

# The Preventive Medicine Milestone Project: Aerospace Medicine

*A Joint Initiative of*

The Accreditation Council for Graduate Medical Education  
and  
The American Board of Preventive Medicine



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## The Preventive Medicine Milestone Project: Aerospace Medicine

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

## **Preventive Medicine Milestones**

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## Milestone Reporting

This document presents milestones designed for programs to use in semi-annual 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 one element in the Next Accreditation System (NAS) to determine whether residents overall are progressing.

For each period, review and reporting will involve selecting milestone levels that best describe a resident's current performance and attributes. Milestones are arranged into numbered levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert. These levels do not correspond with post-graduate 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 the diagram on page v).

**Level 1:** The resident demonstrates milestones expected of an incoming resident.

**Level 2:** The resident is advancing and demonstrates additional milestones, but is not yet performing at a mid-residency level.

**Level 3:** The resident continues to advance and demonstrate additional milestones, consistently including the majority of milestones targeted for residency.

**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.

**Level 5:** The resident has advanced beyond performance targets set for residency and is demonstrating "aspirational" goals which might describe the performance of someone who has been in practice for several years. It is expected that only a few exceptional residents will reach this level.

## **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. Study of milestone performance data will be required before the ACGME and its partners will be able to determine whether milestones in the first four levels appropriately represent the developmental framework, and whether milestone data are of sufficient quality to be used for high-stakes decisions.

Some milestone descriptions include statements about performing independently. These activities must occur in conformity to ACGME supervision guidelines, as well as institutional and program policies. For example, a resident who performs a procedure independently must, at a minimum, be supervised through oversight.

To aid in scoring the milestones, a listing of assessment tools by competency is available on the milestone page under the heading “Educational Materials”. These assessment tools are not required.

*Answers to Frequently Asked Questions about Milestones are available on the Milestones web page:*

<http://www.acgme.org/acqmeweb/Portals/0/MilestonesFAQ.pdf>.

The diagram below presents an example set of milestones for one sub-competency in the same format as the milestone report worksheet. For each reporting period, a resident’s performance on the milestones for each sub-competency will be indicated by:

- selecting the level of milestones that best describes that resident’s performance in relation to the milestones
- or,
- for Patient Care and Medical Knowledge milestones, selecting the option that says the resident has “Not yet rotated”
- or,
- for Interpersonal and Communication Skills, Practice-based Learning and Improvement, Professionalism, and Systems-based Practice milestones, selecting the option that says the resident has “Not yet achieved Level 1”

Work in inter-professional teams to enhance patient safety and improve patient care quality; advocate for quality patient care and optimal patient care systems; participate in identifying system errors and implementing potential systems solutions — Systems-based Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Recognizes the importance of advocating for quality care and optimal patient care systems</li> <li>• Recognizes that medical errors and healthcare system failures are a significant cause of morbidity</li> </ul>	<ul style="list-style-type: none"> <li>• Understands key concepts related to healthcare quality improvement</li> <li>• Recognizes and reports errors and near-misses</li> </ul>	<ul style="list-style-type: none"> <li>• Advocates for quality care and optimal individual patient care systems</li> <li>• Recognizes potential sources of system failure in healthcare systems such as minor, major, and sentinel events</li> </ul>	<ul style="list-style-type: none"> <li>• Advocates for quality care and optimal population based care systems</li> <li>• Participates in a team based approach to make system changes</li> </ul>	<ul style="list-style-type: none"> <li>• Develops or leads a team to evaluate a system error and improve processes</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments: <span style="float: right;">Not yet achieved Level 1 <input type="checkbox"/></span>				

Selecting a response box in the middle of a level implies that milestones in that level and in lower levels have been substantially demonstrated.

Selecting a response box on the line in between levels indicates that milestones in lower levels have been substantially demonstrated as well as **some** milestones in the higher level(s).

