

# The General Surgery Milestone Project

The Milestones provide a framework for the assessment of the development of the resident physician in key dimensions of the elements of physician competency in a specialty or subspecialty. The Milestones are designed only for use in evaluation of resident physicians in the context of their participation in Accreditation Council for Graduate Medical Education (ACGME)-accredited residency or fellowship programs. They neither represent the entirety of the dimensions of the 6 domains of physician competency, nor are they designed to be relevant in any other context.

## Milestone Reporting

This document presents Milestones designed for programs to use in semiannual review of resident performance and reporting to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME competencies organized in a developmental framework from less to more advanced. They are descriptors and targets for resident performance as a resident moves from entry into residency through graduation. In the initial years of implementation, the Review Committee will examine Milestone performance data for each program's residents as 1 element in the Next Accreditation System (NAS) to determine whether residents overall are progressing.

For each reporting period, review and reporting will involve selecting the level of Milestones that best describes a resident's current performance level in relation to Milestones, using evidence from multiple methods, such as direct observation, multisource feedback, tests, and record reviews, etc. Milestones are arranged into numbered levels. **These levels do not correspond with postgraduate year of education.**

Selection of a level implies that the resident substantially demonstrates the Milestones in that level, as well as those in lower levels (see FIGURE). A general interpretation of levels for general surgery is below:

**Critical Deficiencies:** These learner behaviors are not within the spectrum of developing competence. Instead they indicate significant deficiencies in a resident's performance.

- Level 1:** The resident is demonstrating Milestones expected of an incoming resident.
- Level 2:** The resident is advancing and demonstrates additional Milestones, but is not yet performing at a midresidency level.
- Level 3:** The resident continues to advance and demonstrate additional Milestones; the resident demonstrates the majority of Milestones targeted for residency in this subcompetency.
- Level 4:** The resident has advanced so that he or she now substantially demonstrates the Milestones targeted for residency. This level is designed as the graduation target.

## Additional Notes

Level 4 is designed as the graduation *target* and *does not* represent a graduation *requirement*. Making decisions about readiness for graduation is the purview of the residency program director. (See the NAS Frequently Asked Questions for educational Milestones on the ACGME's website for further discussion of this issue: "Can a resident graduate if he or she does not reach every Milestone?") Study of Milestone performance data will be required before the ACGME and its partners will be able to determine whether Level 4 Milestones and Milestones in lower levels are in the appropriate level within the developmental framework, and whether Milestone data are of sufficient quality to be used for high-stakes decisions.

Milestones in the medical knowledge (MK) and patient care (PC) competencies reference the Surgical Council on Resident Education's (SCORE) curriculum. Familiarity with the SCORE categories of "broad" and "focused" diseases/conditions and "essential-common," "essential-uncommon," and "complex" operations/procedures will be particularly helpful. Program faculty members will need to develop a shared understanding of what the common (ie, commonly seen) SCORE broad conditions are in their hospitals and clinics for MK1 and PC1. An overview of the SCORE curriculum is available at <http://www.surgicalcore.org/media/curriculumoutline2012-13.pdf>. Links to the curriculum outline are also embedded in selected Milestones.

Some Milestones extend current expectations. One example of this is PBLI3, levels 3 and 4, which include expectations for the resident to review his or her own surgical results and medical care outcomes and to identify opportunities for improvement. These specific Milestones

