamp: Arterial Blood Gas (ABG) - Interpretation of Acid / Base Disorders	7	Mindfulness exercise Ch 2 Professionalism: Giving a talk.	LEAF 4 Due	Vent 3
8	Barriers to ventilation weaning: airway,	VAMKF Ch 63		8	Monthly wrap-up and evaluation		Vent 3

	mental status, traditional barriers Emergencies on ventilated patients				SICU Journal Club ICU M&M		
9	Endotracheal intubation Tracheostomy Cricothyroidotomy Confirmation of airway; COVID19	CTSCC Part III p57 Surgeon and Airway Mgt.	COVID-19 Ventilator Course: Learn or Review Mechanical Ventilation	9	Simulation, airway, class	LEAF 5 Due	Vent 4
10	Hemodynamic monitoring Troubleshooting monitors	CTSCC Part XII p607 Cardiac hemodynamics 607-613, pp613-616 SICM Ch 9		10	Research meeting		CV1-3
11	Shock overview, definitions 4 main categories of shock Indications for invasive hemodynamic monitoring Calibration of monitoring systems Fever workup	VAMKF Ch 6 MIND Ch 3 MINDW Ch 3	ICU Bootcamp: Types of Shock	11	Mindfulness exercises in Ch 3 MINDW Resiliency lecture	LEAF 6 Due	CV1-3
12	Sepsis and septic shock Definitions Surviving sepsis bundles.	VAMKF Ch 121, 122 CTSCC 683-689, 689-695	<ol style="list-style-type: none"> ICU Bootcamp: Pressor Selection - Inopressors and Vasopressors ICU Bootcamp: Pressor Selection – Inodilators Sepsis and Septic Shock - 2016 Consensus Definitions The Golden Hour of Sepsis and the Hour-1 Sepsis Bundle 	12	Monthly evaluation SICU Journal Club	Clinical practice guideline due	CV1,4 PBLI

13	Hypovolemic shock Hemorrhagic shock	CTSCC pp: 24-27,70-76, 415-430		13		Review clinical practice guideline LEAF 7 Due	CV1,2,5,7
14	Shock resuscitation Including hemorrhagic shock Transfusion therapy/adjuncts Transfusion reaction	CTSCC24-27, 70-76, 415-430 CTSCC p 665-677 SICM Ch 35		14	Research meeting		CV4-7
15	Endpoints of resuscitation Monitoring	CTSCC pp123-126 MIND 4 MINDW Ch 4	What is difference between health and wellness? Eight Dimensions of Wellness Ways to Build Resilience for Healthcare Workers	15	Means of resiliency talk, maintaining wellness MINDW Ch 4	LEAF 8 Due	CV6
16	Neurogenic shock	CTSCC pp 140-152	Biostatistics Video Sensitivity vs Specificity Explained Neurogenic Shock Neurogenic vs spinal shock	16	SICU Journal Club ICU M&M		CV1-2,7
17	Cardiogenic shock	VAMKF Ch 89, 90, 91	Cardiogenic shock brief overview Cardiogenic Shock and Ventricular assist devices treatment Impella Device insertion with narration LVAD cardiac assist device animation Cardiogenic shock overview for cardiology fellows Advanced heart failure therapy and LVADs	17		LEAF 9 Due	CV1-2, 7
18	Cardiac arrhythmias ACLS(taken separately)	VAMKF Ch78-81		18	Research meeting		CA1
19	Cardiac assessment for noncardiac surgery	MINDW Ch 5		19	Wellness curriculum MINDW Ch 5 exercises	LEAF 10 Due	CA2
20	Workup of oliguria Indications for dialysis	CTSCC 644-650	Introducing Precision in AKI prevention in the Surgical ICU	20	Professionalism and writing:	Implementation of	RE1-2,4 PBLI,ICS