Emergency Preparedness and Response: Apply skills in Emergency Preparedness and Response — Patient Care 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Demonstrates basic skills in emergency medical care</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates knowledge of triage concepts</li> <li>• Demonstrates basic knowledge of emergency preparedness programs</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates and applies understanding of emergency preparedness programs</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates the ability to develop and evaluate the medical portion of an emergency plan</li> </ul>	<ul style="list-style-type: none"> <li>• Provides leadership in developing, implementing, and evaluating emergency preparedness programs</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Community Health: Monitor, diagnose, and investigate community health problems — Patient Care 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Identifies common health issues in a community</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies basic health status measures to assess/investigate a community's health</li> </ul>	<ul style="list-style-type: none"> <li>• Selects and describes appropriate health status measures to assess a community's health</li> </ul>	<ul style="list-style-type: none"> <li>• Monitors and interprets single health status indicator of the community</li> </ul>	<ul style="list-style-type: none"> <li>• Monitors and interprets multiple and/or complex health status indicators of the community</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Inform and Educate: Inform and educate populations about health threats and risks — Patient Care 3				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Conveys basic health information to individuals or small groups</li> </ul>	<ul style="list-style-type: none"> <li>Identifies proper communication techniques related to health threats and risks</li> </ul>	<ul style="list-style-type: none"> <li>Prepares and delivers a basic health hazard/risk presentation</li> </ul>	<ul style="list-style-type: none"> <li>Conveys complex health information to educate a community or group and responds to queries about risk</li> </ul>	<ul style="list-style-type: none"> <li>Conveys sensitive/high-stakes health information to educate a community or group through a variety of media platforms</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Policies and Plans: Develop policies and plans to support individual and community health efforts — Patient Care 4				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Diagnoses disease and develops an individualized treatment plan</li> </ul>	<ul style="list-style-type: none"> <li>Links individuals to needed personal health services including appropriate referrals and follow-ups</li> </ul>	<ul style="list-style-type: none"> <li>Applies primary, secondary, and tertiary preventive approaches to disease prevention and health promotion for individuals or communities, with minimal supervision</li> </ul>	<ul style="list-style-type: none"> <li>Applies primary, secondary, and tertiary preventive approaches to disease prevention and health promotion for the individuals and community</li> </ul>	<ul style="list-style-type: none"> <li>Contributes to the development and/or implementation of a policy to improve community health efforts</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>



Evaluating Health Services: Evaluate Population-based health services — Patient Care 5				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes distinctions between population and individual health services</li> </ul>	<ul style="list-style-type: none"> <li>Describes basic measures of effect (e.g., risk ratio)</li> <li>Describes basic measures of quality (e.g., benchmarking)</li> <li>Lists populations known to be underserved (e.g., low income)</li> </ul>	<ul style="list-style-type: none"> <li>Assesses evidence for effectiveness of a population-based health service</li> <li>Uses scientific literature to identify a target population for a given population-based health service</li> <li>Uses scientific literature to identify barriers to delivery of population-based health service</li> </ul>	<ul style="list-style-type: none"> <li>Uses program goals and/or established performance criteria to evaluate a population-based health service</li> <li>Uses evaluation findings to recommend strategic or operational improvements</li> <li>Uses data to identify barriers to population-based health services</li> </ul>	<ul style="list-style-type: none"> <li>Develops program goals and/or performance criteria to evaluate a population-based health service</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet rotated <input type="checkbox"/>

