Supplemental Guide: Critical Care Anesthesiology

May 2022
<table>
<thead>
<tr>
<th>TABLE OF CONTENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTION .................................. 3</td>
</tr>
<tr>
<td>PATIENT CARE ................................... 4</td>
</tr>
<tr>
<td>Patient Assessment and Development of a Care Plan ........................................... 4</td>
</tr>
<tr>
<td>Crisis Management ................................ 6</td>
</tr>
<tr>
<td>Procedural Skills/Technical Abilities/ Interpretation ......................................... 7</td>
</tr>
<tr>
<td>Respiratory Failure and Ventilation Management ...................................................... 9</td>
</tr>
<tr>
<td>Management of Organ Dysfunction and Shock ............................................................. 11</td>
</tr>
<tr>
<td>MEDICAL KNOWLEDGE ............................. 13</td>
</tr>
<tr>
<td>Pharmacology ..................................... 13</td>
</tr>
<tr>
<td>Pathophysiology of Critical Illness .......... 15</td>
</tr>
<tr>
<td>SYSTEMS-BASED PRACTICE ...................... 17</td>
</tr>
<tr>
<td>Patient Safety and Quality Improvement .................................................. 17</td>
</tr>
<tr>
<td>System Navigation for Patient-Centered Care .................................................... 19</td>
</tr>
<tr>
<td>Physician Role in Health Care Systems ............................................................. 22</td>
</tr>
<tr>
<td>PRACTICE-BASED LEARNING AND IMPROVEMENT ....................................................... 24</td>
</tr>
<tr>
<td>Evidence-Based and Informed Practice .......................................................... 24</td>
</tr>
<tr>
<td>Reflective Practice and Commitment to Personal Growth ......................................... 26</td>
</tr>
<tr>
<td>PROFESSIONALISM ................................. 28</td>
</tr>
<tr>
<td>Professional Behavior and Ethical Principles .................................................. 28</td>
</tr>
<tr>
<td>Accountability/Conscientiousness ............................................................. 31</td>
</tr>
<tr>
<td>Well-Being ........................................ 33</td>
</tr>
<tr>
<td>INTERPERSONAL AND COMMUNICATION SKILLS ......................................................... 35</td>
</tr>
<tr>
<td>Patient- and Family-Centered Communication .................................................. 35</td>
</tr>
<tr>
<td>Complex Communication Around Serious Illness .................................................. 37</td>
</tr>
<tr>
<td>Interprofessional and Team Communication .................................................... 39</td>
</tr>
<tr>
<td>Communication within Health Care Systems ..................................................... 41</td>
</tr>
<tr>
<td>MAPPING OF 1.0 TO 2.0 ............................ 44</td>
</tr>
<tr>
<td>MILESTONES RESOURCES ........................ 45</td>
</tr>
</tbody>
</table>
Milestones Supplemental Guide

This document provides additional guidance and examples for the Critical Care Anesthesiology Milestones. This is not designed to indicate any specific requirements for each level, but to provide insight into the thinking of the Milestone Work Group.

Included in this document is the intent of each Milestone and examples of what a Clinical Competency Committee (CCC) might expect to be observed/assessed at each level. Also included are suggested assessment models and tools for each subcompetency, references, and other useful information.

Review this guide with the CCC and faculty members. As the program develops a shared mental model of the Milestones, consider creating an individualized guide (Supplemental Guide Template available) with institution/program-specific examples, assessment tools used by the program, and curricular components.

Additional tools and references, including the Milestones Guidebook, Clinical Competency Committee Guidebook, and Milestones Guidebook for Residents and Fellows, are available on the Resources page of the Milestones section of the ACGME website.
### Patient Care 1: Patient Assessment and Development of a Care Plan

**Overall Intent:** To perform a patient assessment and develop and adapt a patient care plan

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Efficiently gathers a focused history and physical examination to identify disease processes</td>
<td>● Determines the typical glucose ranges, therapy regimen, compliance level, social circumstances, and resources available to a patient who presents with multiple hospitalizations for diabetic ketoacidosis</td>
</tr>
<tr>
<td>Formulates a differential diagnosis</td>
<td>● Performs a full body physical exam to look for open wounds or sources of infection that might lead to persistent hyperglycemia; orders laboratory values to rule out additional causes of an anion gap metabolic acidosis such as ingestion of ethanol, salicylates, or advancing kidney disease</td>
</tr>
<tr>
<td><strong>Level 2</strong> Orders and interprets imaging and laboratory evaluation</td>
<td>● Obtains a chest x-ray in a patient admitted with worsening shortness of breath; can distinguish common etiologies such as a pneumothorax, new infiltrates, edema, widened mediastinum</td>
</tr>
<tr>
<td>Formulates a care plan and communicates it to the team</td>
<td>● Starts broad-spectrum antibiotics and appropriate resuscitation in a patient with pneumonia and discusses treatment selection and duration with the multidisciplinary care team on rounds</td>
</tr>
<tr>
<td><strong>Level 3</strong> Integrates data into a comprehensive patient assessment</td>
<td>● Determines that a patient admitted with worsening shortness of breath, elevated B-type natriuretic peptid, and a new murmur may have an acute valvular issue</td>
</tr>
<tr>
<td>Develops and prioritizes a care plan</td>
<td>● Based on the situation above, orders an echocardiogram stat and consults the appropriate services if indicated based on the results</td>
</tr>
<tr>
<td><strong>Level 4</strong> Continuously assesses the patient and recognizes unusual presentations</td>
<td>● Determines that a patient admitted with weakness, fatigue, and a recent viral infection is complaining of neck pain shows hemodynamic and lab concerns for evolving thyrotoxicosis</td>
</tr>
<tr>
<td>Adapts care plan for complex clinical situations</td>
<td>● Patient admitted with septic shock and endocarditis develops acute cardiogenic shock requiring an emergent intervention and care coordination across multiple services</td>
</tr>
<tr>
<td><strong>Level 5</strong> Serves as a peer reference for unusual presentations</td>
<td>● Asked by a colleague to provide an opinion on the possible etiologies of acute intoxication with unknown exposure</td>
</tr>
<tr>
<td><strong>Participates in the development of clinical pathways</strong></td>
<td>● Collaborates as part of a multidisciplinary enhanced recovery initiative for esophagectomy</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
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</tr>
<tr>
<td><strong>Assessment Models or Tools</strong></td>
<td>● Consult services evaluation</td>
</tr>
<tr>
<td></td>
<td>● Direct observation</td>
</tr>
<tr>
<td></td>
<td>● Multisource feedback</td>
</tr>
<tr>
<td><strong>Curriculum Mapping</strong></td>
<td>●</td>
</tr>
<tr>
<td><strong>Notes or Resources</strong></td>
<td>● Textbook of critical care medicine</td>
</tr>
</tbody>
</table>
### Patient Care 2: Crisis Management