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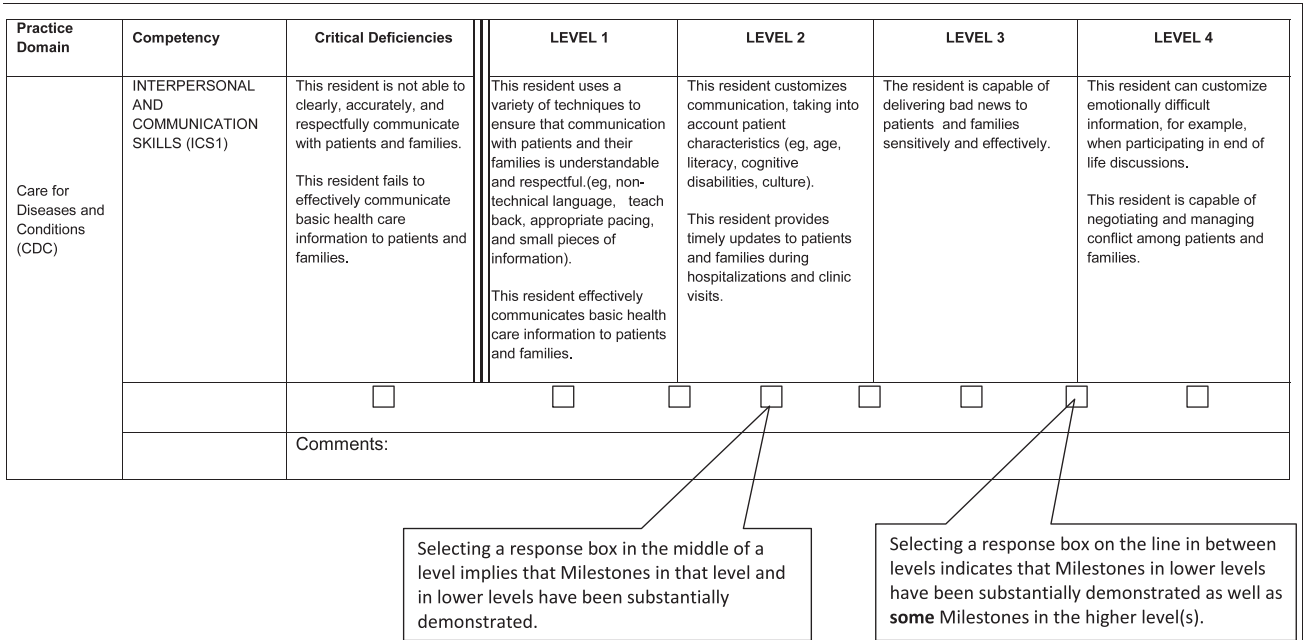


FIGURE | EXAMPLE SET OF MILESTONES FOR 1 SUBCOMPETENCY IN THE ACGME MILESTONE REPORT FORM

were included to prepare senior and graduating residents for becoming diplomates of the American Board of Surgery and for Maintenance of Certification Part 4, which requires outcomes review and practice improvement.

**ACGME Milestone Report Form**

The FIGURE presents an example set of Milestones for 1 subcompetency in the same format as the Milestone Report

Form. For each reporting period, a resident’s performance on the Milestones for each subcompetency will be indicated by:

- selecting the level of Milestones that best describes the resident’s performance in relation to the Milestones, or
- selecting the “Critical Deficiencies” response option.