Managing aerospace and general medical problems in aerospace personnel — Patient Care 6				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies and characterizes general medical problems in aerospace personnel</li> </ul>	<ul style="list-style-type: none"> <li>Describes and diagnoses general medical and aeromedical problems in aerospace personnel</li> </ul>	<ul style="list-style-type: none"> <li>Evaluates general medical and aeromedical problems in aerospace personnel</li> </ul>	<ul style="list-style-type: none"> <li>Manages general medical and aeromedical problems in aerospace personnel</li> </ul>	<ul style="list-style-type: none"> <li>Recommends aeromedical disposition of aerospace personnel with complex medical and aeromedical conditions</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Develop and applying medical standards, grant exceptions — Patient Care 7				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies medical standards for certification</li> <li>Identifies medical standards to grant exceptions or waivers</li> </ul>	<ul style="list-style-type: none"> <li>Describes medical standards for certification</li> <li>Describes medical standards to grant exceptions or waivers</li> </ul>	<ul style="list-style-type: none"> <li>Evaluates medical standards for certification</li> <li>Evaluates medical standards to grant exceptions or waivers</li> </ul>	<ul style="list-style-type: none"> <li>Applies medical standards for certification</li> <li>Applies medical standards to grant exceptions or waivers</li> </ul>	<ul style="list-style-type: none"> <li>Recommends medical standards for certification</li> <li>Recommends medical standards to grant exceptions or waivers</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Educate passengers and physicians about the hazards of flight with certain medical conditions and serve as passenger advocates to promote flight safety — Patient Care 8				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies the hazards of aviation and space flight in passengers with certain medical conditions</li> </ul>	<ul style="list-style-type: none"> <li>Describes the health risks associated with aviation and space flights in passengers with certain medical conditions</li> </ul>	<ul style="list-style-type: none"> <li>Participates in any form of passenger and physician health education</li> </ul>	<ul style="list-style-type: none"> <li>Performs any form of passenger and physician health education</li> </ul>	<ul style="list-style-type: none"> <li>Designs and advances health education activities to promote flight safety</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet rotated <input type="checkbox"/>

Identifying appropriate patients for aeromedical transport and provide guidance for safe aeromedical transport of patients with common medical problems — Patient Care 9				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies physiologic and clinical criteria for safe aeromedical transport of patients</li> <li>Identifies contraindications to aeromedical transport of patients</li> </ul>	<ul style="list-style-type: none"> <li>Describes physiologic and clinical criteria for safe aeromedical transport of patients</li> <li>Describes contraindications to aeromedical transport of patients</li> <li>Describes patient movement categories/priorities</li> </ul>	<ul style="list-style-type: none"> <li>Evaluates physiologic and clinical criteria for safe aeromedical transport of patients</li> <li>Participates in aeromedical transport mission planning</li> </ul>	<ul style="list-style-type: none"> <li>Applies physiologic and clinical criteria for safe aeromedical transport of patients</li> <li>Demonstrates clinical decision making skills to validate patients for aeromedical transport</li> </ul>	<ul style="list-style-type: none"> <li>Supervises clearance of patients for aeromedical transport</li> <li>Oversees treatment plans and restrictions for aeromedical transport</li> <li>Creates policies or guides for aeromedical transport</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet rotated <input type="checkbox"/>