**Overall Intent:** To anticipate and manage patients during a crisis

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Responds to crisis situations as a team coordinator</td>
<td>● Responds to a rapid response or &quot;code blue&quot; as a team leader</td>
</tr>
<tr>
<td><strong>Level 2</strong> Develops a differential diagnosis that includes the most likely etiologies for acute clinical deterioration</td>
<td>● Gathers a history, focused physical exam, laboratory and imaging findings, and reviews recent care events to determine that a post-operative thoracotomy patient with hypotension, shortness of breath, anemia, and minimal chest tube output may have an hemothorax</td>
</tr>
<tr>
<td><strong>Level 3</strong> Determines the level of patient acuity to prioritize and implement an actionable care plan</td>
<td>● Identifies if a patient is stable enough to undergo imaging studies or needs to proceed directly to intervention (the unstable patient would need emergent operative exploration)</td>
</tr>
<tr>
<td><strong>Level 4</strong> Independently anticipates clinical deterioration and leads the multidisciplinary team</td>
<td>● Identifies that a patient with worsening shortness of breath is not as responsive and has labored breathing requiring an airway intervention before proceeding further in care evaluation</td>
</tr>
<tr>
<td><strong>Level 5</strong> Triages available institutional resources to effectively resolve patient deterioration</td>
<td>● Consults with the response team, pharmacy, phlebotomy services, and cardiology to order necessary labs, medications, and activate the catheter lab teams in a patient with ST changes</td>
</tr>
</tbody>
</table>

**Assessment Models or Tools**
- Consult services evaluation
- Direct observation
- Multisource feedback

**Curriculum Mapping**

**Notes or Resources**
### Patient Care 3: Procedural Skills/Technical Abilities/Interpretation

**Overall Intent:** To perform and interpret procedures in the intensive care unit (ICU)

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
</table>
| **Level 1** Selects equipment, performs common intensive care unit (ICU) procedures (e.g., peripheral arterial or central venous catheterization), and recognizes complications, with guidance | ● Performs central venous catheterization under guidance and correctly obtains and interprets post-procedure chest radiograph  
● Selects the correct type of central venous catheter based on the indications  
Interprets data obtained from common ICU procedures, with guidance  
● Interprets abnormal arterial waveforms under guidance |
| **Level 2** Performs advanced ICU procedures (e.g., bronchoscopy, chest tube), with guidance | ● Performs thoracentesis under guidance  
● Performs point-of-care ultrasound examination under guidance  
Interprets data obtained from advanced ICU procedures, with guidance  
● Under guidance, interprets findings obtained from the point-of-care ultrasound examination |
| **Level 3** Performs common and advanced ICU procedures and troubleshoots common complications  
Synthesizes data obtained from common and advanced ICU procedures to modify the care plan | ● Performs bedside bronchoscopy and recognizes hypoxemia following flexible bronchoscopy procedures  
Interprets lung sliding, A lines, and B lines independently on thoracic ultrasound; can discern the difference between B-line and B-prime profiles on the lung ultrasound |
| **Level 4** Proficiently performs common and advanced ICU procedures and troubleshoots complex complications  
Proficiently synthesizes data obtained and identifies unusual findings from common and advanced ICU procedures | ● Places transvenous pacing for temporary cardiac pacing; troubleshoots loss of capture and identifies presence of a new friction rub or pacing of thoracic wall as indicators of ventricular free wall rupture  
● Synthesizes data from cardiac ultrasound to diagnose pericardial tamponade |
| **Level 5** Serves as a consultant for performing difficult procedures | ● Is asked by peers to place central venous catheters after multiple failed attempts |
| Introduces new evidence-based ICU procedures | Develops new ultrasound protocol |
| Assessment Models or Tools                  | Direct observation              |
|                                             | Multisource feedback            |
| Curriculum Mapping                          |                                |
### Patient Care 4: Respiratory Failure and Ventilation Management

**Overall Intent:** To manage patients with respiratory failure using various mechanical strategies

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Recognizes respiratory failure and develops a differential diagnosis and care plan, with guidance</td>
<td>• Appropriately evaluates patients with respiratory failure and develops a care plan based on the underlying etiology, for example identifying hypoxemic versus ventilatory failure</td>
</tr>
<tr>
<td>Selects and implements basic ventilation strategies (e.g., assist control, pressure support, non-invasive strategies)</td>
<td>• Implements and manages the use of supplemental oxygen, non-invasive ventilatory support, and mechanical ventilation in critically ill patients with respiratory failure</td>
</tr>
<tr>
<td><strong>Level 2</strong> Integrates relevant data to develop a patient care plan</td>
<td>• Understands the patient population who can be successfully managed by non-invasive mechanical ventilation</td>
</tr>
<tr>
<td>Selects from a variety of modes of ventilation or respiratory care techniques and initiates the appropriate interventions to optimize gas exchange and minimize complications</td>
<td>• Selects the appropriate mode and ventilatory settings based on the patient's underlying pathology</td>
</tr>
<tr>
<td><strong>Level 3</strong> Identifies more complex etiologies for respiratory failure</td>
<td>• Identifies etiologies such as right-to-left shunts (e.g., intracardiac shunts or pulmonary arteriovenous malformations) as cause of hypoxemia</td>
</tr>
<tr>
<td>Identifies the need for advanced intervention (e.g., extracorporeal membrane oxygenation (ECMO), inhaled vasodilators) and adjunctive therapies (e.g., proning, nitric)</td>
<td>• Identifies patients with severe acute respiratory distress syndrome (ARDS) and hypoxemia who may require extracorporeal lung support</td>
</tr>
<tr>
<td><strong>Level 4</strong> Continuously assesses a patient and recognizes unusual presentations</td>
<td>• Proficiently assess patients with respiratory failure and recognized etiologies such as orthodeoxia and platypnea in a patient with cirrhosis</td>
</tr>
<tr>
<td>Independently implements and adapts evidence-based ventilation strategies and advanced interventions</td>
<td>• Understands the evidence base for the effect of prone positioning in reducing mortality in patients with moderate to severe ARDS</td>
</tr>
<tr>
<td><strong>Level 5</strong> Serves as a consultant to respiratory care service in development of policies and procedures to optimize patient care</td>
<td>• Develops respiratory care protocols for appropriate resource use and to improve patient care</td>
</tr>
<tr>
<td><strong>Directs evidenced-based protocol development and refinement of ventilator strategies</strong></td>
<td>• Develops institutional guidelines on ventilator weaning and educates the multidisciplinary team on the latest evidence on the subject</td>
</tr>
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</tbody>
</table>
| **Assessment Models or Tools** | • Direct observation  
• Multisource feedback |
| **Curriculum Mapping** | • |
| **Notes or Resources** | • Fielding-Singh V, Matthay MA, Calfee CS. Beyond low tidal volume ventilation: Treatment adjuncts for severe respiratory failure in acute respiratory distress syndrome. *Crit Care Med.* 2018;46(11):1820-1831 |
Patient Care 5: Management of Organ Dysfunction: Shock