SURGERY MILESTONES						
Patient Care and Medical Knowledge						
Practice Domain	Competency	Critical Deficiencies	Level 1	Level 2	Level 3	Level 4
Performance of Operations and Procedures (POP)	PATIENT CARE (PC3)	This resident lacks basic surgical skills such as airway management, knot tying, simple suturing, suture removal, use of Doppler ultrasound, administration of local anesthetic, universal precautions, and aseptic technique, and is unable to reliably perform basic procedures, including venipuncture, arterial puncture, incision and drainage, minor skin excisions, and placement of an IV, nasogastric tube, or urinary catheter.	This resident has basic surgical skills such as airway management, knot tying, simple suturing, suture removal, use of Doppler ultrasound, administration of local anesthetic, universal precautions, and aseptic technique, and is able to reliably perform basic procedures, including venipuncture, arterial puncture incision and drainage, minor skin excisions and placement of an IV, nasogastric tube, or urinary catheter. This resident can perform basic operative steps in "essential-common operations/procedures" of the SCORE curriculum.	This resident has respect for tissue, and is developing skill in instrument handling. This resident moves through portions of common operations without coaching and makes straightforward intraoperative decisions. This resident performs some of the essential operations in the SCORE curriculum with minimal assistance.	This resident demonstrates proficiency in the handling of most instruments and exhibits efficiency of motion during procedures. This resident moves through the steps of most operations without much coaching and is making intraoperative decisions. This resident performs many of the essential operations and is beginning to gain experience in the complex operations.	This resident demonstrates proficiency in use of instruments and equipment required for essential operations, most operations, and makes independent intraoperative decisions. This resident can perform all of the essential operations and has significant experience in the complex operations. This resident can effectively guide other residents in essential-common operations.
Care for Diseases and Conditions (CDC)	PATIENT CARE (PC1)	This resident is not able to perform an efficient and accurate initial history and physical for patients admitted to the hospital.	This resident performs a focused, efficient, and accurate initial history and physical of a full spectrum of patients admitted to the hospital, including critically-ill patients.	This resident accurately diagnoses many "broad surgical conditions" in the SCORE curriculum and initiates appropriate management for some common, broad conditions. This resident can develop a diagnostic plan and implement initial care for patients seen in the emergency department (ED).	This resident accurately diagnoses most broad conditions in the SCORE curriculum and some focused conditions and initiates appropriate management for most broad surgical conditions independently.	This resident can lead a team that cares for patients with common and complex conditions and delegates appropriate clinical tasks to other health care team members. This resident recognizes atypical presentations of a large number of conditions.
Care for Diseases and Conditions (CDC)	PATIENT CARE (PC2)	This resident is unable to recognize or manage common postoperative problems, such as fever, hypotension, hypoxia, confusion, and oliguria.	This resident recognizes and manages common postoperative problems, such as fever, hypotension, hypoxia, confusion, and oliguria with the assistance of senior residents or staff members who are physically present.	This resident recognizes and manages common postoperative problems, such as fever, hypotension, hypoxia, confusion, and oliguria with the assistance of senior residents or staff members who are available for consultation, but not physically present.	This resident recognizes and manages complex postoperative problems, such as sepsis, systemic inflammatory response syndrome, and multiple system organ failure independently.	This resident can lead a team and provide supervision in the evaluation and management of complex postoperative problems, such as sepsis, systemic inflammatory response syndrome, and multiple system organ failure.

Care for Diseases and Conditions (CDC)	MEDICAL KNOWLEDGE (MK1)	<p>This resident does not have basic knowledge about common surgical conditions to which a medical student would be exposed in clerkship.</p>	<p>This resident has a basic understanding of the symptoms, signs, and treatments of the "broad diseases" in the SCORE curriculum and has basic knowledge about common surgical conditions to which a medical student would be exposed in clerkship.</p>	<p>This resident has basic knowledge about many of the "broad" diseases in the SCORE curriculum and can make a diagnosis and recommend appropriate initial management.</p> <p>This resident can recognize variation in the presentation of common surgical conditions.</p>	<p>This resident has significant knowledge about many diseases in the SCORE curriculum and a basic knowledge of the "focused" diseases in the SCORE curriculum, and can make a diagnosis and initiate appropriate initial management.</p>	<p>This resident has a comprehensive knowledge of the varying patterns of presentation and alternative and adjuvant treatments for "broad" diseases in the SCORE curriculum and can make the diagnosis and provide initial care for the "focused" diseases in the SCORE curriculum.</p>
Performance of Operations and Procedures (POP)	MEDICAL KNOWLEDGE (MK2)	<p>This resident does not have basic knowledge about the common essential operations to which a medical student would be exposed in clerkship.</p>	<p>This resident has a basic knowledge of the "essential-common surgical operations" in the SCORE curriculum to which a medical student would be exposed in clerkship.</p>	<p>This resident has basic knowledge of the operative steps, peri-operative care, and postoperative complications for many of the essential operations in the SCORE curriculum.</p>	<p>This resident has significant knowledge of the operative steps, peri-operative care, and postoperative complications for most of the essential operations in the SCORE curriculum and a basic knowledge of some of the complex operations.</p>	<p>This resident has a comprehensive level of knowledge of the operative steps, peri-operative care, and postoperative complications for the essential operations in the SCORE curriculum and a basic knowledge of many of the complex operations.</p>

