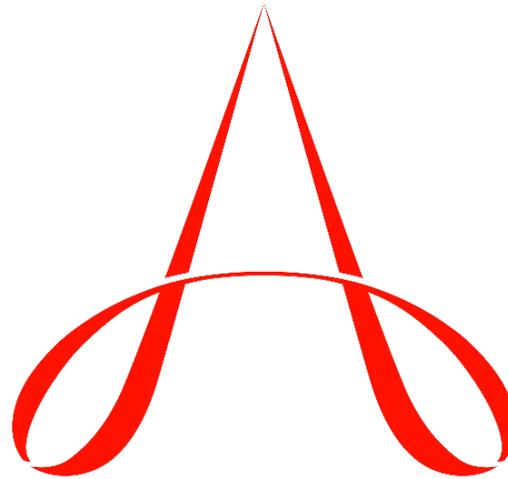




# Supplemental Guide: Surgery



ACGME

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## **Milestones Supplemental Guide**

This document provides additional guidance and examples for the Surgery 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 Evaluation and Decision Making**

**Overall Intent:** To ensure progressive development of knowledge and skill required to evaluate and manage patients with surgical conditions

| Milestones  | Examples  |
|---|---|
| <p><b>Level 1</b><br/> <i>Gathers necessary information and develops a differential diagnosis for patients in all clinical settings</i></p>   | <ul style="list-style-type: none"> <li>● Gathers information and develops a differential diagnosis for patients presenting in the following settings:                             <ul style="list-style-type: none"> <li>○ clinic</li> <li>○ emergency department</li> <li>○ inpatient transfer</li> <li>○ ward</li> </ul> </li> </ul>  |
| <p><b>Level 2</b><br/> <i>Evaluates patients; orders and interprets diagnostic testing</i></p> <p><i>Manages non-operative patients with straightforward conditions (e.g., bowel obstruction, diverticulitis)</i></p>   | <ul style="list-style-type: none"> <li>● Orders and interprets chest x-ray, acute abdominal series</li> <li>● Orders and interprets abdominal computed tomography (CT)</li> <li>● Manages patients with appendicitis</li> <li>● Evaluates patient with groin pain</li> <li>● Evaluates patient with breast mass</li> </ul>  |
| <p><b>Level 3</b><br/> <i>Develops a plan to manage healthy patients with straightforward conditions ( e.g., colon cancer, breast cancer)</i></p> <p><i>Adapts management plan for changing clinical situation (e.g., drainage of diverticular abscess)</i></p> | <ul style="list-style-type: none"> <li>● Develops plan for managing patients with:                             <ul style="list-style-type: none"> <li>○ hernia</li> <li>○ symptomatic cholelithiasis</li> <li>○ thyroid nodule</li> </ul> </li> <li>● Adapts plan for changing patient condition in patients with:                             <ul style="list-style-type: none"> <li>○ small bowel obstruction</li> <li>○ Crohn’s disease</li> <li>○ gastrointestinal (GI) bleeding</li> <li>○ aneurysm</li> </ul> </li> </ul> |
| <p><b>Level 4</b><br/> <i>Develops a plan to manage patients with complex conditions (e.g., patient with multiple comorbidities) and conditions (e.g., hemorrhagic shock)</i></p>   | <ul style="list-style-type: none"> <li>● Develops plan for managing patients with surgical conditions as well as:                             <ul style="list-style-type: none"> <li>○ decompensated heart failure</li> <li>○ frailty</li> <li>○ myocardial infarction</li> <li>○ liver failure</li> <li>○ renal failure</li> </ul> </li> <li>● Manages patients with:</li> </ul>   |

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| <p><i>Manages non-operative patients with complex conditions (e.g., severe pancreatitis)</i></p>                                 | <ul style="list-style-type: none"> <li>○ blunt and penetrating trauma</li> <li>○ septic shock</li> <li>○ severe malnutrition</li> </ul>   |
| <p><b>Level 5</b><br/><i>Develops a clinical pathway or guideline for the management of patients with complex conditions</i></p> | <ul style="list-style-type: none"> <li>● Develops sepsis protocol</li> <li>● Develops pathway for treating patients with small bowel obstruction</li> </ul>   |
| <p>Assessment Models or Tools</p>  | <ul style="list-style-type: none"> <li>● Direct observation</li> <li>● Entrustable Professional Activities</li> <li>● Case Logs (trauma and intensive care unit [ICU] management)</li> <li>● Simulation</li> <li>● Rating scales</li> <li>● Complexity Assessment and Monitoring to Ensure Optimal Outcomes (CAMEOs)</li> <li>● Mock orals</li> </ul> |
| <p>Curriculum Mapping</p>  | <ul style="list-style-type: none"> <li>●</li> </ul>   |
| <p>Notes or Resources</p>  |   |

**Patient Care 2: Intra-Operative Patient Care: Performance of Procedures****Overall Intent:** To ensure the progressive development of integrated knowledge and skills to complete an operation

| <b>Milestones</b>   | <b>Examples</b>   |
|---|---|
| <b>Level 1</b><br><i>Demonstrates basic skills (e.g., knot tying, suturing)</i>   | <ul style="list-style-type: none"> <li>• The resident demonstrates one-handed and two-handed knots under various conditions, including depth of wound</li> <li>• Closes simple and complex wounds</li> <li>• Places laparoscopic ports and operates camera</li> <li>• Uses a scalpel to make an incision</li> </ul>   |
| <b>Level 2</b><br><i>Performs bedside procedures (e.g., central line, chest tube)</i><br><br><i>Teaches basic skills to medical students and junior residents</i>                                     | <ul style="list-style-type: none"> <li>• Places a central line</li> <li>• Places chest tube</li> <li>• Performs wound debridement</li> <li>• Places arterial line</li> <li>• Performs negative pressure wound therapy</li> <li>• Excision of small skin and subcutaneous lesions</li> <li>• Performs image guided biopsy</li> <br/> <li>• Teaches Level 1 skills</li> </ul> |
| <b>Level 3</b><br><i>Performs common operations (e.g., hernia, cholecystectomy, appendectomy)</i><br><br><i>Teaches bedside operations to junior residents</i>  | <ul style="list-style-type: none"> <li>• Performs sleeve gastrectomy</li> <li>• Performs diagnostic endoscopy or percutaneous endoscopic gastrostomy placement</li> <li>• Performs vascular anastomosis</li> <li>• Performs tracheostomy</li> <li>• Performs partial mastectomy</li> <br/> <li>• Teaches Level 2 skills</li> </ul>  |
| <b>Level 4</b><br><i>Performs complex operations (e.g., low anterior resection, paraesophageal hernia, abdominal wall reconstruction)</i><br><br><i>Teaches common operations to junior residents</i> | <ul style="list-style-type: none"> <li>• Performs low anterior resection</li> <li>• Performs anti-reflux procedures</li> <li>• Performs abdominal wall reconstruction</li> <li>• Performs vascular bypass procedure</li> <li>• Performs distal pancreatectomy</li> <br/> <li>• Teaches Level 3 skills</li> </ul>  |
| <b>Level 5</b>  | <ul style="list-style-type: none"> <li>• Performs liver resections</li> <li>• Performs open aortic aneurysm repair</li> </ul>   |

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| <p><i>Performs uncommon complex operations (e.g., Whipple, esophagectomy)</i></p> <p><i>Teaches complex operations to junior residents</i></p> | <ul style="list-style-type: none"> <li>• Performs complex enterocutaneous fistula repair</li> <li>• Teaches Level 4 skills</li> </ul>   |
| <p>Assessment Models or Tools</p>  | <ul style="list-style-type: none"> <li>• Simulation</li> <li>• Direct observation</li> <li>• Rating scales</li> <li>• Operative Performance Rating System (OPRS)</li> <li>• 360-degree evaluation</li> <li>• Case Logs</li> </ul>             |
| <p>Curriculum Mapping</p>  | <ul style="list-style-type: none"> <li>•</li> </ul>   |
| <p>Notes or Resources</p>  | <p>In Levels 2-5 it is assumed the resident is performing the complete procedure, including: procedure/equipment set-up; patient positioning; use of aseptic techniques; leading the procedure; and controlling the flow of the procedure</p> |