**Overall Intent:** To manage patients with shock

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Recognizes a patient in circulatory shock and initiates indicated therapies</td>
<td>● Recognizes clinical and laboratory parameters of shock and initiates resuscitation</td>
</tr>
<tr>
<td>Initiates a basic diagnostic work-up to delineate the etiology of circulatory shock</td>
<td>● Uses point of care ultrasonography to determine the etiology of the shock state</td>
</tr>
<tr>
<td><strong>Level 2</strong> Identifies the underlying etiology for a shock state, actively manages the resuscitation, and continually assesses the response to therapy</td>
<td>● Identifies septic shock and implements Surviving Sepsis Campaign guidelines</td>
</tr>
<tr>
<td>Utilizes advanced diagnostic modalities, with knowledge of advantages and limitations of each, to determine the etiology of shock</td>
<td>● Uses transthoracic echocardiography to determine response to a volume challenge</td>
</tr>
<tr>
<td>● Uses transthoracic echocardiography to diagnose cardiogenic shock; understands the limitations of critical care echocardiography in diagnosing valvular pathologies</td>
<td></td>
</tr>
<tr>
<td><strong>Level 3</strong> Actively manages an unstable patient in a shock state, anticipates and acts to minimize multisystem organ dysfunction, and recognizes atypical or subtle presentations of shock</td>
<td>● Manages hypotension and respiratory distress in a septic patient</td>
</tr>
<tr>
<td>Incorporates data from advanced diagnostic modalities to develop treatment plans</td>
<td>● Identifies myopathy caused by sepsis, and promotes early mobility in ICU patients</td>
</tr>
<tr>
<td></td>
<td>● Incorporates data obtained from arterial line wave-form analysis and echocardiography to determine volume status in a patient with circulatory shock</td>
</tr>
<tr>
<td><strong>Level 4</strong> Anticipates and acts independently to minimize the long-term consequences of circulatory shock and associated organ dysfunction</td>
<td>● Identifies myopathy caused by sepsis, and promotes early mobility in ICU patients without prompts from the attending faculty member</td>
</tr>
<tr>
<td>Synthesizes data from advanced diagnostic modalities to develop a comprehensive treatment plan</td>
<td>● Incorporates data obtained from pulmonary artery catheter and echocardiography to determine the need for mechanical circulatory support in a patient with cardiogenic shock</td>
</tr>
</tbody>
</table>
| **Level 5** *Is recognized by others as a resource in the management of shock and multisystem organ failure* | • Is asked by peers to review complex cases of circulatory shock and to provide management recommendations

<table>
<thead>
<tr>
<th><strong>Develops diagnostic algorithms for the diagnosis and management of circulatory shock</strong></th>
<th>• Develops institutional guidelines and management strategies for patients in circulatory shock due to post-cardiopulmonary bypass vasoplegic syndrome</th>
</tr>
</thead>
</table>
| **Assessment Models or Tools** | • Direct observation
  • Faculty feedback
  • Multisource feedback
  • Simulation |
| **Curriculum Mapping** | • |
### Medical Knowledge 1: Pharmacology

**Overall Intent:** To integrate knowledge of pharmacology into care plans for critically ill patients

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<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
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<tbody>
<tr>
<td><strong>Level 1</strong> Demonstrates knowledge of the pharmacology, clinical indications, and application of medications used in the care of critically ill patients, including vasoactive drugs, sedatives, analgesics, immunotherapy, and antibiotics</td>
<td>● Discusses the differences between vasoactive agents and their mechanisms of action</td>
</tr>
<tr>
<td><strong>Level 2</strong> Applies knowledge of the pharmacology, clinical indications, and selection of medications used in the care of critically ill patients</td>
<td>● Appropriately selects and uses vasoactive medications based on the patient’s presentation</td>
</tr>
<tr>
<td><strong>Level 3</strong> Applies knowledge of the pharmacology, clinical indications, and selection of medications used in the care of complex critically ill patients</td>
<td>● Appropriately selects and uses sedation and analgesic agents for patients on ECMO</td>
</tr>
</tbody>
</table>
| **Level 4** Integrates knowledge of pharmacology, clinical indications, and selection of medications (including medication interactions) to care for critically ill patients | ● Appropriately adjusts antibiotic dosing based on patient presentation and/or other pharmacologic agents that the patient is receiving  
● Changes medication selection due to patient becoming refractory to current regimen  |
| **Level 5** Serves as a consultant in pharmacotherapy for critically ill patients | ● Assists peers in the appropriate selection of antibiotics for complex intra-abdominal infections                                     |

**Assessment Models or Tools**
- Direct observation
- Medical record (chart) audit
- Multisource feedback
- Standardized examinations (e.g., Multidisciplinary Critical Care Knowledge Assessment Program)

**Curriculum Mapping**

**Notes or Resources**
# Medical Knowledge 2: Pathophysiology of Critical Illness

## Overall Intent:
To understand the pathophysiology of critical illness

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Demonstrates knowledge of common pathophysiology and complications related to critical illness</td>
<td>● Describes the pathophysiology and treatment of patients with sepsis</td>
</tr>
<tr>
<td><strong>Level 2</strong> Applies knowledge of common pathophysiology and complications to treat critical illness</td>
<td>● Describes etiologies of acute kidney injury and the diagnostic work-up to differentiate between the etiologies</td>
</tr>
<tr>
<td><strong>Level 3</strong> Applies knowledge of complex pathophysiology and complications to treat critical illness</td>
<td>● Describes the evidence-based and comprehensive management of a patient with ARDS</td>
</tr>
<tr>
<td><strong>Level 4</strong> Serves as a resource for knowledge of pathophysiology and complications related to critical illness</td>
<td>● Teaches residents about the pathophysiology of and treatment approaches to a patient with sepsis</td>
</tr>
<tr>
<td><strong>Level 5</strong> Is recognized as an expert in synthesizing and prioritizing differential diagnosis complex critical care conditions and anticipating potential complications</td>
<td>● Develops institutional guidelines for the management of a patient with ARDS</td>
</tr>
</tbody>
</table>

### Assessment Models or Tools
- Direct observation
- Medical record (chart) audit
- Multisource feedback
- Standardized examinations (e.g., Multidisciplinary Critical Care Knowledge Assessment Program)

### Curriculum Mapping

### Notes or Resources
# Systems-Based Practice 1: Patient Safety and Quality Improvement (QI)

**Overall Intent:** To engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals; to conduct a QI project

<table>
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<tr>
<th>Milestones</th>
<th>Examples</th>
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</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Demonstrates knowledge of common events that impact patient safety</td>
<td>● Lists patient misidentification or medication errors as common patient safety events</td>
</tr>
<tr>
<td>Demonstrates knowledge of how to report patient safety events</td>
<td>● Explains how to report errors in own health system</td>
</tr>
<tr>
<td>Demonstrates knowledge of basic quality improvement methodologies and metrics</td>
<td>● Describes fishbone tool</td>
</tr>
<tr>
<td><strong>Level 2</strong> Identifies system factors that lead to patient safety events</td>
<td>● Identifies a recent change to the transfusion requisition form that did not include space for two-person verification to avoid an error</td>
</tr>
<tr>
<td>Reports patient safety events through institutional reporting systems (simulated or actual)</td>
<td>● Reports lack of compliance with adherence to institutional requirements for aseptic technique</td>
</tr>
<tr>
<td>Describes departmental quality improvement initiatives</td>
<td>● Summarizes protocols to decrease ventilator associated acute lung injury</td>
</tr>
<tr>
<td><strong>Level 3</strong> Participates in analysis of patient safety events (simulated or actual)</td>
<td>● Assimilates patient data, evaluates the root cause, and presents the findings of a patient safety event</td>
</tr>
<tr>
<td>Participates in disclosure of patient safety events to patients and patients’ families (simulated or actual)</td>
<td>● Through simulation, communicates with patients/families about a medication administration error</td>
</tr>
<tr>
<td>Participates in department quality improvement initiatives</td>
<td>● Participates in a root cause analysis of catheter associated infections</td>
</tr>
<tr>
<td><strong>Level 4</strong> Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)</td>
<td>● Collaborates with a team to conduct the analysis of medication administration errors and presents suggested policy and electronic health record (EHR) design changes at a department meeting</td>
</tr>
<tr>
<td>Discloses patient safety events to patients and patients' families (simulated or actual)</td>
<td>● Discusses with patient (family) an inadvertent medication error</td>
</tr>
<tr>
<td>Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project</td>
<td>● Initiates and develops a fellow quality improvement project to improve team hand-offs and presents findings to the department</td>
</tr>
<tr>
<td><strong>Level 5</strong> Actively engages teams and processes to modify systems to prevent patient safety events</td>
<td>● Assumes a leadership role at the departmental or institutional level for patient safety</td>
</tr>
<tr>
<td>Role models or mentors others in the disclosure of patient safety events</td>
<td>● Conducts a simulation for disclosing patient safety events</td>
</tr>
<tr>
<td>Creates, implements, and assesses quality improvement initiatives at the institutional level or above</td>
<td>● Initiates and completes a QI project to improve disclosure of serious adverse events to patients and families and shares results with stakeholders</td>
</tr>
</tbody>
</table>
| **Assessment Models or Tools** | ● Direct observation  
● E-module multiple choice tests  
● Multisource feedback  
● Portfolio  
● Objective structured clinical exam (OSCE)  
● Reflection  
● Simulation |
| **Curriculum Mapping** |  |
### Systems-Based Practice 2: System Navigation for Patient-Centered Care