Systems-Based Practice and Practice-Based Learning and Improvement						
Practice Domain	Competency	Critical Deficiencies	Level 1	Level 2	Level 3	Level 4
Coordination of Care (CC)	SYSTEMS-BASED PRACTICE (SBP1)	This resident does not have a basic understanding of the resources available for coordinating patient care, including social workers, visiting nurses, and physical and occupational therapists.	This resident has a basic understanding of the resources available for coordinating patient care, including social workers, visiting nurses, and physical and occupational therapists.	This resident knows the necessary resources to provide optimal coordination of care and how to access them. This resident is aware of specialized services like home total parenteral nutrition (TPN) or home antibiotic infusion.	This resident is able to efficiently arrange disposition planning for his or her patients and takes responsibility for preparing all materials necessary for discharge or transfer of his or her patients.	This resident coordinates the activities of residents, nurses, social workers, and other health care professionals to provide optimal care to the patient at the time of discharge or transfer, and to provide postdischarge ambulatory care that is appropriate for the patient's particular needs.
Improvement of Care (IC)	SYSTEMS-BASED PRACTICE (SBP2)	This resident does not demonstrate evidence that he or she considers how hospital and health care systems impact his or her practice. This resident does not demonstrate awareness of variation in practice within or across health care systems.	This resident has basic knowledge of how health systems operate. This resident knows system factors that contribute to medical errors and is aware that variations in care occur.	This resident understands how patient care is provided in his or her system and recognizes certain specific system failures that can affect patient care. This resident follows protocols and guidelines for patient care.	This resident makes suggestions for changes in the health care system that may improve patient care. This resident reports problems with technology (eg, devices and automated systems) or processes that could produce medical errors.	This resident participates in work groups or performance improvement teams designed to reduce errors and improve health outcomes. This resident understands the appropriate use of standardized approaches to care and participates in creating such protocols of care.
Teaching (TCH)	PRACTICE-BASED LEARNING AND IMPROVEMENT (PBL1)	This resident does not communicate effectively as a teacher (eg, is disorganized, is inattentive, uses language unsuitable for the level of the learner, discourages and disregards questions).	This resident willingly imparts educational information clearly and effectively to medical students and other health care team members. This resident uses media in presentations appropriately and effectively.	This resident communicates educational material accurately and effectively at the appropriate level for learner understanding. This resident accurately and succinctly presents patient cases in conferences.	This resident demonstrates an effective teaching style when asked to be responsible for a conference or formal presentation.	This resident recognizes teachable moments and readily and respectfully engages the learner. This resident is a highly effective teacher with an interactive educational style and engages in constructive educational dialogue. This resident facilitates conferences and case discussions based on assimilation of evidence from the literature.

Practice Domain	Competency	Critical Deficiencies	Level 1	Level 2	Level 3	Level 4
Self-Directed Learning (SDL)	PRACTICE-BASED LEARNING AND IMPROVEMENT (PBL12)	<p>This resident does not engage in self-initiated, self-directed learning activities.</p> <p>This resident does not complete simulation assignments. This resident is frequently absent for scheduled simulation exercises without a valid excuse.</p>	<p>This resident completes learning assignments using multiple sources.</p> <p>This resident participates in assigned skills curriculum activities and simulation experiences to build surgical skills.</p>	<p>This resident reads the literature and uses sources (eg, SCORE modules, peer-reviewed publications, practice guidelines, textbooks, library databases, and online materials) to answer questions related to patients.</p> <p>This resident develops a learning plan based on feedback with some external assistance.</p> <p>This resident identifies gaps in personal technical skills and works with faculty members to develop a skills learning plan.</p>	<p>This resident looks for trends and patterns in the care of patients and reads and uses sources to understand such patterns.</p> <p>This resident can select an appropriate evidence-based information tool to answer specific questions while providing care.</p> <p>This resident independently practices surgical skills in a simulation environment to enhance technical ability.</p>	<p>This resident participates in local, regional, and national activities, optional conferences, and/or self-assessment programs.</p> <p>This resident demonstrates use of a system or process for keeping up with changes in the literature, and initiates assignments for other learners.</p> <p>This resident leads surgical skills experiences for students and residents and participates in skills curriculum development.</p>
Improvement of Care (IC)	PRACTICE-BASED LEARNING AND IMPROVEMENT (PBL13)	<p>This resident does not demonstrate interest or ability in learning from the results of his or her practice.</p> <p>This resident fails to recognize the impact of errors and adverse events in practice.</p>	<p>This resident actively participates in Morbidity and Mortality (M&amp;M) and/or other quality improvement (QI) conferences with comments, questions, and/or accurate presentation of cases.</p> <p>This resident changes patient care behaviors in response to feedback from his or her supervisors.</p> <p>This resident recognizes when and how errors or adverse events affect the care of patients.</p>	<p>This resident evaluates his or her own surgical results and the quality and efficacy of care of patients through appraisal and assimilation of scientific evidence.</p> <p>This resident uses relevant literature to support his or her discussions and conclusions at M&amp;M and/or other QI conferences.</p> <p>This resident performs basic steps in a QI project (eg, generates a hypothesis, conducts a cause-effect analysis, creates method for study).</p> <p>This resident understands how to modify his or her own practice to avoid errors.</p>	<p>This resident evaluates his or her own surgical results and medical care outcomes in a systematic way and identifies areas for improvement.</p> <p>This resident identifies probable causes for complications and deaths at M&amp;M and/or other QI conferences with appropriate strategies for improving care.</p> <p>This resident begins to recognize patterns in the care of his or her patients and looks for opportunities to systematically reduce errors and adverse events.</p>	<p>This resident exhibits ongoing self-evaluation and improvement that includes reflection on practice, tracking and analyzing his or her patient outcomes, integrating evidence-based practice guidelines, and identifying opportunities to make practice improvements.</p> <p>This resident discusses or demonstrates application of M&amp;M and/or other QI conference conclusions to his or her own patient care.</p> <p>This resident leads a QI activity relevant to patient care outcomes.</p>