	Evaluating renal function Need for dialysis				writing a short abstract and submitting SICU Journal Club	clinical practice guideline	
21	Common and uncommon fluid and electrolyte disorders and treatment	VAMKF: Ch 13, 14, 15, 16, 18, 19		21		LEAF 11 Due	RE3
22	Altered mental status workup ICU delirium and prevention PADIS guidelines	MIND Ch 6 MINDW Ch 6	Why a stay in the ICU can leave patients worse off A new frontier in Critical Care: Saving the Injured Brain-J Wesley Ely CAM-ICU Demo	22	Research meeting MINDW Ch 6		NE1
23	Neurologic trauma Identification Early treatment Indications for ventilation Seizures	VAMKF Ch 51,54	A New Frontier in Critical Care: Saving the Injured Brain	23	Neuro ICS: simulation meet with family who needs trach and peg, getting consent Simulation end of life care meeting	LEAF 12 Due	NE2,3, 4 SBP activity Professionalism
24	Nutrition evaluation in critical care Early enteral nutrition Indications for parenteral nutrition Management of fistulas in SICU	MIND Ch 7 MINDW Ch 7	Nutrition Risk Scores in the Critically Ill Current Trends in Critical Care Nutrition 2021. Article: Journal of Parenteral and Enteral Nutrition. Volume 40 (2): 159-211. February 2016. DOI: 10.1177/0148607115621063	24	Wellness curriculum MINDW Ch 7 SICU Journal Club ICU M&M	From here on, The SICU fellow will give at least one grand rounds	GI 1,3 ICS, PBLI
25	Feeding tubes, types and indications GI bleeding		1. Post-intensive care syndrome? What is it? How can we help?	25	Research meeting	LEAF 13 Due	GI2-3

			2. Update on Sedation: Focus on Prevention of PICS		Preparing short slide show		
26	Nutrition prescription Modification of nutrition for special populations (liver failure, fistula, AKI, hypoxemic respiratory failure, sepsis, burns)			26	Meeting with registered dietician regarding formulas/TPN Write at least one TPN order		G13
27	Common SICU infections Pneumonia VAP bundle Urinary tract infection and CAUTI's	CTSCC 709-715 VAMKF Ch 114, 115, ,116,117,123 MIND Ch 8 MINDW Ch 8		27	Wellness curriculum MINDW Ch 8	LEAF 14 Due	ID 1-2
28	Necrotizing soft tissue infections	CTSCC 582-592 VAMKF 125		28	Meeting with bed specialist SICU Journal Club		ID1
29	Bacterial infections	VAMKF 116,117,118		29	Research meeting	LEAF 15 Due	ID1
30	Fungal infections	VAMKF Ch 129 MIND Ch 9 MINDW Ch9		30	MINDW Ch 9		ID1
31	Viral infections/COVID-19	VAMKF 912,919,947	1. Covid 19 and Surgery.	31	Wellness curriculum		ID1
32	Appropriate PPE for differing occasions Immune system issues Antibiotic prophylaxis Antibiograms	MIND Ch 10 MINDW Ch 10	1. PPE for different precautions. 2. droplet vs airborne precautions. 3. PPE for nerve agents. 4. Antibiotic prophylaxis for surgery. 5. How to read and interpret an antibiogram.	32	MINDW Ch 10 SICU Journal Club ICU M&M	LEAF 16 Due	ID1
33	Endocrine emergencies Adrenal insufficiency Diabetes	CTSCC 658-665		33	Research meeting Adrenal lecture		EN 1-4

34	ATLS Initial Resuscitation	ATLS student handbook		34	Meeting with nursing regarding monitors/calibr ation	LEAF 17 Due	TR1
35	Hypotensive trauma patient Distributive shock Obstructive Shock	VAMKF CH 88,89,90 MIND Ch 11	Wellness curriculum MINDW Ch 11	35			TR2-3
36	Hemorrhagic shock ABC protocol for massive transfusions Adjuncts to resuscitation Lethal Triad/Diamond Traumatic coagulopathy and avoidance Coagulopathies			36	Research meeting Meeting with blood bank director regarding coagulopathies , rotational thromboelasto graphy SICU Journal Club	LEAF 18 Due	TR2-3
37	Abdominal trauma and ICU Abdominal compartment syndrome and temporary abdominal closure Hepatic trauma/IR Damage control surgery	CTSCC 430-446 CTSCC 358-372 MIND CH 12 MINDW CH 12		37	Wellness: MINDW Ch 12		TR4
38	Spine trauma and spinal cord injury Traumatic Brain Injury	CTSCC pp140- 152 CTSCC 127-140		38		LEAF 19 Due	TR5
39	Burn Care	CTSCC 571-582	Stress Ulcer Prophylaxis Fluid Resuscitation Pediatric Burn Injuries. Adult Acute Burn Resuscitation Overview.	39			TR6