**Overall Intent:** To effectively navigate the health care system, including the interdisciplinary team and other care providers; to adapt care to a specific patient population to ensure high-quality patient outcomes

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Demonstrates knowledge of care coordination</td>
<td>● For a critically ill patient, identifies the intensivist, fellows, residents, respiratory therapists, nurses, social workers, and ICU pharmacist as members of the team</td>
</tr>
<tr>
<td>Identifies key elements for safe and effective transitions of care and hand-offs</td>
<td>● Lists the essential components of a standardized tool for sign-out, care transition, and hand-offs</td>
</tr>
<tr>
<td>Demonstrates knowledge of population and community health needs and inequities</td>
<td>● Identifies that inpatients may have different needs than ambulatory patients; identifies barriers to discharge home for ambulatory patients</td>
</tr>
<tr>
<td></td>
<td>● Identifies barriers in refilling medications for members of underserved populations</td>
</tr>
<tr>
<td><strong>Level 2</strong> Coordinates care of patients in routine clinical situations effectively using the roles of interprofessional team members</td>
<td>● Coordinates care with the ICU team on arrival to ICU</td>
</tr>
<tr>
<td>Performs safe and effective transitions of care/hand-offs in routine clinical situations</td>
<td>● Routinely uses a standardized tool for a stable patient during ICU sign-out</td>
</tr>
<tr>
<td>Identifies specific population and community health needs and inequities for the local population</td>
<td>● Identifies challenges in communicating with patients with communication barriers (e.g., non-English-speaking patients and families; hearing, visual or cognitive impairment;)</td>
</tr>
<tr>
<td><strong>Level 3</strong> Coordinates care of patients in complex clinical situations effectively using the roles of interprofessional team members</td>
<td>● Works with the patient, family, and members of the care team to coordinate the care of a patient with a do-not-resuscitate order</td>
</tr>
<tr>
<td>Performs safe and effective transitions of care/hand-offs in complex clinical situations</td>
<td>● Routinely uses a standardized tool when transferring a patient to and from the ICU</td>
</tr>
<tr>
<td>Uses institutional resources effectively to meet the needs of a patient population and community</td>
<td>● Follows institutional guidelines to provide safe care for a Jehovah’s Witness patient with anemia</td>
</tr>
<tr>
<td><strong>Level 4</strong> Role models effective coordination of patient-centered care among different disciplines and specialties</td>
<td></td>
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</tr>
<tr>
<td><strong>Role models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Participates in changing and adapting practice to provide for the needs of specific populations</strong></td>
<td></td>
</tr>
<tr>
<td>● During ICU rounds, leads team members in approaching consultants to review cases/recommendations and arranges multidisciplinary rounds for the team</td>
<td></td>
</tr>
<tr>
<td>● Prior to rotating off the ICU service, proactively informs the incoming fellow about a plan of care for a patient awaiting a liver transplant with multiple studies pending</td>
<td></td>
</tr>
<tr>
<td>● Assists in the design of protocols for discussing and managing blood product usage in patients who refuse blood products for religious reasons</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Level 5</strong> Analyzes the process of care coordination and participates in the design and implementation of improvements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes</strong></td>
</tr>
<tr>
<td><strong>Advocates for populations and communities with health care inequities in the peri-operative setting</strong></td>
</tr>
<tr>
<td>● Develops a program to arrange for admission assessment of immunocompromised patients</td>
</tr>
<tr>
<td>● Devises a protocol to improve transitions from ICU to step down or monitored unit</td>
</tr>
<tr>
<td>● Leads development of telehealth support services for a community hospital ICU</td>
</tr>
<tr>
<td>● Partners with the multidisciplinary health care team to create an innovative approach to support disadvantaged patients in refilling medications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment Models or Tools</th>
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</thead>
<tbody>
<tr>
<td>● Direct observation</td>
</tr>
<tr>
<td>● Medical record (chart) audit</td>
</tr>
<tr>
<td>● Multisource feedback</td>
</tr>
<tr>
<td>● OSCE</td>
</tr>
<tr>
<td>● Quality metrics and goals mined from EHRs</td>
</tr>
<tr>
<td>● Review of sign-out tools, use and review of checklists</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curriculum Mapping</th>
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<thead>
<tr>
<th>Notes or Resources</th>
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</thead>
<tbody>
<tr>
<td>Milestones</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Level 1</strong> Identifies key components of the complex health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology)</td>
</tr>
<tr>
<td>States factors impacting the costs of critical care</td>
</tr>
<tr>
<td><strong>Level 2</strong> Describes how components of a complex health care system are interrelated, and how this impacts patient care</td>
</tr>
<tr>
<td>Documents patient details to facilitate accurate billing and reimbursement</td>
</tr>
<tr>
<td><strong>Level 3</strong> Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)</td>
</tr>
<tr>
<td>Explains the impact of documentation on billing and reimbursement</td>
</tr>
<tr>
<td><strong>Level 4</strong> Manages various components of the complex health care system to provide efficient and effective patient care and transition of care</td>
</tr>
<tr>
<td>Practices and advocates for cost-effective patient care</td>
</tr>
<tr>
<td><strong>Level 5</strong> Advocates for or leads systems change that enhances high-value, efficient, and effective patient care</td>
</tr>
<tr>
<td>Engages in external activities related to advocacy for cost-effective care</td>
</tr>
</tbody>
</table>
## Assessment Models or Tools
- Direct observation
- Medical record (chart) audit
- Patient satisfaction data
- Portfolio