Professionalism		Level 1	Level 2	Level 3	Level 4
Practice Domain	Critical Deficiencies	Level 1	Level 2	Level 3	Level 4
Care for Diseases and Conditions (CDC)	<p>This resident displays undesirable behaviors, including <b>not</b> being polite or respectful, not respecting patient confidentiality and privacy, demonstrating lack of integrity, or failing to take responsibility for patient care activities.</p>	<p>This resident is polite and respectful toward patients, their families, and other health care professionals.</p> <p>This resident demonstrates a commitment to continuity of care by taking personal responsibility for patient care outcomes.</p> <p>This resident responds to pages and consultation requests promptly.</p> <p>This resident is honest and trustworthy.</p> <p>This resident consistently respects patient confidentiality and privacy.</p>	<p>This resident maintains composure in accordance with ethical principles even in stressful situations.</p> <p>This resident exhibits compassion and empathy toward patients and their families.</p> <p>This resident recognizes the limits of his or her knowledge and asks for help when needed.</p>	<p>This resident ensures patient care responsibilities are performed and continuity of care is maintained.</p> <p>This resident accepts responsibility for errors in patient care and can initiate corrective action.</p> <p>This resident consistently demonstrates integrity in all aspects of care and professional relationships.</p>	<p>This resident serves as a role model for ethical behavior.</p> <p>This resident positively influences others by assertively modeling professionalism.</p> <p>This resident consistently places the interests of patients ahead of self-interests when appropriate.</p>
Maintenance of Physical and Emotional Health (MPEH)	<p>This resident's behavior and/or physical condition concern me.</p> <p>This resident flagrantly and repeatedly violates duty hour requirements.</p>	<p>This resident understands the institutional resources available to manage personal, physical, and emotional health (eg, acute and chronic disease, substance abuse, and mental health problems).</p> <p>This resident complies with duty hours standards.</p> <p>This resident understands the principles of physician wellness and fatigue mitigation.</p>	<p>This resident monitors his or her own personal health and wellness and appropriately mitigates fatigue and/or stress.</p> <p>This resident effectively and efficiently manages his or her own time and assures fitness for duty.</p>	<p>This resident sets an example by promoting healthy habits and creating an emotionally healthy environment for those working with him or her.</p> <p>This resident models appropriate management of personal health issues, fatigue, and stress.</p>	<p>This resident promotes a healthy work environment.</p> <p>This resident recognizes and appropriately addresses personal health issues in other members of the health care team.</p> <p>This resident is proactive in modifying schedules or intervening in other ways to assure that those caregivers under his or her supervision maintain personal wellness and do not compromise patient safety (eg, requires naps, counsels, refers to services, reports to program director).</p>
Competency	PROFESSIONALISM (PROF)	PROFESSIONALISM (PROF2)			