			Adult Initial Burn Management.				
40	Chest wall injury Pulmonary contusion Thoracic trauma— pulmonary/cardiac	CTSCC 205- 260,274-281	Bones of the thoracic wall. Esophagus Injury and repair. Echocardiogram of cardiac tamponade.	40	Research meeting SICU Journal Club ICU M&M		TR7
41	Multiple and massive Casualty Incidents (MCI) Triage of critically ill Surge capacity Severity of Illness Scores Surgical Risk Scores and predicting outcomes	CTSCC 27-32 CTSCC Trauma Scoring, online chapter p 6. MIND CH 13 MINDW CH 13		41	Wellness curriculum/pro fessional development MINDW CH 13	LEAF 20 Due	SS3 ICU-M
42	VTE/DVT Prophylaxis: for DVT, GI	CTSCC 742-750		42	Talk on medical billing		ST1
43	Postop care of vascular surgery/bariatrics Oncologic issues	MIND CH 14 MINDW CH 14		43	Mindfulness CH 14 MINDW CH 14	LEAF 21 Due	ST5
44	Geriatric considerations	CTSCC 567-571		44	Research meeting SICU Journal Club		ST5
45	Measuring sensitivity/specificity/P PV/NPV Types of studies Levels of evidence	Video: Sensitivity and Specificity Explained Clearly, Roger Sehult MD.		45	Wellness curriculum/pro fessional development	LEAF 22 Due	ST6
46	Ethics in SICU End of Life issues, decreasing level of support Special Consent Issues Organ Donation	CTSCC 755 (special e- material chapter		46	End of life discussion simulation Meet with organ donation organization		Soc/System 1-2 ST2

47	Heat Syndromes: malignant hyperthermia, neuroleptic malignant syndrome, heat injury syndromes Cold Syndromes: frostbite, severe hypothermia Targeted temperature therapy	CTSCC 750-755 VAMKF Ch 41 MIND CH 15 (optional) MIND CH 16 MINDW CH 16-19		47	Professionalism: Mindfulness MINDW CH 15-16	LEAF 23 Due	ST3
48	Post ICU Care Post-ICU Syndrome Enhancing Rehabilitation Outcomes Medical billing introduction	CTSCC p 757	Post-intensive care syndrome? What is it? How can we help?	48	Research meeting SICU Journal Club ICU M&M		Soc/System 1-3 ST 4
49	Pediatric Surgical Conditions and PICU	CTSCC 556-561 CTSCC 561-567		49	Final evaluations	LEAF 24 Due	ST_PE5

Educational goals are medical knowledge (MK) are described in the table Goals and Objectives for SICU Rotations for SICU Fellowship.

Appendix:

A. Competency abbreviations are listed below.

Key for Competencies	
Professionalism	PROF
Patient Care and Procedural Skills	PCPS
Medical Knowledge	MK
Practice Based Learning and Improvement	PBLI
Interpersonal and Communication Skills	ICS
Systems-Based Practice	SBP
Learning Enhancement Assessment Formative	LEAF

B. Matching Learning Objectives in the document Goals and Objectives for SICU Rotations for SICU Fellowship.

Key	
Ventilator & Respiratory	Vent
Cardiovascular	CV
Gastrointestinal & Nutrition	GI
Neurological including neurosurgical	Neuro
Endocrine	EN
Infectious Disease	ID
Trauma	TR
ICU Management	ICU-M
Renal	RE

Special Topics ST_OB=Obstetric and gynecological critical care

Special Topics: ST_BIO=Biostatistics and experimental design

Special Topics ST_PE=pediatric surgical conditions

Special Topics_ST_ET=Ethics and legal considerations

RESOURCES

Textbooks:

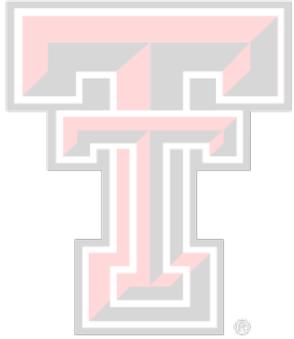
1. Marino: Marino's The ICU Book Forth Edition. Paul L. Marino, editor. Wolters Kluwer/Lippincott, Williams & Wilkins. Philadelphia, 2014. To be used as quick reference.
2. SICM: O'Donnell John M., Nacul Flavio E, Surgical Intensive Care Medicine. Third Edition. Springer International Publishing Switzerland 2016.
3. CTSCC: Asensio, Juan A and Trunkey Donald D., eds. Current Therapy of Trauma and Surgical Critical Care, second edition, Elsevier. Philadelphia, PA. 2016
4. VAMKF: Vincent JL, Abraham E, Moore FA, Kochanek PM, Fink MP. Eds. Textbook of Critical Care, 7th edition. Elsevier, Philadelphia PA, 2017.
5. MIND: Alidina, Shamash. Mindfulness for Dummies. Second Edition, John Wiley and Sons, Chichester, West Sussex, United Kingdome. 2015.
6. MINDW: Shamash, Alidina and Marshall, Joelle Jane. Mindfulness Workbook for Dummies. John Wiley and Sons. Chichester, West Sussex, United Kingdom, 2013.