## Curriculum Mapping

## Notes or Resources
### Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice

**Overall Intent:** To incorporate evidence and patient values into clinical practice

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> <em>Accesses and uses evidence in routine patient care</em></td>
<td>● Reviews the most recent practice advisory for sepsis management and applies to patients in the ICU</td>
</tr>
<tr>
<td><strong>Level 2</strong> <em>Articulates clinical questions and elicits patient preferences and values to guide evidence-based care</em></td>
<td>● In a patient with respiratory failure and underlying pulmonary disease, discusses the options for escalation of care and patient perspectives regarding the options.</td>
</tr>
</tbody>
</table>
| **Level 3** *Compares and applies the best available evidence, integrated with patient preference, to the care of complex patients* | ● Obtains, discusses, and applies evidence for the ICU management of a patient with severe chronic obstructive pulmonary disease  
● Understands and appropriately uses clinical practice guidelines for the ICU management of a patient with respiratory failure in a patient with severe chronic obstructive pulmonary disease while eliciting their preferences |
| **Level 4** *Appraises and applies evidence, even in the face of uncertainty and conflicting evidence, to guide individualized care* | ● Accesses the primary literature to discuss current evidence about transfusion thresholds in critically ill patients  
● Reviews primary literature regarding administration of blood products in the ICU setting |
| **Level 5** *Coaches others to appraise and apply evidence for complex patients and/or participates in the development of guidelines* | ● Leads clinical teaching on application of best practices in transfusion thresholds in different ICU patient populations  
● Reviews evidence and develops processes to enhance staff safety guidelines (e.g., personal protective equipment (PPE)) in the ICU  
● As part of the ICU team, develops airway protocols and rapid response teams for hospitals |

**Assessment Models or Tools**

- Direct observation
- Oral or written examinations
- Oral presentations
- Research and quality improvement projects

**Curriculum Mapping**

- ☐
<table>
<thead>
<tr>
<th>Notes or Resources</th>
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</thead>
</table>
### Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth

**Overall Intent:** To seek clinical performance information with the intent to improve care; to reflect on all domains of practice, personal interactions, and behaviors, and their impact on colleagues and patients (reflective mindfulness); to develop clear objectives and goals for improvement in some form of a learning plan

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Accepts responsibility for personal and professional development by establishing goals</td>
<td>● Completes self-reflective goals prior to meeting with the program director</td>
</tr>
</tbody>
</table>
| Identifies the factors that contribute to performance deficits | ● Identifies gaps in knowledge of mechanisms of drug choice and interactions  
● Identifies that fatigue, stressors and perceived life-work imbalance contribute to performance deficits |
| Actively seeks opportunities to improve | ● Asks for feedback from patients, families, and patient care team members  
● Uses institutional provided resources to balance personal/professional commitments and obligations |
| **Level 2** Demonstrates openness to performance data (feedback and other input) to form goals | ● Integrates feedback to adjust ICU management of patients with hemodynamic instability |
| Analyzes and acknowledges the factors that contribute to performance deficits | ● Assesses technical skills and how they may lead to complications |
| Designs and implements a learning plan, with prompting | ● When prompted, develops individual education plan to improve their evaluation of patients with a history of post-operative neurocognitive dysfunction |
| **Level 3** Seeks performance data episodically, with adaptability and humility | ● Obtains chart data to determine immediate management of hemodynamic instability and options for management in different patient populations |
| Institutes behavioral change(s) to improve performance | ● Completes focused literature review before caring for specific patient populations in the ICU, for example post cardiac surgery patients |
| Independently creates and implements a learning plan | ● Implements strategies that improve behaviors such as trust, interdependence, genuineness, empathy, risk, team building, and success |
| **Level 4** Intentionally seeks performance data consistently, with adaptability and humility | ● Obtains a quarterly chart audit to determine management of hemodynamic instability based on differential diagnoses  
● Assesses impact of management plans on ICU length of stay |
| Considers alternatives to improve performance | ● After patient encounter, debriefs with the attending and other patient care team members to optimize future collaboration in the care of the patient and family |
| Integrates performance data to adapt the learning plan | ● Based on audit of management of hemodynamic instability based on differential diagnoses, identifies knowledge gaps and reads current practice guidelines to improve care |
| **Level 5 Role models consistently seeking performance data with adaptability and humility** | ● Shares instances of near misses with more junior learners  
● Shares own performance gaps and adapted plan with other learners |
| Models reflective practice | ● Identifies and shares strategies to improve bronchoscopy |
| Facilitates the design and implementation of learning plans for others | ● Assists more junior residents in developing their individualized learning plans |
| Assessment Models or Tools | ● Direct observation  
● Review of learning plan |
| Curriculum Mapping | ● |
https://doi.org/10.1186/s13613-021-00883-9  
### Professionalism 1: Professional Behavior and Ethical Principles

**Overall Intent:** To recognize and address lapses in ethical and professional behavior, demonstrates ethical and professional behaviors, and use appropriate resources for managing ethical and professional dilemmas

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong></td>
<td>Identifies potential triggers for professionalism lapses</td>
</tr>
</tbody>
</table>
| *Describes when and how to report lapses in professionalism* | ● Describes the impact of fatigue on clinical performance  
 ● Recognizes that personal “bias” may interfere with professionalism |
| *Demonstrates knowledge of the ethical principles underlying patient care* | ● Identifies fatigue and lists available resources to mitigate impact from fatigue  
 ● Describes institutional safety reporting systems to report a near miss, a process problem or patient event  
 ● Articulates how the principle of “do no harm” applies to a patient who may not need a central line even though the learning opportunity exists  
 ● Discusses the basic principles underlying ethics (e.g., beneficence, nonmaleficence, justice, autonomy) and professionalism (e.g., professional values and commitments), and how they apply in various situations (e.g., informed consent process) |
| **Level 2** | Demonstrates insight into professional behavior in routine situations  |
| *Takes responsibility for one’s own professionalism lapses* | ● Respectfully approaches a resident who is late to call shift about the importance of being on time  
 ● Maintains patient confidentiality in public situations  
 ● Notifies appropriate supervisor in a timely way when unable to fulfill a responsibility  
 ● Identifies and applies ethical principles involved in informed consent when the resident is unclear of all the risks  
 ● Identifies surrogate for impaired patients |
| *Analyzes straightforward situations using ethical principles* |  |
| **Level 3** | Demonstrates professional behavior in complex or stressful situations  |
| *Recognizes need to seek help in managing and resolving complex interpersonal situations* | ● Appropriately responds to a distraught family member following a clinical decline or complication  
 ● Appropriately handles conversations in the ICU during stressful situations such as acute blood loss and hemodynamic instability  
 ● After noticing a colleague’s inappropriate social media post, reviews policies related to posting of content and seeks guidance |
<p>| | |
|  |  |</p>
<table>
<thead>
<tr>
<th>Critical Care Anesthesiology Supplemental Guide</th>
</tr>
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</table>
| **Analyzes complex situations using ethical principles** | • Offers treatment options for a terminally ill patient, free of bias, while recognizing own limitations, and consistently honoring the patient’s choice  
• Reviews Jehovah’s Witness institutional policies and offers options for peri-operative management  
• Reviews patient candidacy for advanced therapies (e.g., mechanical circulatory support) and communicates this assessment to patient, patient family, and other physicians on the care team without bias |
| **Level 4 Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in oneself** | • Actively solicits the perspectives of others  
• Models respect for patients and promotes the same from colleagues |
| **Actively solicits help and acts on recommendations to resolve complex interpersonal situations** | • Recognizes and uses ethics consults, literature, risk-management/legal counsel to resolve ethical dilemmas |
| **Recognizes and uses resources for managing and resolving ethical dilemmas** | • Recognizes and manages situations of medical futility |
| **Level 5 Coaches others when their behavior fails to meet professional expectations** | • Coaches others when their behavior fails to meet professional expectations and creates a performance improvement plan to prevent recurrence  
• Identifies and seeks to address system-wide factors or barriers to promoting a culture of ethical behavior through participation in a work group, committee, or taskforce (e.g., ethics committee or an ethics subcommittee, risk management committee, root cause analysis review, patient safety or satisfaction committee, professionalism work group, Institutional Review Board, resident grievance committee) |
| **Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution** | |
| **Assessment Models or Tools** | • Direct observation  
• Global evaluation  
• Multisource feedback  
• Oral or written self-reflection  
• OSCE  
• Simulation |
| **Curriculum Mapping** | |
# Professionalism 2: Accountability/Conscientiousness