Advise in the operational use of aerospace biomedical equipment — Patient Care 10				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies life support systems for air and space flight</li> <li>Identifies biomedical equipment to support air and space flight</li> </ul>	<ul style="list-style-type: none"> <li>Describes life support systems for air and space flight</li> <li>Describes biomedical equipment to support air and space flight</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates the ability to evaluate life support systems for air and space flight</li> <li>Participates in the evaluation of biomedical equipment to support air and space flight</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates ability to evaluate life support systems for air and space flight</li> <li>Evaluates biomedical equipment to support air and space flight</li> </ul>	<ul style="list-style-type: none"> <li>Recommends life support systems for air and space flight</li> <li>Recommends biomedical equipment to support air and space flight</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Advise in techniques for sustaining and enhancing human performance — Patient Care 11				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies techniques to improve human performance while working in the aerospace environment</li> <li>Identifies crew resource management techniques</li> <li>Identifies fatigue countermeasures, and sleep management techniques</li> </ul>	<ul style="list-style-type: none"> <li>Describes techniques to improve human performance while working in the aerospace environment</li> <li>Describes crew resource management techniques</li> <li>Describes fatigue countermeasures, and sleep management techniques</li> </ul>	<ul style="list-style-type: none"> <li>Participates in the evaluation of techniques to improve human performance while working in the aerospace environment</li> <li>Participates in the evaluation of crew resource management techniques</li> <li>Participates in the evaluation of fatigue countermeasures, and sleep management techniques</li> </ul>	<ul style="list-style-type: none"> <li>Evaluates techniques to improve human performance while working in the aerospace environment</li> <li>Evaluates crew resource management techniques</li> <li>Evaluates fatigue countermeasures, and sleep management techniques</li> </ul>	<ul style="list-style-type: none"> <li>Recommends techniques to improve human performance while working in the aerospace environment</li> <li>Recommends crew resource management techniques to make effective aeronautical decisions</li> <li>Recommends fatigue countermeasures, and sleep management techniques</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Appropriate safety information and education and conducting the medical aspects of any accident/mishap investigation, including making recommendations to prevent recurrences — Patient Care 12				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies resources to assist in aircraft mishap/accident investigation</li> <li>Identifies major non-human and human causal factors involved in mishaps/accidents</li> <li>Identifies components of mishap/accident analyses</li> <li>Identifies factors which contribute to mishap/accident survivability</li> </ul>	<ul style="list-style-type: none"> <li>Describes resources to assist in mishap/accident investigation</li> <li>Describes major non-human and human causal factors involved in mishaps/accidents</li> <li>Describes components of mishap/accident analyses</li> <li>Describes factors which contribute to mishap/accident survivability</li> <li>Describes the process of victim identification</li> <li>Describes injury patterns</li> </ul>	<ul style="list-style-type: none"> <li>Participates in the analyses and interpretation of the aeromedical components of a mishap/accident investigation</li> <li>Participates in the synthesis of a draft of a mishap/accident investigation aeromedical analysis or community-based equivalent thereof</li> </ul>	<ul style="list-style-type: none"> <li>Analyzes and interprets the aeromedical components of any mishap/accident investigation</li> <li>Synthesizes a draft of a mishap/accident investigation aeromedical analysis or community-based equivalent thereof</li> <li>Provides evidence based recommendation for basic findings of a mishap/accident investigation</li> <li>Provides recommendations to prevent recurrences and improve survivability</li> </ul>	<ul style="list-style-type: none"> <li>Conducts and synthesizes the aeromedical component of a mishap/accident investigation</li> <li>Educates community on routine and complex aviation hazards and serves as a role model and resource to peers</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Conduct aeromedical research — Patient Care 13				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Understands basic methodology of literature searches</li> <li>• Lists and defines basic types of statistical analysis</li> <li>• Knowledge of basic principles underlying Ethics and Protection on Human Subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Develops a basic background for a particular research question from literature searches</li> <li>• Describes the types of statistical analysis and study design</li> <li>• Demonstrates understanding of ethics and good clinical practice with regards to the protection of human subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Selects a particular study design for an individual research question</li> <li>• Interprets various types of statistical analysis</li> <li>• Applies the principles of ethics and good clinical practice with regards to the protection of human subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Completes the components of an Institutional Review Board</li> <li>• Performs and interprets various types of statistical analysis</li> <li>• Applies the principles of ethics and good clinical practice with regards to the protection of human subjects</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies gaps in current aeromedical literature and develops pertinent research questions from these gaps</li> <li>• Submits original research to peer-reviewed journal and/or peer-reviewed conference</li> <li>• Applies the principles of ethics and good clinical practice with regards to the protection of human subjects</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

For all programs: Space medicine knowledge — Patient Care 14				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• N/A</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies medical standards for spaceflight</li> <li>• Identifies the health risks associated with the space flight environment</li> </ul>	<ul style="list-style-type: none"> <li>• Describes medical standards for spaceflight</li> <li>• Describes the health risks associated with the spaceflight environment</li> </ul>	<ul style="list-style-type: none"> <li>• Understands application of medical standards for spaceflight</li> <li>• Understands evaluation of health risks associated with the spaceflight environment</li> </ul>	<ul style="list-style-type: none"> <li>• Applies medical standards for spaceflight</li> <li>• Evaluates the health risks associated with spaceflight</li> <li>• Recommends medical standards for spaceflight</li> <li>• Recommends medical evaluations for spaceflight</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>