**Patient Care 3: Intra-Operative Patient Care: Technical Skills**

**Overall Intent:** To ensure the progressive development of technical skills needed to complete an operation including tissue handling, instrument use, and recognition of anatomy

| Milestones   | Examples  |
|--|---|
| <p><b>Level 1</b><br/> <i>Demonstrates limited tissue-handling skills</i></p> <p><i>Requires prompting to identify appropriate tissue plane</i></p> <p><i>Moves forward in the operation only with active direction</i></p>  | <ul style="list-style-type: none"> <li>• Examples in an open inguinal hernia repair:                             <ul style="list-style-type: none"> <li>○ Needs explicit direction to mark incision site</li> <li>○ Can use electrocautery with supervising surgeon providing exposure and guidance</li> <li>○ Can place sutures with direction</li> </ul> </li> <li>• Examples in laparoscopic cholecystectomy:                             <ul style="list-style-type: none"> <li>○ Establishes pneumoperitoneum</li> <li>○ Places trocars with direction</li> <li>○ Operates the camera</li> </ul> </li> </ul> |
| <p><b>Level 2</b><br/> <i>Inconsistently demonstrates careful tissue handling</i></p> <p><i>Identifies appropriate plane but requires redirection to maintain dissection in the optimal tissue plane</i></p> <p><i>Moves forward in the operation but requires prompting to complete the operation</i></p> | <ul style="list-style-type: none"> <li>• Examples in laparoscopic cholecystectomy:                             <ul style="list-style-type: none"> <li>○ Appropriately places trocars without direction</li> <li>○ Dissects Calot’s Triangle with direction</li> </ul> </li> <li>• Identifies plane to remove gallbladder from liver bed with occasional straying off plane</li> </ul>   |
| <p><b>Level 3</b><br/> <i>Consistently demonstrates careful tissue handling</i></p> <p><i>Visualizes tissue plane, identifies and dissects relevant normal anatomy</i></p> <p><i>Moves fluidly through the course of the operation and anticipates next steps</i></p>                                      | <ul style="list-style-type: none"> <li>• Examples in laparoscopic cholecystectomy:                             <ul style="list-style-type: none"> <li>○ Dissects Calot’s Triangle to critical view of safety without direction</li> <li>○ Removes gallbladder from liver bed without injuring either structure</li> </ul> </li> <li>• Moves between steps of the procedure with minimal direction</li> </ul>  |
| <p><b>Level 4</b><br/> <i>Adapts tissue handling based on tissue quality</i></p>   | <ul style="list-style-type: none"> <li>• Examples in laparoscopic cholecystectomy:                             <ul style="list-style-type: none"> <li>○ Recognizes aberrant biliary anatomy and adapts dissection without direction</li> </ul> </li> </ul>  |

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| <p><i>Visualizes tissue plane, identifies and dissects relevant abnormal anatomy</i></p> <p><i>Adapts to unexpected findings and events during the course of the operation</i></p> | <ul style="list-style-type: none"> <li>• Adapts tissue handling for acute/gangrenous cholecystitis</li> </ul>  |
| <p><b>Level 5</b></p> <p><i>Identifies innovative operative techniques, instrumentation, operative approaches, or significant improvement in established techniques</i></p>        | <ul style="list-style-type: none"> <li>• Brings natural operative approach to his or her institution</li> </ul>  |
| <p>Assessment Models or Tools</p>  | <ul style="list-style-type: none"> <li>• Simulation</li> <li>• Direct observation</li> <li>• Rating scales</li> <li>• Video review</li> <li>• Fundamentals of Laparoscopic Surgery/Fundamentals of Endoscopic Surgery</li> </ul> |
| <p>Curriculum Mapping</p>  | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| <p>Notes or Resources</p>  | <p>Laparoscopic cholecystectomy and inguinal hernia are used as examples. The same concepts should be applied to a variety of operations.</p>  |

**Patient Care 4: Post-Operative Patient Care****Overall Intent:** To ensure progressive development of recognition and evaluation and management of post-operative patients

| Milestones  | Examples  |
|---|---|
| <p><b>Level 1</b><br/><i>Evaluates simple postoperative problems (e.g., fever, bleeding, hypotension, oliguria)</i></p> <p><i>Manages routine postoperative course for a common operation (e.g., hernia, cholecystectomy, appendectomy)</i></p>                                   | <ul style="list-style-type: none"> <li>• Evaluates and manages post-operative pain</li> <li>• Evaluates post-operative hypertension</li> <br/> <li>• Manages blood glucose</li> <li>• Manages fluid and electrolyte needs</li> </ul>                                  |
| <p><b>Level 2</b><br/><i>Evaluates complex postoperative problems (e.g., sepsis, anastomotic leak)</i></p> <p><i>Manages simple postoperative problems</i></p>  | <ul style="list-style-type: none"> <li>• Evaluates respiratory insufficiency</li> <br/> <li>• Manages hemorrhagic shock</li> <li>• Manages surgical site infection</li> <li>• Manages post-operative urinary tract infection</li> </ul>                               |
| <p><b>Level 3</b><br/><i>Evaluates complex postoperative problems in patient with complex conditions (e.g., renal failure, congestive heart failure, cirrhosis)</i></p> <p><i>Manages routine postoperative course for a complex operation (e.g., Whipple, esophagectomy)</i></p> | <ul style="list-style-type: none"> <li>• Evaluates bronchospasm in patient with chronic pulmonary disease</li> <br/> <li>• Manages oliguria and hypotension in patient with clonidine hypertension</li> <li>• Manages post-major hepatic resection patient</li> </ul> |
| <p><b>Level 4</b><br/><i>Anticipates and mitigates post-operative problems in patient with complex conditions</i></p> <p><i>Manages complex postoperative problems</i></p>  | <ul style="list-style-type: none"> <li>• Prioritizes care for multiply injured patient</li> <li>• Anticipates and mitigate multiple organ failures</li> <br/> <li>• Manages high output enterocutaneous (EC) fistula in malnourished patient</li> </ul>               |
| <p><b>Level 5</b><br/><i>Develops a clinical pathway or guideline for management of complex post-operative problems</i></p>   | <ul style="list-style-type: none"> <li>• Develops clinical pathway for hemobilia</li> <li>• Develops clinical pathway for EC fistula</li> </ul>   |
| <p><b>Assessment Models or Tools</b></p>  | <ul style="list-style-type: none"> <li>• Simulation</li> </ul>  |

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|                    | <ul style="list-style-type: none"><li>• Direct observation</li><li>• Rating scales</li><li>• Critical Case Logs</li></ul>             |
| Curriculum Mapping | <ul style="list-style-type: none"><li>•</li></ul>   |
| Notes or Resources | <ul style="list-style-type: none"><li>• SCORE modules</li></ul> American College of Surgeons (ACS) Fundamentals of Surgery Curriculum |

| <b>Medical Knowledge 1: Pathophysiology and Treatment</b><br><b>Overall Intent:</b> To ensure the resident demonstrates progressive knowledge of pathophysiology and treatment of surgical conditions. |   |
|--|---|
| Milestones   | Examples  |
| <b>Level 1</b><br><i>Demonstrates knowledge of pathophysiology and treatments of patients with common surgical conditions</i>  | <ul style="list-style-type: none"> <li>• Demonstrates knowledge of pathophysiology and treatment of patients with:               <ul style="list-style-type: none"> <li>○ appendicitis</li> <li>○ breast mass</li> <li>○ hernia</li> <li>○ symptomatic cholelithiasis</li> </ul> </li> </ul>  |
| <b>Level 2</b><br><i>Demonstrates knowledge of pathophysiology and treatments of patients with complex surgical Conditions</i>   | <ul style="list-style-type: none"> <li>• Demonstrates knowledge of pathophysiology and treatment of patients with:               <ul style="list-style-type: none"> <li>○ adrenal mass</li> <li>○ blunt and penetrating trauma</li> <li>○ Crohn’s disease</li> <li>○ severe acute pancreatitis</li> </ul> </li> </ul>   |
| <b>Level 3</b><br><i>Demonstrates knowledge of the impact of patient factors on pathophysiology and the treatment of patients with surgical conditions</i>   | <ul style="list-style-type: none"> <li>• Demonstrates knowledge of the impact of the following patient factors on the pathophysiology and treatment of surgical conditions:               <ul style="list-style-type: none"> <li>○ diabetes</li> <li>○ liver failure</li> <li>○ congestive heart failure</li> <li>○ renal failure</li> <li>○ chronic anticoagulation</li> </ul> </li> </ul> |
| <b>Level 4</b><br><i>Demonstrates comprehensive knowledge of the varying patterns of disease presentation and alternative and adjuvant treatments of patients with surgical conditions</i>             | <ul style="list-style-type: none"> <li>• Demonstrates knowledge of the pathophysiology and treatment of:               <ul style="list-style-type: none"> <li>○ a pregnant patient with T3 breast cancer</li> <li>○ a patient with massive ascites and an umbilical hernia</li> <li>○ a Jehovah’s Witness with gastrointestinal bleeding</li> </ul> </li> </ul>                             |
| <b>Level 5</b><br><i>Contributes to peer reviewed literature on the varying patterns of disease presentation, and alternative and adjuvant treatments of patients with surgical conditions</i>         | <ul style="list-style-type: none"> <li>• Publishes retrospective series</li> <li>• Designs clinical trial</li> <li>• Contributes patients to clinical trials</li> <li>• Develops electronic educational module</li> </ul>   |
| <b>Assessment Models or Tools</b>  | <ul style="list-style-type: none"> <li>• American Board of Surgery (ABS) In-Training Examination (ABSITE)</li> <li>• Direct observation</li> <li>• Rating scales</li> <li>• Multiple choice knowledge tests</li> </ul>  |