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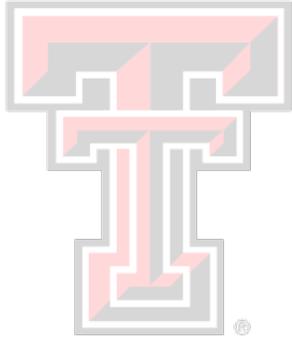
Rotation Goals and Objectives

Learning Objective Category	Learning Objective	Competency	Evaluation Method
Circulatory	1. The fellow will identify shock, list the 4 main categories of shock with sub-categories.	MK	Direct observation Meeting Case conferences LEAF
	2. The fellow will learn the indications for invasive hemodynamic monitoring	MK, PCPS	Direct observation Case conferences Rounds
	3. The fellow will perform insertion of arterial lines, central lines, and pulmonary artery catheters as per current guidelines	MK, PCPS	Direct observation
	4. The fellow will list the important aspects of surviving sepsis guidelines and sepsis bundles	MK, PCPS, SBP	Direct observation LEAF
	5. The fellow will list steps and perform calibration and troubleshooting of monitoring systems	MK, PCPS	Direct observation
	6. The fellow will perform resuscitation of shock patients	MK, PCPS	Direct observation
	7. The fellow will list and describe usage and use vasoactive agents to manage hypotension and shock.	MK, PCPS	Direct Observation LEAF
Endocrine	1. The fellow will list common endocrine emergencies in SICU	MK	Direct observation LEAF
	2. The fellow will list steps in diagnosing adrenal insufficiency in SICU patient	MK	Direct observation LEAF

	3. The fellow will perform appropriate tests for endocrine abnormalities in SICU and interpret those tests	MK, PCPS	Direct observation
	4. The fellow will manage diabetic patients in ICU, including the newly diagnosed diabetic	MK, PCPS, SBP	Direct observation
Gastrointestinal And Nutrition	1. The fellow will manage stomas, GI fistulas and gastrointestinal drains	MK, PCPS, SBP	Direct observation
	2. The fellow will know how to and insert a variety of enteral feeding tubes including PEG and surgically placed tubes	MK, PCPS	Direct observation LEAF
	3. the fellow will estimate nutritional needs and prescribe supplementation in concert with the registered dietician	MK, PCPS, SBP, ICS	Direct observation
Renal	1. The fellow will list the steps in workup of oliguria	MK, PCPS,	Direct observation LEAF
	2. The fellow will list steps in evaluation of renal function	MK, PCPS	Direct observation LEAF
	3. The fellow will manage common and uncommon fluid and electrolyte abnormalities such as hyper or hypokalemia, hypo or hypernatremia, mixed electrolyte abnormalities, metabolic acidosis and alkalosis.	MK, PCPS, SBP,	Direct observation LEAF
	4. The patient will identify patients in need of renal replacement therapies including dialysis	MK, PCPS, SBP	Direct observation
Respiratory/ Ventilator Management	1. The fellow will list criteria and recognize acute respiratory failure	MK, PCPS	Direct observation LEAF
	2. The fellow will discriminate between hypercarbic and hypoxemic respiratory failure	MK	Direct observation LEAF

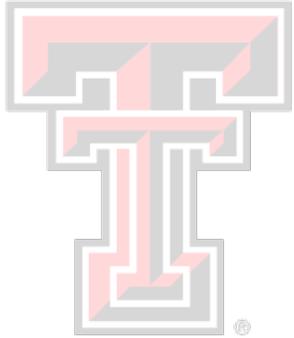


	3. The fellow will order initial and subsequent ventilator settings based on type of respiratory failure, clinical indicators and arterial blood gas results	MK, PCPS	Direct observation
	4. The fellow will list steps in airway management and perform airway management including tracheostomy	MK, PCPS	Direct observation LEAF, SIMPL
	5. Ventilator management: the fellow will perform ventilator management	MK, PCPS	Direct observation on rounds
Neurological Critical Care	1. The resident will list steps in assessment of altered mental status due to trauma and also acquired states such as ICU delirium, agitation, encephalopathy	MK, PCPS	Direct observation LEAF
	2. The resident will identify neurological trauma on imaging	MK, PCPS	Direct observation LEAF
	3. The resident will list steps in assessment of neurosurgical patients and neurotrauma patients	MK, PCPS	Direct observation LEAF
	4. The resident will provide daily care of neurological critical care patients, including assessment of intracranial pressure, treatment of intracranial hypertension	MK, PCPS	Direct Observation
Neurological Critical Care and Ethical and End-of-Life Issues	5. The resident will attend family conferences with respect to end-of-life issues, especially patients declared brain dead.	MK, PCPS	Direct observation
Infectious Disease	1. The fellow will identify common SICU infections including pneumonia, urinary tract	MK, PCPS	Direct observation LEAF