For space-based programs only: Apply medical care standards and programs, evaluating the physiologic effects of spaceflight — Patient Care 15				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Understands the unique environmental stressors of spaceflight, including microgravity, radiation, isolation, and acceleration</li> </ul>	<ul style="list-style-type: none"> <li>Describes medical standards and medical selection as applied to crew and passengers on suborbital flights and short and long duration orbital spaceflights</li> <li>Lists elements of operational medical support for launch, orbital operations, and landing</li> <li>Describes significance of findings from previous longitudinal studies of astronaut health and relevant space-based research</li> <li>Describes countermeasures to protect crewmembers for space environmental stressors</li> </ul>	<ul style="list-style-type: none"> <li>Applies medical standards to spaceflight passengers and crews</li> <li>Understands space medicine board functions</li> <li>Understands mission preparation and mission control room operation; participates in actual or mock mission control room operation</li> <li>Identifies the elements of and understand strategies for risk mitigation for spaceflight crews</li> <li>Understands the need for spaceflight medical systems</li> </ul>	<ul style="list-style-type: none"> <li>Participates in the development of spaceflight medical standards waiver process for medical conditions</li> <li>Demonstrates ability to function as a flight surgeon supporting a spaceflight</li> <li>Implements risk management strategies for spaceflight, including medical selection and operations</li> <li>Selects medical care capabilities for use in space flight or launch and landing activities</li> <li>Implements medical evacuation (MEDEVAC); provides medical and programmatic support for MEDEVAC and launch and landing sites</li> </ul>	<ul style="list-style-type: none"> <li>Conducts and leads spaceflight medical selection and interface with medical team members internationally</li> <li>Serves as lead flight surgeon on U.S. or international spaceflight missions</li> <li>Serves on international space medicine boards to develop international medical standards and specific risk mitigation strategies for medical/operational conditions and determine appropriate course of action</li> <li>Develops longitudinal studies or other appropriate research programs to define and understand critical spaceflight related medical problems</li> <li>Sets policy at an international level regarding medical aspects of spaceflight operation and training of the medical support team</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Behavioral Health — Medical Knowledge 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Lists major effects of individual behavior on health</li> <li>• Recognizes that social and behavioral factors influence population health</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies social and behavioral factors that affect health of individuals</li> <li>• Identifies social and behavioral factors that affect health of populations</li> </ul>	<ul style="list-style-type: none"> <li>• Identifies best practice and tools to assess risk behaviors</li> <li>• Describes effective approaches to modify individual health behaviors</li> <li>• Describes effective approaches to modify population health behaviors</li> <li>• Identifies the causes of social and behavioral factors that affect health of populations</li> </ul>	<ul style="list-style-type: none"> <li>• Integrates best practices and tools to assess risk behaviors</li> <li>• Implements effective approaches to modify individual health behaviors</li> <li>• Integrates best practices and tools to assess population risk behaviors</li> <li>• Implements effective approaches to modify population health behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• Develops and evaluates programs to change health behaviors of individuals</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Environmental Health — Medical Knowledge 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies major routes of human exposure to environmental toxicants</li> </ul>	<ul style="list-style-type: none"> <li>Identifies common illnesses that may be caused or influenced by environmental exposures</li> <li>Identifies broad environmental factors that may impact the health of a community</li> </ul>	<ul style="list-style-type: none"> <li>Describes individual factors that impact susceptibility to adverse health effects from environmental exposures</li> <li>Identifies potential population health effects from exposure to chemical, physical, and biological hazards</li> </ul>	<ul style="list-style-type: none"> <li>Recommends methods of reducing adverse environmental health effects for individuals</li> <li>Identifies sources and routes of environmental exposures to chemical, physical, and biological hazards for defined populations</li> </ul>	<ul style="list-style-type: none"> <li>Recommends, interprets, and explains the results of individual environmental monitoring</li> <li>Interprets and explains population level environmental monitoring results</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Biostatistics — Medical Knowledge 3				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes common statistical concepts (e.g., measures of central tendency, p-values, and confidence intervals)</li> </ul>	<ul style="list-style-type: none"> <li>Defines common statistical concepts (e.g., p-values and confidence intervals)</li> </ul>	<ul style="list-style-type: none"> <li>Describes frequently used statistical tests (e.g., paired and unpaired t-tests, chi-square tests, and others)</li> </ul>	<ul style="list-style-type: none"> <li>Independently utilizes simple statistical methods (e.g., paired and unpaired t-tests, chi-square tests, and appropriate non-parametric tests) to describe small data sets</li> </ul>	<ul style="list-style-type: none"> <li>Participates in the use of statistical software to perform statistical tests; understands more advanced statistical methods such as linear and logistic regression</li> </ul>
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<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Epidemiology — Medical Knowledge 4				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Identifies and recognizes basic measures of disease frequency (e.g., incidence, prevalence, mortality)</li> <li>Distinguishes between experimental and observational studies</li> </ul>	<ul style="list-style-type: none"> <li>Identifies and recognizes basic measures for comparing risk (e.g., risk ratios, odds ratios)</li> <li>Describes commonly used study designs (e.g., randomized control test [RCT], cohort; case-control, cross-sectional)</li> </ul>	<ul style="list-style-type: none"> <li>Knows methods for calculating basic measures of disease frequency and risk</li> <li>Explains what is meant by validity, bias, confounding, and effect modification; distinguishes between association and causation; lists criteria for causal inference</li> </ul>	<ul style="list-style-type: none"> <li>For a defined population, uses data to calculate measures of disease frequency and one or more risk factors for a specified disease or condition</li> <li>Critically reviews and interprets epidemiologic literature for commonly used study designs, identifying purpose, population, design, and biases</li> </ul>	<ul style="list-style-type: none"> <li>Uses data to characterize the health of a local population, compares it with that of other populations, identifies localities or groups with poorer health, and identifies and assesses the importance of different risk factors, for at least one disease or condition</li> <li>Designs and conducts a basic observational study (defines aims; selects appropriate study designs, collects, analyzes, and interprets data; identified limitations; summarizes and discusses findings)</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet rotated</b> <input type="checkbox"/>