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|                    | <ul style="list-style-type: none"><li>• Mock orals</li><li>• Morbidity and mortality conference</li></ul> |
| Curriculum Mapping | <ul style="list-style-type: none"><li>•</li></ul>   |
| Notes or Resources | National Board of Medical Examiners (NBME) and ABS question writing resources                             |

**Medical Knowledge 2: Anatomy**

**Overall Intent:** To ensure the progressive development of knowledge including normal and variant anatomy pertinent to completing operations and procedures

| <b>Milestones</b>   | <b>Examples</b>  |
|---|--|
| <p><b>Level 1</b><br/> <i>Identifies normal anatomy (e.g., inguinal canal) during common operations</i></p> <p><i>Articulates the steps of common operations</i></p>  | <ul style="list-style-type: none"> <li>• Identifies Calot's Triangle</li> <li>• Identifies appendiceal artery</li> <br/> <li>• Describes the steps of laparoscopic cholecystectomy</li> <li>• Describes the steps of breast biopsy</li> <li>• Describes the steps of bowel resection</li> </ul>  |
| <p><b>Level 2</b><br/> <i>Identifies variations in anatomy (e.g., bile duct anatomic variations) during common operations</i></p> <p><i>Articulates the implications of varying anatomy on the steps of common operations</i></p>   | <ul style="list-style-type: none"> <li>• Identifies retrocecal appendix</li> <li>• Identifies non-recurrent laryngeal nerve</li> <br/> <li>• Describes variations in port placement to facilitate dissection of retrocecal appendix</li> <li>• Describes change in dissection for thyroidectomy when a non-recurrent laryngeal nerve is suspected</li> </ul>   |
| <p><b>Level 3</b><br/> <i>Identifies normal anatomy (e.g., gastric blood supply) during complex operations</i></p> <p><i>Articulates the steps of complex operations</i></p>  | <ul style="list-style-type: none"> <li>• Identifies pancreatic vascular supply</li> <li>• Identifies ductal and vascular anatomy of liver</li> <li>• Identifies abdominal wall anatomy during separation of components</li> <li>• Identifies vascular and lymphatic supply of the rectum</li> <br/> <li>• Describes the steps of a low anterior resection</li> <li>• Describes the steps of a distal pancreatectomy/splenectomy</li> </ul> |
| <p><b>Level 4</b><br/> <i>Identifies variations in anatomy (e.g., replaced right hepatic artery) during complex operations</i></p> <p><i>Articulates the implications of varying anatomy on the steps of complex operations</i></p> | <ul style="list-style-type: none"> <li>• Identifies replaced right hepatic artery during hepatobiliary surgery</li> <br/> <li>• Describes modifications to operative approach during a hepatic resection in the presence of a replaced right hepatic artery</li> </ul>   |
| <p><b>Level 5</b><br/> <i>Develops simulation models for teaching anatomy and operations</i></p>  | <ul style="list-style-type: none"> <li>• The resident creates a curriculum for medical students and junior residents for central line placement</li> </ul>   |

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| <i>Leads anatomy instruction for students and coresidents</i> |  |
| Assessment Models or Tools                                    | <ul style="list-style-type: none"><li>• Direct observation</li><li>• In-training exam</li><li>• Simulation</li></ul> |
| Curriculum Mapping  | <ul style="list-style-type: none"><li>•</li></ul>  |
| Notes or Resources  | <ul style="list-style-type: none"><li>• SCORE Portal</li><li>• ACS Cinemed videos</li></ul>                          |

| <p align="center"><b>Systems-based Practice 1: Patient Safety and Quality Improvement</b></p> <p align="center"><b>Overall Intent:</b> To demonstrate the ability to engage in the analysis and management of patient safety events, including relevant communication with patients, families, and health care professionals as well as to conduct a QI project</p> |   |
|---|---|
| <b>Milestones</b>   | <b>Examples</b>   |
| <p><b>Level 1</b> <i>Demonstrates knowledge of common patient safety events</i></p> <p><i>Demonstrates knowledge of how to report patient safety events</i></p> <p><i>Demonstrates knowledge of basic quality improvement methodologies and metrics</i></p>   | <ul style="list-style-type: none"> <li>● Has basic knowledge of patient safety events, reporting pathways, and QI strategies, but has not yet participated in any such activities</li> </ul>  |
| <p><b>Level 2</b> <i>Identifies system factors that lead to patient safety events</i></p> <p><i>Reports patient safety events through institutional reporting systems (actual or simulated)</i></p> <p><i>Describes local quality improvement initiatives (e.g., community vaccination rate, infection rate, smoking cessation)</i></p>                             | <ul style="list-style-type: none"> <li>● Has identified and reported a patient safety issue (real or simulated), along with system factors contributing to that issue</li> <li>● Can name improvement initiatives within his or her institution</li> </ul>  |
| <p><b>Level 3</b> <i>Participates in analysis of patient safety events (actual or simulated)</i></p> <p><i>Participates in disclosure of patient safety events to patients and families (actual or simulated)</i></p> <p><i>Participates in local quality improvement initiatives</i></p>   | <ul style="list-style-type: none"> <li>● Has reviewed a patient safety event (e.g., preparing for morbidity and mortality presentations, joining a root cause analysis group)</li> <li>● Has participated in discussions with patients and/or families about such an event</li> <li>● Has participated in a QI project, though he or she may not have yet designed a QI project</li> <li>● Has participated in a hospital or departmental QI Committee</li> </ul> |
| <p><b>Level 4</b> <i>Conducts analysis of patient safety events and offers error prevention strategies (actual or simulated)</i></p>  | <ul style="list-style-type: none"> <li>● Collaborates with a team to lead the analysis of a patient safety event</li> <li>● Communicate with patients/families about those events in actual or simulated situations</li> <li>● Has initiated and completed a QI project, including communication with stakeholders</li> </ul>   |

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| <p><i>Discloses patient safety events to patients and families (actual or simulated)</i></p> <p><i>Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project</i></p>   |   |
| <p><b>Level 5</b> <i>Actively engages teams and processes to modify systems to prevent patient safety events</i></p> <p><i>Mentors others in the disclosure of patient safety events</i></p> <p><i>Creates, implements, and assesses quality improvement initiatives at the institutional or community level</i></p> | <ul style="list-style-type: none"> <li>● Assumes a leadership role at the departmental or institutional level for patient safety and/or QI initiatives, possibly even being the person to initiate action or call attention to the need for action</li> </ul>   |
| <p>Assessment Models or Tools</p>  | <ul style="list-style-type: none"> <li>● Simulation</li> <li>● Reflection</li> <li>● Direct observation at bedside or in meetings</li> <li>● E-learning module with assessment</li> <li>● Chart or other system documentation by resident</li> <li>● Documentation of QI or patient safety project processes or outcomes</li> <li>● Morbidity and mortality conference</li> </ul>                     |
| <p>Curriculum Mapping</p>  | <ul style="list-style-type: none"> <li>●</li> </ul>   |
| <p>Notes or Resources</p>  | <ul style="list-style-type: none"> <li>● Institute of Healthcare Improvement website and modules (<a href="http://www.ihl.org/Pages/default.aspx">http://www.ihl.org/Pages/default.aspx</a>) which includes multiple choice tests, reflective writing samples, and more             <ul style="list-style-type: none"> <li>○ ACS Quality In-Training Initiative (QITI) program</li> </ul> </li> </ul> |