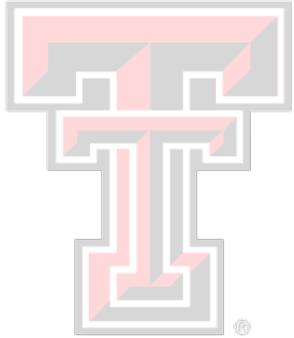
	infection, central line associated infection and list risk factors		
	2. The fellow will be aware of reporting requirements for central line infections, catheter related blood-stream infections and urinary catheter associated infections	MK, PCPS, SBP, ICS	Direct observation
Social and Systems based learning	1. The fellow will assist the social workers and case managers in appropriate disposition of ICU patients	MK, SBP, PROF, ICS	Direct observation
	2. The fellow will list factors which impede disposition	MK, SBP,	Direct observation
	3. The fellow will list and review plans to increase surge capacity of ICU for critical and intermediate beds	MK, SBP, ICS, PCPS	Direct observation Weekly meeting
Cardiac	1. The fellow will identify common cardiac arrhythmias in SICU and treat	MK, SBP, PCPS	Direct observation, Learning enhancement assessment formative (LEAF) exercise
	2. The fellow will evaluate patient's cardiac status and list risk factors for noncardiac surgeries.	MK, SBP, PCPS	Direct observation Case LEAF
Trauma	1. The fellow will outline steps in initial resuscitation of trauma patients and perform those steps	MK, PCPS	Direct observation LEAF CASE
	2. The fellow will list causes of hypotension in an	MK, PCPS	Direct observation LEAF Case

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	acute trauma patient and treat those causes		
	3. The fellow will list and perform steps in resuscitation of trauma patients in shock	MK, PCPS, SBP	LEAF, Direct Observation
	4. The fellow will list items in making diagnosis of abdominal compartment syndrome. The fellow will list indications for damage control surgery in trauma The fellow will delineate differing methods of temporary abdominal closure	MK, PCPS	LEAF
	5. The fellow will list and perform special items in spine trauma and spinal cord injury	MK, PCPS	LEAF
	6. The fellow will list special items in burn care and resuscitation of acute burn injury	MK, PCPS	LEAF, Direct Observation
	7. The fellow will list special items in supportive, ventilator and surgical care of thoracic injury	MK, PCPS	LEAF
ICU Management	1. The fellow will describe situations in which ICU management includes triage and discuss triage mechanisms,	MK, PCPS, SBP	LEAF
	2. The ICU fellow will list and use scoring systems for evaluation of severity of illness, preoperative risk stratification and prediction and use these systems during ICU care of preop and severely ill patients	MK, PCPS, SBP	LEAF

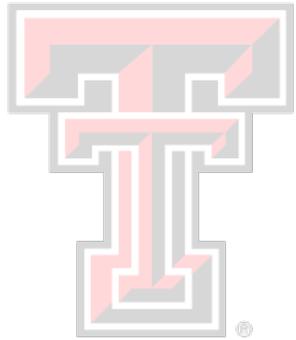
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Special Topics including Biostatistics, Ethics, and Special Populations	1. The fellow will list risk factors for DVT/PE(VTE) disease, list methods to prophylaxis and treat VTE	MK, PCPS, SBP	LEAF
	2. The fellow will list major ethical principles in SICU, participate in at least one ethical discussion and family conference regarding level of support.	MK, PCPS, SBP	Direct Observation, LEAF
	3. Temperature: The fellow will describe heat and cold related illness. The fellow will list methods and indications for targeted temperature management.	MK, PCPS	LEAF
	4. The fellow will describe Post-ICU Syndrome and Also methods of prevention. The fellow will discuss enhancing rehabilitation outcomes	MK, PCPS, SBP	LEAF
	5. The fellow will describe, delineate special considerations for special populations of pediatric surgical, obstetrical, oncologic, and geriatric populations	MK, PCPS	LEAF
	6. The fellow will identify, given a medical literature study, what type of study it is and what is the level of evidence. The fellow will apply levels of evidence in evaluating articles which apply to ICU problems	MK, PCPS, PBLI	LEAF

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Systems-Based Practice	SBP
Learning Enhancement Assessment Formative (exercise)	LEAF



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