Work and coordinate patient care effectively in various health care delivery settings and systems — Systems-based Practice 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes various individual and population-based health care/services delivery settings and systems</li> </ul>	<ul style="list-style-type: none"> <li>Works and coordinates individual patient care in various health care delivery settings and systems</li> </ul>	<ul style="list-style-type: none"> <li>Works and coordinates population-based health services in various health care delivery settings and systems</li> </ul>	<ul style="list-style-type: none"> <li>Assess organizational performance of health care delivery system</li> </ul>	<ul style="list-style-type: none"> <li>Interacts with other stakeholders to improve the performance of the system</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet achieved Level 1</b> <input type="checkbox"/>

Incorporate considerations of cost awareness and risk-benefit analysis in patient and/or population-based care, as appropriate — Systems-based Practice 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes the importance of cost awareness and risk-benefit analysis in patient and/or population-based care</li> </ul>	<ul style="list-style-type: none"> <li>Identifies risks, benefits, and costs for a preventive service in an individual clinical patient</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates sound judgment relating to risks, benefits, and costs for a preventive service in an individual clinical patient</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrates sound judgment relating to risks, benefits, and costs for a preventive service for a population</li> </ul>	<ul style="list-style-type: none"> <li>Articulates and weighs the costs, benefits, and risks of a proposed population-based service</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet achieved Level 1</b> <input type="checkbox"/>