**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.

| Milestones  | Examples   |
|---|--|
| <p><b>Level 1</b><br/><i>Demonstrates knowledge of care coordination</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in routine clinical situations</i></p>   | <ul style="list-style-type: none"> <li>● Identifies the members of the interprofessional team and describes their roles but is not yet routinely using team members or accessing resources</li> <li>● Lists the essential components of an effective hand-offs of care</li> <li>● Identifies components of social determinants of health and how they impact the delivery of patient care</li> </ul>   |
| <p><b>Level 2</b><br/><i>Coordinates multidisciplinary care of patients in routine clinical situations (e.g., dressing change)</i></p> <p><i>Performs safe and effective transitions of care/hand-offs in complex clinical situations</i></p>   | <ul style="list-style-type: none"> <li>● Contacts interprofessional team members, such as social workers and consultants, but requires supervision to ensure all necessary referrals are made and resource needs are arranged</li> <li>● Able to hand off care for ICU patients using systems approach</li> <li>● Knows which patients are at high risk for poor health outcomes due to health literacy concerns, cost, language barrier, etc.</li> </ul>  |
| <p><b>Level 3</b><br/><i>Coordinates and/or leads multidisciplinary care of patients in complex clinical situations (e.g., home parenteral nutrition, postoperative intravenous feeding, intensive care unit)</i></p> <p><i>Supervises safe and effective transitions of care/hand-offs of junior residents</i></p> | <ul style="list-style-type: none"> <li>● For poly trauma patient, the resident arranges for a nutritionist, occupational therapy/physical therapy, and follow-up appointments</li> <li>● Leads the team in transition of care and hand-offs of care during trauma and emergency surgery</li> </ul>   |
| <p><b>Level 4</b><br/><i>Coordinates care of patients with barriers to health care access (e.g., trauma patient with no access to care) or other disparities in care</i></p> <p><i>Resolves conflicts in transitions of care between teams</i></p>  | <ul style="list-style-type: none"> <li>● Directs post-hospital care of homeless person with complex surgical illness such as perforated viscus with post-ICU syndrome</li> <li>● Proactively calls the primary care provider to ensure a discharged patient can get their international normalized ratio checks, provides efficient handoff of care to the ICU team at the end of a rapid response event, coordinates and prioritizes consultant input for a new high-risk diagnosis (such as malignancy) to ensure the patient gets appropriate follow up</li> <li>● Resolves conflicts between teams for operative prioritization in a multiply injured patient</li> </ul> |
| <p><b>Level 5</b><br/><i>Leads in the design and implementation of improvements to care coordination</i></p>  | <ul style="list-style-type: none"> <li>● Takes a leadership role in designing and implementing changes to improve the care coordination process</li> <li>● Creates innovative hand-off of care tools</li> </ul>  |

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| <p><i>Leads in the design and implementation of improvements to transitions of care</i></p> | <ul style="list-style-type: none"> <li>• Designs a social determinants of health curriculum to help others learn to identify local resources and barriers to care; effectively uses resources, such as telehealth, for proactive outreach to prevent emergency department visits or re-admission for high-risk populations</li> </ul>   |
| <p>Assessment Models or Tools</p>   | <ul style="list-style-type: none"> <li>• Direct observation (including discussion during rounds and case presentations), OSCE, chart review</li> <li>• Review of hand-off of care tools, use of checklists between units, from the operating room to peri-/post-operative care, or from the emergency department to an inpatient unit</li> <li>• 360-degree feedback from the interprofessional team</li> <li>• Lectures/workshops on social determinants of health or population health with identification of local resources</li> <li>• Interdisciplinary rounds for high-risk patients</li> </ul> |
| <p>Curriculum Mapping</p>   | <ul style="list-style-type: none"> <li>•</li> </ul>   |
| <p>Notes or Resources</p>   | <ul style="list-style-type: none"> <li>• Agency for Healthcare Research and Quality. <a href="https://www.ahrq.gov/">https://www.ahrq.gov/</a> <ul style="list-style-type: none"> <li>○ Team STEPS/I PASS</li> </ul> </li> </ul>  |

| <b>Systems-Based Practice 3: Physician Role in Health Care Systems</b>   |  |
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| <b>Overall Intent:</b> To understand his/her role in the complex health care system and how to optimize the system to improve patient care and the health system’s performance   |  |
| <b>Milestones</b>  | <b>Examples</b>  |
| <p><b>Level 1</b><br/> <i>Describes basic health payment systems, including government, private, public, and uninsured care as well as different practice models</i></p> <p><i>Describes the key components of documentation for billing and coding</i></p>  | <ul style="list-style-type: none"> <li>• Describes payment systems, such as Medicare, Medicaid, the VA, and commercial third-party payers, and practice models (e.g., patient-centered medical home, Accountable Care Organization)</li> <li>• Describes elements necessary for appropriate coding in compliance with regulations</li> </ul>   |
| <p><b>Level 2</b><br/> <i>Describes how working within the health care system impacts patient care</i></p> <p><i>Documents the key components required for billing and coding</i></p>  | <ul style="list-style-type: none"> <li>• Understands how improving patient satisfaction improves patient adherence and remuneration to the health system</li> <li>• Applies knowledge of health plan features, including formularies and network requirements, in patient care situations</li> <li>• Completes a note following a routine patient encounter with appropriate coding and billing elements in compliance with regulations</li> </ul>   |
| <p><b>Level 3</b><br/> <i>Analyzes how personal practice affects the system (e.g., length of stay, readmission rates, clinical efficiency)</i></p> <p><i>Describes basic elements needed to transition to practice (e.g., contract negotiations, malpractice insurance, government regulation, compliance, Medicare Access and CHIP Reauthorization Act)</i></p> | <ul style="list-style-type: none"> <li>• Understands, accesses, and analyzes their own individual performance data; relevant data may include:                             <ul style="list-style-type: none"> <li>○ National Surgical Quality Improvement Program data</li> <li>○ patient satisfaction data</li> <li>○ percentage of patients the resident intubated had an appropriate “ventilator bundle” implemented</li> <li>○ procedure-specific cost/charge data</li> </ul> </li> <li>• Understands process of contract negotiations, choosing malpractice insurance carriers and features, and reporting requirements for Medicare Access and CHIP Reauthorization Act (MACRA)/Merit-Based Incentive Payment System (MIPS)</li> </ul> |
| <p><b>Level 4</b><br/> <i>Uses shared decision making in patient care, taking into consideration costs to the patient</i></p>  | <ul style="list-style-type: none"> <li>• Works collaboratively with patients to choose mastectomy versus breast conservation therapy, taking into account patient choice and ability to access x-ray therapy</li> </ul>  |

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| <p><i>Identifies resources and effectively plans for transition to practice (e.g., information technology, legal, billing and coding, financial, personnel)</i></p>                                 | <ul style="list-style-type: none"> <li>• Works collaboratively with patients to choose antireflux procedure versus lifelong proton pump inhibitors</li> <li>• Applies knowledge of contract negotiations, choosing malpractice insurance carriers and features, and reporting requirements for MACRA/MIPS</li> </ul>   |
| <p><b>Level 5</b> <i>Advocates or leads change to enhance systems for high-value, efficient, and effective patient care</i></p> <p><i>Participates in advocacy activities for health policy</i></p> | <ul style="list-style-type: none"> <li>• Develops processes to decrease opioid prescribing for one or more clinical services</li> <li>• Incorporates e-consults into the electronic health record (EHR)</li> <li>• Works with community or professional organizations to advocate for colorectal cancer screening</li> <li>• Improves informed consent process for non-English speaking patients requiring interpreter services</li> </ul>   |
| <p>Assessment Models or Tools</p>   | <ul style="list-style-type: none"> <li>• Direct observation</li> <li>• Chart review/audit of patient care</li> <li>• Quality Improvement project</li> <li>• Multiple choice test</li> <li>• Patient satisfaction data</li> </ul>   |
| <p>Curriculum Mapping</p>   | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| <p>Notes or Resources</p>   | <ul style="list-style-type: none"> <li>• Centers for Medicare and Medicaid Services. The Merit-based Incentive Payment System: Advancing Care Information and Improvement Activities Performance Categories. December 2016 <a href="https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MIPS-ACI-and-IA-presentation.pdf">https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MIPS-ACI-and-IA-presentation.pdf</a></li> <li>• Center for Medicare and Medicaid Services. MACRA: MIPS &amp; APMs. <a href="https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MACRA-MIPS-and-APMs.html">https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/MACRA-MIPS-and-APMs.html</a> 2018.</li> <li>• Agency for Healthcare Research and Quality. The Challenges of Measuring Physician Quality. <a href="https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/challenges.html">https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/challenges.html</a> 2016.</li> <li>• Agency for Healthcare Research and Quality. Major physician performance sets. <a href="https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/measurementsets.html">https://www.ahrq.gov/professionals/quality-patient-safety/talkingquality/create/physician/measurementsets.html</a> 2018.</li> <li>• The Kaiser Family Foundation. Topics include health reform, health costs, Medicare, Medicaid, private insurance, uninsured: <a href="http://www.kff.org">www.kff.org</a> and <a href="http://kff.org/health-reform/">http://kff.org/health-reform/</a> 2019.</li> </ul> |