Performance of Assignments and Administrative Tasks (PAT)	PROFESSIONALISM (PROFs)	This resident consistently fails to meet requirements for timely performance of administrative tasks and/or requires excessive reminders, follow-up, etc.	This resident completes his or her operative case logs and duty hour logs, performs other assigned and required administrative tasks in a timely fashion, and does not require excessive reminders or follow-up (eg, visa renewal, credentialing, obtaining a medical license).	This resident is prompt in attending conferences, meetings, operations, and other activities. This resident responds promptly to requests from faculty members and departmental staff members (eg, pager responsiveness).	This resident assures that others under his or her supervision respond appropriately to responsibilities in a timely fashion.	This resident sets an example for conference attendance, promptness, and attention to assigned tasks.
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Interpersonal and Communication Skills		Critical Deficiencies	Level 1	Level 2	Level 3	Level 4
Practice Domain	Competency					
Care for Diseases and Conditions (CDC)	INTERPERSONAL AND COMMUNICATION SKILLS (ICS1)	This resident is not able to clearly, accurately, and respectfully communicate with patients and their families. This resident fails to effectively communicate basic health care information to patients and families.	This resident uses a variety of techniques to ensure that communication with patients and their families is understandable and respectful (eg, nontechnical language, teach back, appropriate pacing, and small pieces of information). This resident effectively communicates basic health care information to patients and their families.	This resident customizes communication, taking into account patient characteristics (eg, age, literacy, cognitive disabilities, culture). This resident provides timely updates to patients and their families during hospitalizations and clinic visits.	This resident is capable of delivering bad news to patients and their families sensitively and effectively.	This resident can customize emotionally difficult information (eg, when participating in end-of-life discussions). This resident is capable of negotiating and managing conflict among patients and their families.



<p>Coordination of Care (CC)</p>	<p>INTERPERSONAL AND COMMUNICATION SKILLS (ICS2)</p>	<p>This resident displays disrespectful or resentful behaviors when asked to evaluate a patient or participate in a care conference with other members of the health care team.</p>	<p>This resident willingly exchanges patient information with team members. This resident responds politely and promptly to requests for consults and care coordination activities. This resident performs face-to-face handoffs.</p>	<p>This resident exhibits behaviors that invite information sharing with health care team members (eg, respect, approachability, active listening). This resident performs handoff best practices (eg, uses multiple forms of information transfer, confirms receipt of information, invites questions).</p>	<p>This resident discusses care plans with the members of the health care team and keeps them up to date on patient statuses and care plan changes. This resident delivers timely, complete, and well-organized information to referring physicians and to providers of follow-up care at the time of patient care transitions.</p>	<p>This resident assumes overall leadership of a health care team responsible for his or her patients, while at the same time seeking and valuing input from the members of the team. This resident negotiates and manages conflict among care providers. This resident takes responsibility for ensuring that clear handoffs are given at transitions of care.</p>
<p>Performance of Operations and Procedures (POP)</p>	<p>INTERPERSONAL AND COMMUNICATION SKILLS (ICS1)</p>	<p>This resident does not communicate effectively with patients, hospital staff members, and/or the senior surgeon in the operating room.</p>	<p>This resident communicates basic facts effectively with patients, hospital staff members, and the senior surgeon in the operating room. This resident understands the necessary elements of informed consent for procedures.</p>	<p>This resident effectively describes various aspects of the procedure and peri-operative care to the patient and his or her family and other operating room team members. This resident leads a preoperative “time out.” This resident performs clear informed consent discussion for basic procedures.</p>	<p>This resident anticipates logistical issues regarding the procedure and engages members of the operating team to solve problems. This resident performs clear informed consent discussion for complex procedures.</p>	<p>This resident is capable of leadership when unexpected events occur in the operating room and is able to communicate effectively with the family when unexpected events occur in the operating room.</p>