Work in inter-professional teams to enhance patient safety and improve patient care quality; advocate for quality patient care and optimal patient care systems; participate in identifying system errors and implementing potential systems solutions — Systems-based Practice 3				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes the importance of advocating for quality care and optimal patient care systems</li> <li>Recognizes that medical errors and health care system failures are a significant cause or morbidity</li> </ul>	<ul style="list-style-type: none"> <li>Understands key concepts related to health care quality improvement</li> <li>Recognizes and reports errors and near misses</li> </ul>	<ul style="list-style-type: none"> <li>Advocates for quality care and optimal individual patient care systems</li> <li>Recognizes potential sources of system failure in health care systems, such as minor, major, and sentinel events</li> </ul>	<ul style="list-style-type: none"> <li>Advocates for quality care and optimal population-based care systems</li> <li>Participates in a team-based approach to make system changes</li> </ul>	<ul style="list-style-type: none"> <li>Develops or leads a team to evaluate a system error and improve processes</li> </ul>
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<b>Comments:</b>				Not yet achieved Level 1 <input type="checkbox"/>

Identify strengths, deficiencies, and limits in one’s knowledge and expertise; set learning and improvement goals and identify and perform appropriate learning activities utilizing information technology, evidence from scientific studies, and evaluation feedback; systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement — Practice-based Learning and Improvement 1				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback</li> <li>• Understands the importance of setting learning and improvement goals</li> <li>• Identifies problems in health care delivery and gaps in care</li> </ul>	<ul style="list-style-type: none"> <li>• Assesses professional performance in a structured manner</li> <li>• Begins to develop learning and improvement goals, based on feedback, with some external assistance</li> <li>• Uses information technology to locate scientific studies related to patient health problems</li> <li>• Understands the essentials of quality improvement</li> </ul>	<ul style="list-style-type: none"> <li>• Incorporates feedback and assessments into practice improvement</li> <li>• Develops learning and improvement goals, based on feedback, with minimal external assistance</li> <li>• Critically appraises scientific studies related to patient health problems</li> <li>• Defines and constructs process and outcomes measures of quality</li> </ul>	<ul style="list-style-type: none"> <li>• Assesses performance by incorporating feedback and assessments from multiple stakeholders (e.g., patients, members of the health care team, third-party payors)</li> <li>• Assimilates evidence from scientific studies into practice</li> <li>• Participates in a quality improvement project</li> </ul>	<ul style="list-style-type: none"> <li>• Creates novel ways to assess performance</li> <li>• Creates professional educational opportunities for others</li> <li>• Systematically designs and carries out quality improvement project in clinical and other health settings</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet achieved Level 1 <input type="checkbox"/>



<b>Compassion, integrity, and respect for others as well as sensitivity and responsiveness to diverse patient populations including diversity in gender, age, culture, race, religion, disabilities, and sexual orientation; knowledge about, respect for and adherence to the ethical principles relevant to the practice of medicine, remembering in particular that responsiveness to patients that supersedes self-interest is an essential aspect of medical practice — Professionalism 1</b>				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Seeks out, learns from, and models the attitudes and behaviors of physicians who exemplify appropriate professional attitudes, values, and behaviors, including caring, honesty, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</li> <li>• Aware of basic bioethical principles; identifies ethical issues in clinical situations</li> </ul>	<ul style="list-style-type: none"> <li>• Exhibits appropriate attitudes, values and behaviors in straightforward situations, including caring, honesty, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</li> <li>• Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common clinical situations</li> </ul>	<ul style="list-style-type: none"> <li>• Exhibits appropriate attitudes, values and behaviors in difficult situations, including caring, honesty, genuine interest in patients and families, and tolerance and acceptance of diverse individuals and groups</li> <li>• Effectively analyzes and manages ethical issues in difficult clinical situations</li> </ul>	<ul style="list-style-type: none"> <li>• Balances ethical principles required for individual patient care with those needed for addressing population health</li> <li>• Consistently and effectively analyzes and manages ethical issues in both clinical and population-based medicine</li> </ul>	<ul style="list-style-type: none"> <li>• Develops organizational policies and education to support the application of these principles in the practice of individual and population-based medicine</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet achieved Level 1</b> <input type="checkbox"/>