- The National Academy for Medicine, Dzau VJ, McClellan M, Burke S, et al. Vital directions for health and health care: priorities from a National Academy of Medicine Initiative. <https://nam.edu/vital-directions-for-health-health-care-priorities-from-a-national-academy-of-medicine-initiative/> March 21, 2017.
- The National Academy for Medicine (formerly the Institute of Medicine). Vital directions for health and health care: a policy initiative of the National Academy for Medicine. <https://nam.edu/initiatives/vital-directions-for-health-and-health-care/> 2018.
- The Commonwealth Fund. Health system data center. 2017. [http://datacenter.commonwealthfund.org/?\\_ga=2.110888517.1505146611.1495417431-1811932185.1495417431#ind=1/sc=1](http://datacenter.commonwealthfund.org/?_ga=2.110888517.1505146611.1495417431-1811932185.1495417431#ind=1/sc=1)
- The Commonwealth Fun. Health reform resource center: [http://www.commonwealthfund.org/interactives-and-data/health-reform-resource-center#/f:@facasubcategoriesfacet63677=\[Individual%20and%20Employer%20Responsibility\]](http://www.commonwealthfund.org/interactives-and-data/health-reform-resource-center#/f:@facasubcategoriesfacet63677=[Individual%20and%20Employer%20Responsibility])

| <b>Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice</b><br><b>Overall Intent:</b> To incorporate evidence and patient values into clinical practice        |  |
|---|--|
| Milestones  | Examples   |
| <b>Level 1</b> <i>Demonstrates how to access and use the available evidence, and incorporate patient preferences and values in order to take care of patients with routine conditions</i> | <ul style="list-style-type: none"> <li>• Performs a literature review on non-operative management of appendicitis for a patient who does not desire an operation</li> </ul>  |
| <b>Level 2</b> <i>Articulates clinical questions and elicits patient preferences and values in order to guide evidence based care</i>   | <ul style="list-style-type: none"> <li>• A patient with Hinchey class 3 diverticulitis voices a preference against an ostomy, and the resident performs a targeted literature review looking at outcomes for different treatment approaches to this specific population</li> </ul>   |
| <b>Level 3</b> <i>Locates and applies the best available evidence, integrated with patient preference, to the care of patients with complex conditions</i>                                | <ul style="list-style-type: none"> <li>• Performs a literature review for non-operative management of breast cancer in an octogenarian female with multiple comorbidities with an estrogen receptor- and progesterone receptor-positive (ER/PR+) tumor who does not desire surgery</li> <li>• Applies evidence-based clinical guidelines to consider treatment options for a patient with hepatocellular carcinoma and advanced cirrhosis</li> </ul>   |
| <b>Level 4</b> <i>Critically appraises and applies evidence even in the face of uncertain and/or conflicting evidence to guide care, tailored to the individual patient</i>               | <ul style="list-style-type: none"> <li>• Presents a series of research articles on the controversial topic of steroid use in the management of sepsis in a septic patient</li> <li>• Presents a review of available evidence to a tumor board to discuss the modality of endoscopic mucosal resection in a patient with gastric cancer</li> </ul>  |
| <b>Level 5</b> <i>Coaches others to critically appraise and apply evidence for patients with complex conditions; and/or participates in the development of guidelines</i>                 | <ul style="list-style-type: none"> <li>• Presents a review of available evidence to a hospital guidelines committee to advocate for the use of thromboelastogram in the management of lower gastrointestinal bleed</li> </ul>  |
| Assessment Models or Tools  | <ul style="list-style-type: none"> <li>• Direct observation (e.g., journal club, grand rounds, resident debates)</li> <li>• Review of scholarly activity</li> <li>• 360-degree evaluation at a multidisciplinary conference</li> </ul>   |
| Curriculum Mapping  | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| Notes or Resources  | <ul style="list-style-type: none"> <li>• The ABIM Foundation. Choosing Wisely. <a href="http://www.choosingwisely.org/">http://www.choosingwisely.org/</a> 2019.</li> <li>• Johns Hopkins University Guided Care. Comprehensive primary care for complex patients. <a href="http://www.guidedcare.org/module-listing.asp">http://www.guidedcare.org/module-listing.asp</a></li> <li>• American College of Physicians. High value care. <a href="https://hvc.acponline.org/">https://hvc.acponline.org/</a></li> <li>• Costs of Care <a href="http://www.costsofcare.org/">http://www.costsofcare.org/</a></li> </ul> |

- Dartmouth-Hitchcock. Center for shared decision making.  
[https://med.dartmouth.hitchcock.org/csdm\\_toolkits.html](https://med.dartmouth.hitchcock.org/csdm_toolkits.html)

| <b>Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth</b><br><b>Overall Intent:</b> To become a lifelong learner and integrate outcomes into practice and develop clear objectives and goals for improvement in some form of a learning plan |  |
|--|--|
| Milestones   | Examples   |
| <b>Level 1</b><br><i>Establishes goals for personal and professional development</i>   | <ul style="list-style-type: none"> <li>• Identifies need to improve through self-reflection</li> <li>• Seeks ways to improve</li> </ul>  |
| <b>Level 2</b><br><i>Identifies opportunities for performance improvement; designs a learning plan</i>   | <ul style="list-style-type: none"> <li>• Recognizes issues with closing complex wounds and schedules more time in the skills lab</li> <li>• Identifies low ABSITE score below their expectation and creates a study plan</li> </ul>  |
| <b>Level 3</b><br><i>Integrates performance feedback and practice data to develop and implement a learning plan</i>  | <ul style="list-style-type: none"> <li>• Goes to the skills lab to improve identified technical skills deficits and seeks additional feedback</li> </ul> <p>Meets with a mentor in an ongoing basis to maintain preparation for ABSITE</p>   |
| <b>Level 4</b><br><i>Revises learning plan based on performance data</i>   | <ul style="list-style-type: none"> <li>• Changes previous study plan if ABSITE score did not improve</li> <li>• Seeks a new area for learning if previous plan is completed successfully, such as perfecting hand-sewn bowel anastomosis or improving cross cultural communication</li> <li>• Improves complex wound closure but continues to practice additional techniques based on self-reflection and feedback</li> </ul>  |
| <b>Level 5</b><br><i>Coaches others in the design and implementation of learning plans</i>   | <ul style="list-style-type: none"> <li>• Leads sessions and coaches residents that are struggling on study techniques to improve ABSITE score</li> <li>• Independently identifies and coaches residents struggling with technical skills</li> </ul>  |
| Assessment Models or Tools   | <ul style="list-style-type: none"> <li>• Direct observation</li> <li>• 360-degree evaluation</li> <li>• Learning plan</li> <li>• Mentor/coach evaluation of learning plan</li> </ul>   |
| Curriculum Mapping   | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| Notes or Resources   | <ul style="list-style-type: none"> <li>• Hojat M, Veloski JJ, Gonnella JS. Measurement and correlates of physicians' lifelong learning. <i>Acad Med.</i> 2009. Aug;84(8):1066-74. <i>Contains a validated questionnaire about physician lifelong learning.</i></li> <li>• Lockspeiser TM, Schmitter PA, Lane JL et al. Assessing Fellows' Written Learning Goals and Goal Writing Skill: Validity Evidence for the Learning Goal Scoring Rubric. <i>Academic Medicine</i> 2013. 88 (10)</li> </ul> |

- Burke AE, Benson B, Englander R, Carraccio C, Hicks PJ. Domain of competence: practice-based learning and improvement. *Acad Pediatr.* 2014;14: S38-S54.

| <b>Professionalism 1: Ethical Principles</b><br><b>Overall Intent:</b> To recognize basic ethical principles and applies in daily practice, and use appropriate resources for managing ethical dilemmas                                       |  |
|---|--|
| Milestones  | Examples   |
| <b>Level 1</b><br><i>Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics</i> | <ul style="list-style-type: none"> <li>● Discusses the basic principles underlying ethics (beneficence, nonmaleficence, justice, autonomy) and professionalism (professional values and commitments), and how they apply in various situations (e.g., informed consent process)</li> <li>● Lists elements of informed consent for procedures</li> </ul>  |
| <b>Level 2</b><br><i>Analyzes straightforward situations using ethical principles</i>   | <ul style="list-style-type: none"> <li>● Identifies surrogate for impaired patients</li> <li>● Maintains patient confidentiality in public situations</li> </ul>   |
| <b>Level 3</b><br><i>Recognizes need to seek help in managing and resolving complex ethical situations</i>  | <ul style="list-style-type: none"> <li>● Obtains institutional guidance on obtaining consent for blood transfusion in pediatric Jehovah’s Witness patient</li> <li>● Analyzes difficult real or hypothetical ethics case scenarios or situations, recognizes own limitations</li> </ul>  |
| <b>Level 4</b><br><i>Recognizes and uses appropriate resources for managing and resolving ethical dilemmas, as needed (e.g., ethics consultations, literature review, risk management/legal consultation)</i>                                 | <ul style="list-style-type: none"> <li>● Manages a near miss or sentinel event (e.g., getting risk management, legal consultations)</li> <li>● Identifies ethical dilemmas of performing procedures in patients who are potential organ donors</li> <li>● Recognizes and manages situations of medical futility</li> </ul>   |
| <b>Level 5</b><br><i>Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution</i>   | <ul style="list-style-type: none"> <li>● 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 sub-committee, risk management committee, root cause analysis review, patient safety or satisfaction committee, professionalism work group, Institutional Review Board, resident grievance committee)</li> </ul> |
| <b>Assessment Models or Tools</b>   | <ul style="list-style-type: none"> <li>● Direct observation</li> <li>● Global evaluation</li> <li>● Multisource feedback</li> <li>● OSCE</li> <li>● Mentor/coach and program director observations</li> </ul>  |