**Overall Intent:** To take responsibility for one’s own actions and the impact on patients and other members of the health care team

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Responds promptly to requests or reminders to complete tasks</td>
<td></td>
</tr>
<tr>
<td>Takes responsibility for failure to complete tasks</td>
<td></td>
</tr>
</tbody>
</table>
| ● Responds promptly to reminders from program administrator to complete work hour logs  
  ● Attends conferences and other educational activities on time  
  ● Apologizes to team member(s) for unprofessional behavior without prompting |
| **Level 2** Performs tasks and responsibilities in a timely manner  
Recognizes situations that may impact one’s own ability to complete tasks and responsibilities in a timely manner |
| ● Completes administrative tasks, documents safety modules, procedure review, and licensing requirements by specified due date  
  ● Before going out of town, completes tasks in anticipation of lack of computer access while traveling |
| **Level 3** Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations  
Takes responsibility for tasks not completed in a timely manner and identifies strategies to prevent recurrence |
| ● Notifies attending of multiple competing demands on call, appropriately triages tasks, and asks for assistance from other residents or faculty members as needed  
  ● Appropriately notifies residents and fellows on day service about overnight call events during transition of care or hand-off to avoid patient safety issues and compromise of patient care |
| ● Apologizes to team member(s) for unprofessional behavior without prompting, offers solutions to prevent repeated behavior in the future |
| **Level 4** Prioritizes tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations  
Proactively implements strategies to ensure that the needs of patients, teams, and systems are met |
| ● Takes responsibility for inadvertently omitting key patient information during hand-off and professionally discusses with the patient, family and interprofessional team |
| ● Follows up with accepting physician at long-term, acute care facility regarding medically complicated patient just discharged to outside facility |
| **Level 5** Designs and implements an institutional systems approach to ensure timely task completion and shared responsibility |
| ● Coordinates a multidisciplinary team to facilitate ICU transfers throughout the institution  
  ● Leads multidisciplinary team in peri-operative root cause analysis to improve system practices around infection control |
| **Assessment Models or Tools** |
| ● Compliance with deadlines and timelines |
| Curriculum Mapping |  
|-------------------|-------------------|
- Code of conduct from fellow/resident institutional manual  
- Expectations of residency program regarding accountability and professionalism |
### Professionalism 3: Well-Being

**Overall Intent:** To identify, use, manage, improve, and seek help for personal and professional well-being for self and others

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
</table>
| **Level 1 Recognizes the importance of addressing personal and professional well-being** | ● Acknowledges own response to patient’s terminal illness  
● Is receptive to feedback on missed emotional cues after a family meeting  
● Discusses well-being concerns as they might affect performance |
| **Level 2 Lists available resources for personal and professional well-being** | ● Independently identifies and communicates impact of a personal family tragedy  
● Completes e-learning modules (or other modality) related to fatigue management  
● Demonstrates how to access an institutional crisis line  
● Independently identifies the stress of relationship issues, difficult patients, and financial pressures, and seeks help |
| **Describes institutional resources that are meant to promote/support well-being** | |
| **Level 3 With assistance, proposes a plan to promote personal and professional well-being** | ● With the multidisciplinary team, develops a reflective response to deal with personal impact of difficult patient encounters and disclosures  
● Identifies institutionally sponsored wellness programs  
● Integrates feedback from the multidisciplinary team to develop a plan for identifying and responding to emotional cues during the next family meeting  
● With supervision, assists in developing a personal learning or action plan to address factors potentially contributing to burnout |
| **Recognizes which institutional factors affect well-being** | |
| **Level 4 Independently develops a plan to promote personal and professional well-being** | ● Independently identifies ways to manage personal stress  
● Self-assesses and seeks additional feedback on skills responding to emotional cues during a family meeting  
● Works to prevent, mitigate and intervene early during stressful periods in the fellowship peer group |
| **Describes institutional factors that positively and/or negatively affect well-being** | |
| **Level 5 Creates institutional-level interventions that promote colleagues’ well-being** | ● Assists in organizational efforts to address clinician well-being after patient diagnosis/prognosis/death  
● Works with multidisciplinary team to develop a feedback framework for learners around family meetings |
<table>
<thead>
<tr>
<th>Describes institutional programs designed to examine systemic contributors to burnout</th>
<th>• Establishes a mindfulness program open to all employees</th>
</tr>
</thead>
</table>
| Assessment Models or Tools | • Direct observation  
• Group interview or discussions for team activities  
• Individual interview  
• Institutional online training modules  
• Self-assessment and personal learning plan |
| Curriculum Mapping | |
| Notes or Resources | • This subcompetency is not intended to evaluate a fellow's well-being, but to ensure each fellow has the fundamental knowledge of factors that impact well-being, the mechanisms by which those factors impact well-being, and available resources and tools to improve well-being.  
• ACGME. Tools and Resources. [https://dl.acgme.org/pages/well-being-tools-resources](https://dl.acgme.org/pages/well-being-tools-resources)  
• Local resources, including employee assistance programs (EAPs) |
### Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication

**Overall Intent:** To deliberately use language and behaviors to form constructive relationships with patients, to identify communication barriers including self-reflection on personal biases, and minimize them in the doctor-patient relationships; to organize and lead communication around shared decision making.

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Communicates with patients and their families in an understandable and respectful manner</td>
<td>• Introduces self and faculty member, identifies patient and others in the room, and engages all parties in health care discussion</td>
</tr>
<tr>
<td>Provides timely updates to patients and patients’ families</td>
<td>• Provides updates to the family after an unanticipated ICU admission</td>
</tr>
<tr>
<td><strong>Level 2</strong>Customizes communication in the setting of personal biases and barriers with patients and patients’ families</td>
<td>• Avoids medical jargon and restates patient and family perspectives when discussing patient’s clinical status</td>
</tr>
<tr>
<td>Actively listens to patients and patients’ families to elicit patient preferences and expectations</td>
<td>• Responds to questions regarding the patient’s level of support and addresses questions about overall condition</td>
</tr>
<tr>
<td><strong>Level 3</strong> Explains complex and difficult information to patients and patients’ families</td>
<td>• Acknowledges patient and family goals of care and answers questions</td>
</tr>
<tr>
<td>Uses shared decision-making to make a personalized care plan</td>
<td>• Elicits patient and family preference regarding resuscitation status and overall goals of care</td>
</tr>
<tr>
<td><strong>Level 4</strong> Facilitates difficult discussions with patients and patients’ families</td>
<td>• Explains current level of organ dysfunction and elicits understanding of this information</td>
</tr>
<tr>
<td>Effectively negotiates and manages conflict among patients, patients’ families, and the health care team</td>
<td>• Ensures all family members understand the current clinical status and discusses role of decision makers as patient proxy</td>
</tr>
<tr>
<td><strong>Level 5</strong> Mentors others in the facilitation of crucial conversations</td>
<td>• Leads a discussion group on personal experience of moral distress</td>
</tr>
<tr>
<td>Mentors others in conflict resolution</td>
<td>• Develops an ICU team curriculum on negotiating end of life decisions and working as a team with family to understand their perspectives.</td>
</tr>
<tr>
<td></td>
<td>• Serves on a hospital bioethics committee</td>
</tr>
</tbody>
</table>
### Assessment Models or Tools
- Direct observation
- OSCE
- Self-assessment including self-reflection exercises
- Standardized patients