Accountability to patients, society and the profession — Professionalism 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Recognizes limits of knowledge in most clinical situations</li> <li>• Understands importance of physician accountability</li> <li>• Aware of the basic causes of impairment in professionals such as fatigue, and substance use</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently recognizes limits of knowledge in common clinical situations and asks for assistance</li> <li>• Demonstrates physician accountability to individual patients in clinical situations</li> <li>• Identifies resources to address impairment of professionals</li> </ul>	<ul style="list-style-type: none"> <li>• Appropriately engages other members of the healthcare team</li> <li>• Demonstrates physician accountability to a patient population in clinical situations</li> <li>• Able to recognize impairment in themselves or other members of the healthcare team</li> </ul>	<ul style="list-style-type: none"> <li>• Consistently demonstrates the ability to identify limits of own knowledge and proactively incorporates the expertise of others from the healthcare team into clinical and population-based practice</li> <li>• Demonstrates physician accountability to patients, society, and profession in the performance of clinical and population-based duties</li> <li>• Able to respond appropriately to impairment in members of the healthcare team</li> </ul>	<ul style="list-style-type: none"> <li>• Acts as a consultant for clinical and population health topics</li> <li>• Exemplifies ethical leadership in clinical and population-based settings</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet achieved Level 1 <input type="checkbox"/>

<b>Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds; communicate effectively with physicians, other health care professionals and health related agencies; work effectively as a member or leader of a health care team or other professional group; act in a consultative role to other physicians and health professionals — Interpersonal Communication Skills 1</b>				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>• Recognizes the importance of effective communication with patients, families, and public</li> <li>• Recognizes the importance of effective communication with the health care team</li> <li>• Recognizes the importance of working with other members of the health care team</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates effective communication with patients, families, or public in common situations</li> <li>• Demonstrates effective communication with the health care team in common situations</li> <li>• Works effectively with the health care team in common situations</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates effective communication with patients or the public in issues related to confidential and/or highly sensitive medical information</li> <li>• Demonstrates effective communication with the health care team in clinical and population settings</li> <li>• Works effectively with the health care team in clinical and population settings</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrates effective communication with patients and the public in issues related to confidential and/or highly sensitive medical information using multiple communication modalities</li> <li>• Able to communicate effectively with the health care team in stressful situations/crises</li> <li>• Works effectively with the health care team in stressful situations/crisis</li> </ul>	<ul style="list-style-type: none"> <li>• Creates policy for effective communication of complex health information</li> <li>• Demonstrates effective communication outside of the local health care environment, such as state and federal agencies, regional health care systems</li> <li>• Understands the importance of working with diverse stakeholders outside of the local health care environment, such as state and federal agencies, regional health care systems</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				<b>Not yet achieved Level 1</b> <input type="checkbox"/>

Maintain comprehensive, timely and legible medical records, including electronic health records (EHR) — Interpersonal Communication Skills 2				
Level 1	Level 2	Level 3	Level 4	Level 5
<ul style="list-style-type: none"> <li>Recognizes the importance of maintaining timely and legible records, including EHR</li> </ul>	<ul style="list-style-type: none"> <li>Maintains timely and legible records, including EHR</li> </ul>	<ul style="list-style-type: none"> <li>Maintains complete, timely, and legible records, including EHR</li> </ul>	<ul style="list-style-type: none"> <li>Consistently maintains complete, timely, and legible records, including EHR</li> </ul>	<ul style="list-style-type: none"> <li>Develops a protocol for record maintenance</li> </ul>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Comments:</b>				Not yet achieved Level 1 <input type="checkbox"/>