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|                    | <ul style="list-style-type: none"> <li>• Oral or written self-reflection (e.g., of a personal or observed lapse, ethical dilemma, or systems-level factors)</li> <li>• Simulation</li> </ul>  |
| Curriculum Mapping | <ul style="list-style-type: none"> <li>•</li> </ul>   |
| Notes or Resources | <ul style="list-style-type: none"> <li>• American Medical Association Code of Ethics. <a href="https://www.ama-assn.org/delivering-care/ama-code-medical-ethics-2019">https://www.ama-assn.org/delivering-care/ama-code-medical-ethics-2019</a>.</li> <li>• American College of Surgeons. Code of Professional Conduct <a href="https://www.facs.org/about-ac/s/statements/stonprin#code-2003">https://www.facs.org/about-ac/s/statements/stonprin#code-2003</a>.</li> <li>• Ethical Issues in Clinical Surgery (ACS)</li> <li>• SCORE Modules</li> </ul> |

| <b>Professionalism 2: Professional Behavior and Accountability</b>   |   |
|--|---|
| <b>Overall Intent:</b> To take responsibility for their actions and the impact on patients and other members of the health care team and recognize limits of one's own knowledge and skill   |   |
| <b>Milestones</b>  | <b>Examples</b>   |
| <p><b>Level 1</b><br/> <i>Completes patient care tasks and responsibilities, identifies potential barriers, and describes strategies for ensuring timely task completion</i></p> <p><i>Describes when and how to appropriately report lapses in professional behavior</i></p> <p><i>Recognizes limits in the knowledge/skills of self and seeks help</i></p>     | <ul style="list-style-type: none"> <li>• Completes routine discharge process</li> <li>• Sees transfer patient and completes admit orders in a timely manner</li> <br/> <li>• Knows how to report unprofessional behavior at their institution</li> <br/> <li>• Asks for help to place nasogastric tube if uncomfortable with procedure</li> </ul> |
| <p><b>Level 2</b><br/> <i>Performs patient care tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations</i></p> <p><i>Takes responsibility for his or her own professional behavior</i></p> <p><i>Recognizes limits in the knowledge/skills of team and seeks help</i></p>                                      | <ul style="list-style-type: none"> <li>• Consents patient and schedules appendectomy</li> <br/> <li>• Apologizes to team member(s) for unprofessional behavior without prompting</li> <br/> <li>• Recognizes inadequate glycemic control despite multiple adjustments of medication regimen and requests diabetes management consult</li> </ul>   |
| <p><b>Level 3</b><br/> <i>Performs patient care tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations</i></p> <p><i>Demonstrates professional behavior in complex or stressful situations</i></p> <p><i>Exhibits appropriate confidence and self awareness of limits in knowledge/skills</i></p> | <ul style="list-style-type: none"> <li>• Counsels angry patient with complaints about care team while having multiple other clinical responsibilities</li> <br/> <li>• Asks for help after attempting central line twice without success</li> </ul>   |

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|   | <ul style="list-style-type: none"> <li>• Asks for help when unable to identify critical view of safety</li> <li>• Asks for help leading family meeting where withdrawal of life-sustaining treatment will be discussed</li> </ul>   |
| <p><b>Level 4</b><br/> <i>Recognizes situations that may impact others' ability to complete patient-care tasks and responsibilities in a timely manner</i></p> <p><i>Intervenes to prevent and correct lapses in professional behavior in self and others</i></p> <p><i>Appropriately reports lapses in professional behavior (simulated or actual)</i></p> <p><i>Aids junior learners in recognition of limits in knowledge/skills</i></p> | <ul style="list-style-type: none"> <li>• Adjusts junior resident schedule to allow work hour compliance</li> <li>• Asks another team member to perform tasks when fatigued</li> <li>• Encourages junior residents to use well-being days</li> <li>• Reports student harassment to appropriate institutional official</li> <li>• Puts on gown and gloves to help junior resident struggling to place chest tube</li> </ul> |
| <p><b>Level 5</b><br/> <i>Develops systems to enhance other's ability to efficiently complete patient-care tasks and responsibilities</i></p> <p><i>Coaches others when their behavior fails to meet professional expectations</i></p>  | <ul style="list-style-type: none"> <li>• Sets up a meeting with the nurse manager to streamline patient discharges</li> <li>• Coaches others on how to avoid conflict with team members</li> </ul>  |
| Assessment Models or Tools  | <ul style="list-style-type: none"> <li>• Direct observation</li> <li>• 360-degree evaluations</li> <li>• Self-evaluations</li> <li>• Compliance with deadlines and timelines</li> <li>• Simulation</li> <li>• Mentor/coach and program director observations</li> </ul>   |
| Curriculum Mapping  | <ul style="list-style-type: none"> <li>•</li> </ul>   |
| Notes or Resources  | <ul style="list-style-type: none"> <li>• American College of Surgeons. Code of Professional Conduct <a href="https://www.facs.org/about-acs/statements/stonprin#code 2003">https://www.facs.org/about-acs/statements/stonprin#code 2003</a>.             <ul style="list-style-type: none"> <li>• Code of conduct from institutional manual</li> </ul> </li> </ul>  |

| <b>Professionalism 3: Administrative Tasks</b><br><b>Overall Intent:</b> To ensure the resident develops the skills and behaviors required to complete the administrative duties of being a surgeon, such as clinical work and education hours, Case Logs, evaluations, discharge summaries, operative reports, daily progress notes, conference/meeting attendance, etc. |   |
|---|---|
| Milestones  | Examples  |
| <b>Level 1</b><br><i>Takes responsibility for failure to complete administrative tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future</i>  | <ul style="list-style-type: none"> <li>• The program director identifies a resident who has failed to concurrently log cases</li> <li>• Acknowledges that he or she has failed to allocate time specifically for this administrative duty</li> <li>• Creates a plan to log all cases at the end of every day</li> </ul> |
| <b>Level 2</b><br><i>Performs administrative tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations</i>   | <ul style="list-style-type: none"> <li>• Logs clinical and educational work hours and Case Logs regularly</li> <li>• Completes operative report or discharge summary dictation promptly</li> </ul>  |
| <b>Level 3</b><br><i>Performs administrative tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations</i>  | <ul style="list-style-type: none"> <li>• When on a busy service, continues to log clinical and educational work hours and cases without interruption</li> <li>• Completes timely evaluations while having multiple clinical responsibilities</li> </ul>   |
| <b>Level 4</b><br><i>Recognizes situations that may impact others' ability to complete administrative tasks and responsibilities in a timely manner</i>   | <ul style="list-style-type: none"> <li>• A resident who has planned to attend a wedding in the family makes the appropriate changes in the call schedule to avoid service interruptions</li> </ul>  |
| <b>Level 5</b><br><i>Develops systems to enhance other's ability to efficiently complete administrative tasks and responsibilities</i>  | <ul style="list-style-type: none"> <li>• Works with the hospital information technology department to develop a resident shared file directory to facilitate resident completion of administrative requirements such as call schedule distribution, transition of patient care documents, etc.</li> </ul>               |
| <b>Assessment Models or Tools</b>   | <ul style="list-style-type: none"> <li>• Clinical and educational work hours logs</li> <li>• Case Logs</li> <li>• Program director's reports documenting compliance with administrative requirements</li> <li>• Conference attendance logs</li> <li>• Evaluation compliance</li> </ul>                                  |