### Curriculum Mapping
- 

### Notes or Resources
<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Identifies the need to assess a patient’s/patient’s family’s expectations and understanding of health status and treatment options</td>
<td>● Recognizes importance of communicating prognosis to permit shared decision making, with assistance</td>
</tr>
<tr>
<td>Identifies key communication elements for shared decision making</td>
<td>● Values assessing patient/family understanding of health status and expectations, with assistance</td>
</tr>
<tr>
<td><strong>Level 2</strong> Assesses a patient’s family’s/caregiver’s understanding of the patient’s condition and identifies preferences for receiving information</td>
<td>● Uses open-ended questions to determine a patient’s/family’s prognostic awareness and discuss patient/family preferences for how communication about prognosis should occur</td>
</tr>
<tr>
<td>Facilitates communication with a patient/patient’s family by introducing stakeholders, setting the agenda, clarifying expectations, and verifying an understanding of the clinical situation</td>
<td>● Begins a family meeting for a patient with serious illness by asking the patient/family what they understand about the patient’s clinical condition</td>
</tr>
<tr>
<td><strong>Level 3</strong> Delivers difficult information and attends to emotional responses of a patient and patient’s family/caregivers</td>
<td>● Consistently responds to emotion in conversations by using NURSE statements (Name, Understand, Respect, Support, Explore) and deliberate silence</td>
</tr>
</tbody>
</table>
| Sensitively and compassionately delivers medical information; elicits a patient’s/patient’s family’s values, goals, and preferences; and acknowledges uncertainty and conflict, with guidance | ● Encourages patients and families to reflect on and clarify their goals and wishes  
● Allows patients and families to reflect on the tradeoffs that might be necessary to achieve different outcomes  
● Explores the sources and nature of fears allowing the patient and family to feel better understood and supported |
| **Level 4** Tailors communication according to disease characteristics and trajectory, patient consent, patient’s family’s needs, and medical uncertainty, and is able to address intense emotional response | ● Adjusts communication with family/caregivers to address uncertainty and conflicting prognostic estimates  
● Runs a family meeting with more complex emotions, family dynamics  
● Uses a structured format to guide discussions |
| **Independently uses shared decision making to align the patient’s/patient’s family’s values, goals, and preferences with treatment options to make a personalized care plan in situations with a high degree of uncertainty and conflict** | • Independently develops and provides a recommendation for a time-limited trial of ventilator support for a patient with acute respiratory distress syndrome, in the context of conflicting patient and family goals  
• Documents important elements of the communication in the medical record |
| **Level 5 Coaches others in the communication of prognostic information** | • Implements systematic approaches to communication including better education of clinicians, triggers for early family discussions, patient and family education, use of structured formats to guide discussions and providing dedicated sections in the EHR for recording information  
• Develops a simulation module to teach communication of prognosis  
• Develops a role play scenario to teach shared decision making |
| **Coaches others in shared decision making in communication with a patient/patient’s family** |  |
| **Assessment Models or Tools** | • Direct observation  
• Objective structured clinical examination |
| **Curriculum Mapping** |  |
**Interpersonal and Communication Skills 3: Interprofessional and Team Communication**

**Overall Intent:** To effectively communicate with the health care team, including consultants, in both straightforward and complex situations

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Respectfully requests or receives consultations</td>
<td>• Consults cardiology for a patient with a history of angina and limited exercise capacity, relays essential information, and asks focused questions</td>
</tr>
<tr>
<td>Uses language that values all members of the health care team</td>
<td>• Receives a request for ICU admission, asks clarifying questions politely, and expresses appreciation for the motivation behind the consult request</td>
</tr>
<tr>
<td>Respectfully receives feedback from health care team members</td>
<td>• Acknowledges the contribution of each member of the patient care team during rounds</td>
</tr>
<tr>
<td><strong>Level 2</strong> Clearly, concisely, and promptly requests or responds to a consultation</td>
<td>• Communicates ICU admission decision with primary care team in a timely manner</td>
</tr>
<tr>
<td>Communicates information effectively with all health care team members</td>
<td>• Communicates acute change in patient condition leading to the admission to the critical care team in a clear, concise, organized, and timely manner</td>
</tr>
<tr>
<td>Solicits feedback on performance as a member of the health care team</td>
<td>• Discusses patient complications with supervising attending while reflecting on personal role in the patient’s care</td>
</tr>
<tr>
<td><strong>Level 3</strong> Uses closed-loop communication to verify understanding</td>
<td>• While leading a resuscitation, clearly delegates tasks and asks if team members understand their roles</td>
</tr>
<tr>
<td>Adapts communication style to fit team needs</td>
<td>• Asks other members of the health care team to repeat back recommendations to ensure understanding</td>
</tr>
<tr>
<td>Communicates concerns and provides feedback to peers and learners</td>
<td>• When receiving treatment recommendations from an attending physician, repeats back the plan to ensure understanding</td>
</tr>
<tr>
<td><strong>Level 4</strong> Coordinates recommendations from different members of the health care team to optimize patient care</td>
<td>• Collaborates with surgical colleagues to plan for post-operative ICU care</td>
</tr>
<tr>
<td><strong>Maintains effective communication in crisis situations</strong></td>
<td>• Explains rationale for initiation of the massive transfusion protocol during active hemorrhage</td>
</tr>
<tr>
<td><strong>Communicates constructive feedback to superiors</strong></td>
<td>• Cautions faculty member about an imminent medication administration error</td>
</tr>
<tr>
<td><strong>Level 5</strong> Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed</td>
<td>• Mediates a conflict resolution between different members of the health care team</td>
</tr>
<tr>
<td><strong>Facilitates regular health care team-based feedback in complex situations</strong></td>
<td>• Leads a post-code team debriefing</td>
</tr>
</tbody>
</table>

**Assessment Models or Tools**

- Direct observation
- Global assessment
- Medical record (chart) audit
- Multisource feedback
- Simulation