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| Curriculum Mapping | •  |
| Notes or Resources | • <a href="https://www.acgme.org/Specialties/Program-Requirements-and-FAQs-and-Applications/pfcetid/24/Surgery">ACGME Program Requirements for Graduate Medical Education in General Surgery<br/>https://www.acgme.org/Specialties/Program-Requirements-and-FAQs-and-Applications/pfcetid/24/Surgery</a> |

| <p style="text-align: center;"><b>Professionalism 4: Self-Awareness and Help-Seeking</b></p> <p style="text-align: center;"><b>Overall Intent:</b> To identify, use, manage, improve, and seek help for personal and professional well-being for self and others</p>   |   |
|--|---|
| Milestones   | Examples  |
| <p><b>Level 1</b><br/> <i>Identifies the institutional resources available to manage personal, physical, and emotional health (e.g., acute and chronic disease, substance abuse, and mental health problems)</i></p> <p><i>Demonstrates knowledge of the principles of physician well-being and fatigue mitigation</i></p>   | <ul style="list-style-type: none"> <li>• Completes e-learning modules (or other modality) related to fatigue management</li> <li>• Shows how to access an institutional crisis line</li> <li>• Requests time off for medical or dental appointment</li> </ul> |
| <p><b>Level 2</b><br/> <i>Monitors his or her own personal health and wellness and appropriately mitigates fatigue and/or stress</i></p> <p><i>Manages his or her own time and assures fitness for duty</i></p>  | <ul style="list-style-type: none"> <li>• Has a regular exercise program</li> <li>• Recognizes when they are approaching clinical and educational work hour limits and develops a plan to ensure both compliance and fatigue mitigation</li> </ul>             |
| <p><b>Level 3</b><br/> <i>Promotes healthy habits and creates an emotionally healthy environment for colleagues</i></p> <p><i>Models appropriate management of personal health issues, fatigue, and stress</i></p>   | <ul style="list-style-type: none"> <li>• Ensures junior residents leave the hospital at an appropriate time</li> <li>• Stays home when ill and communicates with team</li> </ul>  |
| <p><b>Level 4</b><br/> <i>Recognizes and appropriately addresses signs and symptoms of burnout, depression, suicidal ideation, potential for violence, and/or substance abuse in other members of the health care team</i></p> <p><i>Proactively modifies schedules or intervenes in other ways to assure that those caregivers under his or her supervision maintain personal</i></p> | <ul style="list-style-type: none"> <li>• Arranges for a resident to take a day off if they are fatigued and/or approaching clinical and educational work hour limits</li> <li>• Brings concerns about other team members to the program director</li> </ul>   |

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| <p><i>wellness and do not compromise patient safety (e.g., requires naps, counsels, refers to services, reports to program director)</i></p>      |  |
| <p><b>Level 5</b><br/><i>Coaches others when emotional responses or limitations in knowledge/skills do not meet professional expectations</i></p> | <ul style="list-style-type: none"> <li>• Leads a mindfulness program with residents</li> <li>• Organizes program activities to improve well-being</li> </ul>   |
| <p>Assessment Models or Tools</p>   | <ul style="list-style-type: none"> <li>• Direct observation</li> <li>• Self-assessment and personal learning plan</li> <li>• Individual interview</li> <li>• Group interview or discussions for team activities</li> <li>• Participation in institutional well-being programs</li> <li>• Mentor/coach and program director observations</li> <li>• Institutional online training modules</li> </ul>  |
| <p>Curriculum Mapping</p>   | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| <p>Notes or Resources</p>   | <p>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.</p> <ul style="list-style-type: none"> <li>• National Academy of Medicine. Clinician resilience and well-being <a href="https://nam.edu/initiatives/clinician-resilience-and-well-being/">https://nam.edu/initiatives/clinician-resilience-and-well-being/</a></li> <li>• ACGME. “Well-Being Tools and Resources.” <a href="https://dl.acgme.org/pages/well-being-toolsresources">https://dl.acgme.org/pages/well-being-toolsresources</a>. Accessed 2019.</li> <li>• Hicks, Patricia J., Daniel Schumacher, Susan Guralnick, Carol Carraccio, and Ann E. Burke. 2014. “Domain of Competence: Personal and Professional Development.” <i>Academic Pediatrics</i> 14(2 Suppl): S80-97. <a href="https://www.sciencedirect.com/science/article/abs/pii/S187628591300332X">https://www.sciencedirect.com/science/article/abs/pii/S187628591300332X</a>.</li> <li>• Local resources, including Employee Assistance programs</li> </ul> |

| <b>Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication</b><br><b>Overall Intent:</b> 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; organize and lead communication around shared decision-making. |   |
|---|---|
| Milestones  | Examples  |
| <p><b>Level 1</b><br/> <i>Communicates with patients and their families in an understandable and respectful manner</i></p> <p><i>Provides timely updates to patients and families</i></p>   | <ul style="list-style-type: none"> <li>● Self-monitors and controls tone, non-verbal responses, and language and asks questions to invite the patient’s participation</li> <li>● Accurately communicates their role in the health care system to patients and families, and identifies common communication barriers (e.g., loss of hearing, language, aphasia) in patient and family encounters</li> <li>● Communicates with patients and patients’ families on changing conditions</li> <li>● Provides patients with routine information, such as wrist x-ray obtained earlier in the day is normal, hematocrit is stable, etc.</li> </ul>  |
| <p><b>Level 2</b><br/> <i>Customizes communication, in the setting of personal biases and barriers (e.g., age, literacy, cognitive disabilities, cultural differences) with patients and families</i></p> <p><i>Actively listens to patients and families to elicit patient preferences and expectations</i></p>  | <ul style="list-style-type: none"> <li>● Identifies complex communication barriers (e.g., culture, religious beliefs, health literacy) in patient and family encounters</li> <li>● Leads a discussion about acute pain management with the patient and the family, reassessing the patient’s and family’s understanding and anxiety</li> </ul>  |
| <p><b>Level 3</b><br/> <i>Delivers complex and difficult information to patients and families</i></p> <p><i>Uses shared decision making to make a personalized care plan</i></p>  | <ul style="list-style-type: none"> <li>● Establishes and maintains a therapeutic relationship with a challenging patient (e.g., angry, non-compliant, substance seeking, mentally challenged)</li> <li>● Attempts to mitigate identified communication barriers, including reflection on implicit biases (e.g., preconceived ideas about patients of certain race or weight) when prompted</li> <li>● Acknowledges uncertainty in a patient’s medical complexity and prognosis</li> <li>● Independently engages in shared decision making with the patient and family, including a recommended acute pain management plan to align a patient’s unique goals with treatment options</li> </ul> |

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| <p><b>Level 4</b><br/> <i>Facilitates difficult discussions specific to patient and family conferences, (e.g., end-of-life, explaining complications, therapeutic uncertainty)</i></p> <p><i>Effectively negotiates and manages conflict among patients, families, and the health care team</i></p> | <ul style="list-style-type: none"> <li>• Facilitates family conference when family members disagree about the goals of care</li> <li>• Negotiates care management plan when interventions will be medically ineffective</li> </ul>   |
| <p><b>Level 5</b><br/> <i>Coaches others in the facilitation of crucial conversations</i></p> <p><i>Coaches others in conflict resolution</i></p>   | <ul style="list-style-type: none"> <li>• Mentors/coaches and supports colleagues in self-awareness and reflection to improve therapeutic relationships with patients</li> <li>• Creates a curriculum to teach conflict resolution in family conferences</li> </ul>   |
| <p>Assessment Models or Tools</p>   | <ul style="list-style-type: none"> <li>• 360-degree evaluation of patient/family encounters</li> <li>• Standardized patients or structured case discussions</li> <li>• Direct observation</li> <li>• Self-assessment including self-reflection exercises</li> <li>• Mini-clinical evaluation exercise</li> <li>• Kalamazoo Essential Elements Communication Checklist (Adapted)</li> </ul>   |
| <p>Curriculum Mapping</p>   | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| <p>Notes or Resources</p>   | <ul style="list-style-type: none"> <li>• Laidlaw A, Hart J. Communication skills: an essential component of medical curricula. Part I: Assessment of clinical communication: AMEE Guide No. 51. <i>Med Teach.</i> 2011;33(1):6-8.</li> <li>• Makoul G. Essential elements of communication in medical encounters: the Kalamazoo consensus statement. <i>Acad Med.</i> 2001;76:390-393.</li> <li>• Makoul G. The SEGUE Framework for teaching and assessing communication skills. <i>Patient Educ Couns.</i> 2001;45(1):23-34.</li> <li>• O'Sullivan P, Chao S, Russell M, Levine S, Fabiny A. Development and implementation of an objective structured clinical examination to provide formative feedback on communication and interpersonal skills in geriatric training. <i>J Am Geriatr Soc.</i> 2008;56(9):1730-5.</li> <li>• Symons AB, Swanson A, McGuigan D, Orange S, Akl EA. A tool for self-assessment of communication skills and professionalism in fellows. <i>BMC Med Educ.</i> 2009; 9:1.</li> </ul> |

- American Academy of Hospice and Palliative Medicine: Hospice and Palliative Medicine Competencies Project. <http://aahpm.org/fellowships/competencies#competencies-toolkit> accessed June 6, 2017.
- Team STEPS
- SCORE modules
- American College of Surgeons. Communicating with patients about surgical errors and adverse outcomes. <https://web4.facs.org/ebusiness/ProductCatalog/product.aspx?ID=229>
- American College of Surgeons. Disclosing surgical error vignettes. <https://web4.facs.org/ebusiness/ProductCatalog/product.aspx?ID=157>
- Baile WF, Buckman R, Lenzi R, et al. SPIKES - a six-step protocol for delivering bad news: application to the patient with cancer. *Oncologist*. 2000;5:302-311.