**Curriculum Mapping**

- 

**Notes or Resources**

## Interpersonal and Communication Skills 4: Communication within Health Care Systems

**Overall Intent:** To effectively communicate using a variety of methods

<table>
<thead>
<tr>
<th>Milestones</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1</strong> Accurately records information in the patient record; demonstrates judicious use of documentation shortcuts</td>
<td>• Documentation is accurate but may include extraneous information</td>
</tr>
<tr>
<td>Safeguards patient personal health information</td>
<td>• Avoids talking about patients in the elevator, public spaces, or on social media</td>
</tr>
<tr>
<td>Communicates through appropriate channels as required by institutional policy</td>
<td>• Identifies institutional and departmental communication hierarchy for concerns and safety issues • Only uses secure communication modalities when sharing protected health information</td>
</tr>
<tr>
<td><strong>Level 2</strong> Accurately gathers all essential medical records from other institutions</td>
<td>• Successfully completes requests for external records to be scanned into EHR</td>
</tr>
<tr>
<td>Documents required data in formats specified by institutional policy</td>
<td>• Completes procedure note for an urgent ICU intubation using the appropriate template and correct elements</td>
</tr>
<tr>
<td>Respectfully communicates concerns about the system</td>
<td>• Recognizes when a breakdown in communication has occurred and brings it to the attention of the involved parties and/or faculty member</td>
</tr>
<tr>
<td><strong>Level 3</strong> Accurately records information in the electronic health record (EHR) and communicates complex care decisions for complex cases</td>
<td>• Documents critical event notes in the medical record concisely and in a timely manner</td>
</tr>
<tr>
<td>Appropriately selects direct and indirect forms of communication based on context</td>
<td>• Follows up with a patient in person regarding a difficult intubation</td>
</tr>
<tr>
<td>Respectfully communicates concerns about the system and contributes to solutions</td>
<td>• Understands when to direct concerns locally, departmentally, or institutionally, i.e., appropriate escalation</td>
</tr>
<tr>
<td><strong>Level 4</strong> Uses EHR functionality to highlight challenges in anesthetic care to facilitate future peri-operative management</td>
<td>• Creates consistently accurate, organized, and concise documentation, frequently incorporating anticipatory guidance</td>
</tr>
</tbody>
</table>
| Models exemplary written or verbal communication | • Develops a collection of exemplary patient notes which are used as examples to educate other trainees  
• Communicates directly with a member of another department regarding a breakdown in communication and provides solutions to prevent recurrence |
| Uses appropriate channels to offer clear and constructive suggestions to improve the system | |
| Level 5 Explores innovative uses of the EHR to facilitate effective critical care management | • Leads a task force to improve patient hand-offs using the EHR  
• Actively participates in a committee to develop a pandemic disaster response plan  
• Develops educational tools to improve difficult communication and implements them within the system |
| Guides departmental or institutional policies and procedures around communication | |
| Initiates difficult conversations with appropriate stakeholders to improve the system | |
| Assessment Models or Tools | • Direct observation  
• Medical record (chart) audit  
• Multisource feedback  
• OSCE  
• Simulation |
| Curriculum Mapping | |
• Starmer AJ, et al. I-pass, a mnemonic to standardize verbal handoffs. *Pediatrics.* 2012;129(2):201-204. [https://pediatrics.aappublications.org/content/129/2/201?ssop=1&ssoredirect_count=1&nstatus=401&ntoken=00000000-0000-0000-0000-000000000000&nftoken=00000000-0000-0000-0000-000000000000&nffilestatus=ERROR%3a+No+local+token](https://pediatrics.aappublications.org/content/129/2/201?ssop=1&ssoredirect_count=1&nstatus=401&ntoken=00000000-0000-0000-0000-000000000000&nftoken=00000000-0000-0000-0000-000000000000&nffilestatus=ERROR%3a+No+local+token). |
To help programs transition to the new version of the Milestones, the ACGME has mapped the original Milestones 1.0 to the new Milestones 2.0. Indicated below are where the subcompetencies are similar between versions. These are not exact matches but are areas that include similar elements. Not all subcompetencies map between versions. Inclusion or exclusion of any subcompetency does not change the educational value or impact on curriculum or assessment.

<table>
<thead>
<tr>
<th>Milestones 1.0</th>
<th>Milestones 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>PC1: Patient Assessment and Development of a Care Plan</td>
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</tr>
<tr>
<td>PC2: Crisis Management</td>
<td>PC2: Crisis Management</td>
</tr>
<tr>
<td>PC4: Management of Respiratory Failure</td>
<td>PC4: Respiratory Failure and Ventilation Management</td>
</tr>
<tr>
<td>PC5: Palliative Medicine/End-of-Life Care</td>
<td>PC5: Management of Organ Dysfunction and Shock</td>
</tr>
<tr>
<td>MK1: Pharmacology</td>
<td>MK1: Pharmacology</td>
</tr>
<tr>
<td>MK2: Medical Knowledge of Critical Care Medicine</td>
<td>MK2: Pathophysiology of Critical Illness</td>
</tr>
<tr>
<td>SBP1: Interprofessional and Transitions of Care</td>
<td>SBP2: Patient Safety and Quality Improvement (QI)</td>
</tr>
<tr>
<td>SBP2: Incorporation of Patient Safety and Quality Improvement into Clinical Practice</td>
<td>SBP1: System Navigation for Patient-Centered Care</td>
</tr>
<tr>
<td>SBP3: Understanding of Health Care Economics – cost awareness and cost-benefit analysis</td>
<td>SBP3: Physician Role in Health Care Systems</td>
</tr>
<tr>
<td>PBLI1: Self-directed Learning and Scholarly Activity</td>
<td>PBLI2: Reflective Practice and Commitment to Personal Growth</td>
</tr>
<tr>
<td>PBLI2: Education of Team Members and Other Health Care Providers</td>
<td>ICS3: Interprofessional and Team Communication</td>
</tr>
<tr>
<td>PROF1: Commitment to Institution, Department, and Colleagues</td>
<td>PROF1: Professional Behavior and Ethical Principles</td>
</tr>
<tr>
<td>PROF2: Receiving and Giving Feedback</td>
<td>PROF2: Accountability/Conscientiousness</td>
</tr>
<tr>
<td>PROF3: Responsibility to Maintain Personal Emotional, Physical, and Mental Health</td>
<td>PROF3: Well-Being</td>
</tr>
<tr>
<td>ICS1: Communication with Patients and Families</td>
<td>ICS1: Patient- and Family-Centered Communication</td>
</tr>
<tr>
<td></td>
<td>ICS2: Complex Communication Around Serious Illness</td>
</tr>
</tbody>
</table>
Available Milestones Resources

Milestones 2.0: Assessment, Implementation, and Clinical Competency Committees Supplement, 2021 - https://meridian.allenpress.com/jgme/issue/13/2s

Milestones Guidebooks: https://www.acgme.org/milestones/resources/
- Assessment Guidebook
- Clinical Competency Committee Guidebook
- Clinical Competency Committee Guidebook Executive Summaries
- Implementation Guidebook
- Milestones Guidebook

Milestones Guidebook for Residents and Fellows: https://www.acgme.org/residents-and-fellows/the-acgme-for-residents-and-fellows/
- Milestones Guidebook for Residents and Fellows
- Milestones Guidebook for Residents and Fellows Presentation
- Milestones 2.0 Guide Sheet for Residents and Fellows

Milestones Research and Reports: https://www.acgme.org/milestones/research/
- Milestones National Report, updated each fall
- Milestones Predictive Probability Report, updated each fall
- Milestones Bibliography, updated twice each year

Developing Faculty Competencies in Assessment courses - https://www.acgme.org/meetings-and-educational-activities/courses-and-workshops/developing-faculty-competencies-in-assessment/

Assessment Tool: Direct Observation of Clinical Care (DOCC) - https://dl.acgme.org/pages/assessment

Assessment Tool: Teamwork Effectiveness Assessment Module (TEAM) - https://team.acgme.org/


Remediation Toolkit - https://dl.acgme.org/courses/acgme-remediation-toolkit

Learn at ACGME has several courses on Assessment and Milestones - https://dl.acgme.org/