| <b>Interpersonal and Communication Skills 2: Interprofessional and Team Communication</b><br><b>Overall Intent:</b> To effectively communicate with the health care team, including consultants, in both straightforward and complex situations   |  |
|---|--|
| Milestones  | Examples   |
| <p><b>Level 1</b><br/> <i>Respectfully requests and receives a consultation</i></p> <p><i>Uses language that values all members of the health care team</i></p>   | <ul style="list-style-type: none"> <li>● Allows others to express their opinions</li> <li>● Politely accepts requests for consult in the emergency department and thanks the department for the consult</li> <li>● Consistently uses inclusive language</li> </ul>   |
| <p><b>Level 2</b><br/> <i>Clearly and concisely requests and responds to a consultation</i></p> <p><i>Communicates information effectively with all health care team members</i></p> <p><i>Solicits feedback on performance as a member of the health care team</i></p>                   | <ul style="list-style-type: none"> <li>● Informs consult service of the recommendation</li> <li>● Asks diabetes management for help with glucose control in brittle diabetic</li> <li>● Specifies urgency of consult request</li> </ul>  |
| <p><b>Level 3</b><br/> <i>Verifies understanding of recommendations when providing or receiving a consultation</i></p> <p><i>Uses active listening to adapt communication style to fit team needs</i></p> <p><i>Communicates concerns and provides feedback to peers and learners</i></p> | <ul style="list-style-type: none"> <li>● Uses closed-loop communications and restating to verify emergency department understands plan for admission to surgical service and operation</li> <li>● Demonstrates active listening by asking team members about their concerns and questions during patient rounds</li> <li>● Respectfully provides feedback to medical students about their presentations during morning rounds</li> </ul> |
| <p><b>Level 4</b><br/> <i>Coordinates recommendations from different members of the health care team to optimize patient care, resolving conflict when needed</i></p> <p><i>Maintains effective communication in crisis situation</i></p>   | <ul style="list-style-type: none"> <li>● Leads a complex trauma resuscitation, using closed-loop communication, to ensure each patient care task is assigned and completed</li> </ul>  |

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| <p><i>Communicates constructive feedback to superiors</i></p>  | <ul style="list-style-type: none"> <li>● Provides feedback to faculty members when expectations are not clear (e.g., coverage in clinic or operating room)</li> </ul>   |
| <p><b>Level 5</b><br/> <i>Coaches flexible communication strategies that value input from all health care team members</i></p> <p><i>Facilitates regular health care team-based feedback in complex situations</i></p> | <ul style="list-style-type: none"> <li>● Identifies then mentors/coaches junior resident to improve communication skills within the team</li> <li>● Leads a team debrief after a patient death</li> </ul>   |
| <p>Assessment Models or Tools</p>  | <ul style="list-style-type: none"> <li>● Direct observation</li> <li>● 360-degree assessment</li> <li>● Simulated encounters</li> <li>● Standardized patient encounters or OSCE</li> </ul>  |
| <p>Curriculum Mapping</p>  | <ul style="list-style-type: none"> <li>●</li> </ul>   |
| <p>Notes or Resources</p>  | <ul style="list-style-type: none"> <li>● Mills P, Neily J, Dunn E. Teamwork and communication in surgical teams: implications for patient safety. <i>JACS</i>. 206;107-112:2008</li> <li>● Team training courses</li> <li>● Non-technical training skills for surgeons. NOTSS. <a href="https://www.notss.org">https://www.notss.org</a></li> </ul> |

| <b>Interpersonal and Communication Skills 3: Communication within Health Care Systems</b><br><b>Overall Intent:</b> To develop skills and behaviors that allows the resident to communicate effectively within the context of a health care system |  |
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| Milestones   | Examples   |
| <b>Level 1</b><br><i>Accurately records information in the patient record, including appropriate use of documentation templates</i>  | <ul style="list-style-type: none"> <li>• Fills in all elements of a documentation template with the most up-to-date information available</li> </ul>   |
| <b>Level 2</b><br><i>Demonstrates efficient use of electronic medical record to communicate with the health care team</i>  | <ul style="list-style-type: none"> <li>• Creates accurate, original notes that do not contain extraneous information such as verbatim transcriptions of radiology reports, and concisely summarizes the assessment and plan</li> </ul>   |
| <b>Level 3</b><br><i>Integrates and synthesizes all relevant data from outside systems and prior encounters into the health record</i>   | <ul style="list-style-type: none"> <li>• Collects information from outside health care systems and then accurately and succinctly incorporates that information into the EHR</li> </ul>  |
| <b>Level 4</b><br><i>Appropriately selects form and urgency of communication based on context</i>  | <ul style="list-style-type: none"> <li>• Calls the attending in the middle of the night when the patient has an emergent change in clinical status</li> <li>• Texts attending with change in operating room schedule</li> </ul>  |
| <b>Level 5</b><br><i>Guides departmental or institutional communication around policies and procedures</i>   | <ul style="list-style-type: none"> <li>• Mentors/coaches colleagues how to improve clinical notes, including terminology, billing compliance, conciseness, and inclusion of all required elements</li> <li>• Creates a policy around HIPAA compliant electronic communication (e.g., texting)</li> </ul>   |
| Assessment Models or Tools   | <ul style="list-style-type: none"> <li>• Chart (HPI, progress notes, procedure notes, discharge summary) audit</li> <li>• Direct observation</li> <li>• 360-degree evaluation</li> <li>• Chart stimulated recall</li> </ul>  |
| Curriculum Mapping   | <ul style="list-style-type: none"> <li>•</li> </ul>  |
| Notes or Resources   | <ul style="list-style-type: none"> <li>• Bierman JA, Hufmeyer KK, Liss DT, Weaver AC, Heiman HL. Promoting responsible electronic documentation: validity evidence for a checklist to assess progress notes in the electronic health record. <i>Teach Learn Med.</i> 2017 Oct-Dec;29(4):420-432.</li> <li>• U.S. Department of Health &amp; Human Services. Health information privacy. <a href="https://www.hhs.gov/hipaa">HHS.gov/hipaa</a></li> </ul> |

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In an effort to aid programs in the transition to using the new version of the Milestones, we have mapped the original Milestones 1.0 to the new Milestones 2.0. Below we have indicated where the subcompetencies are similar between versions. These are not necessarily exact matches, but are areas that include some of the same elements. Note that not all subcompetencies map between versions. Inclusion or exclusion of any subcompetency does not change the educational value or impact on curriculum or assessment.

| <b>Milestones 1.0</b>  | <b>Milestones 2.0</b>   |
|--|---|
| PC1: Care For Diseases and Conditions (CDC)                      | PC1: Patient Evaluation and Decision Making   |
| PC2: Care For Diseases and Conditions (CDC)                      | PC4: Post-Operative Patient Care  |
| PC3: Performance of Operations and Procedures (POP)              | PC2: Intra-Operative Patient Care – Performance of Procedures<br>PC3: Intra-Operative Patient Care – Technical Skills   |
| MK1: Care For Diseases and Conditions (CDC)                      | MK1: Pathophysiology and Treatment  |
| MK2: Performance of Operations and Procedures (POP)              | MK2: Anatomy  |
| SBP1: Coordination of Care (CC)                                  | SBP2: System Navigation for Patient-Centered Care   |
| SBP2: Improvement of Care (IC)                                   | SBP1: Patient Safety and Quality Improvement  |
| None   | SBP3: Physician Role in Health Care Systems   |
| PBLI1: Teaching (TCH)  | PC2: Intra-Operative Patient Care – Performance of Procedures<br>PBLI2: Reflective Practice and Commitment to Personal Growth<br>ICS2: Interprofessional and Team Communication |
| PBLI2: Self-directed Learning (SDL)                              | PBLI1: Evidence-Based and Informed Practice and<br>PBLI2: Reflective Practice and Commitment to Personal Growth   |
| PBLI3: Improvement of Care (IC)                                  | SBP1: Patient Safety and Quality Improvement  |
| PROF1: Care for Diseases and Conditions (CDC)                    | PROF1: Ethical Principles and<br>PROF2: Professional Behavior and Accountability  |
| PROF2: Maintenance of Physical and Emotional Health (MPEH)       | PROF4: Self-Awareness and Help-Seeking  |
| PROF3: Performance of Assignments and Administrative Tasks (PAT) | PROF3: Administrative Tasks   |
| ICS1: Care for Diseases and Conditions (CDC)                     | ICS1: Patient and Family-Centered Communication   |
| ICS2: Coordination of Care (CC)                                  | ICS2: Interprofessional and Team Communication  |
| ICS3: Performance of Operations and Procedures (POP)             | ICS1: Patient and Family-Centered Communication   |
| None   | ICS3: Communication within Health Care Systems  |

**Available Milestones Resources**

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*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/>

Improving Assessment Using Direct Observation Toolkit - <https://dl.acgme.org/pages/acgme-faculty-development-toolkit-improving-assessment-using-direct-observation>

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

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