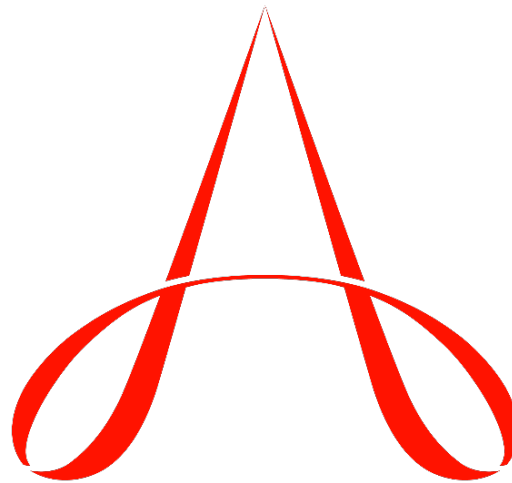




Cardiovascular Disease Milestones

The Accreditation Council for Graduate Medical Education



ACGME

Second Revision: December 2019

First Revision: October 2014

Cardiovascular Disease Milestones

The Milestones are designed only for use in evaluation of fellows in the context of their participation in ACGME-accredited residency or fellowship programs. The Milestones provide a framework for the assessment of the development of the fellow 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.

Cardiovascular Disease Milestones

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American Board of Internal Medicine

American College of Cardiology

ACGME Review Committee for Internal Medicine

Understanding Milestone Levels and Reporting

This document presents the Milestones, which programs use in a semi-annual review of fellow performance, and then report to the ACGME. Milestones are knowledge, skills, attitudes, and other attributes for each of the ACGME Competencies organized in a developmental framework. The narrative descriptions are targets for fellow performance throughout their educational program.

Milestones are arranged into levels. Tracking from Level 1 to Level 5 is synonymous with moving from novice to expert fellow in the specialty or subspecialty. For each reporting period, the Clinical Competency Committee will review the completed evaluations to select the milestone levels that best describe each learner's current performance, abilities, and attributes for each subcompetency.

These levels *do not* correspond with post-graduate year of education. Depending on previous experience, a junior fellow may achieve higher levels early in his/her educational program just as a senior fellow may be at a lower level later in his/her educational program. There is no predetermined timing for a fellow to attain any particular level. Fellows may also regress in achievement of their milestones. This may happen for many reasons, such as over scoring in a previous review, a disjointed experience in a particular procedure, or a significant act by the fellow.

Selection of a level implies the fellow substantially demonstrates the milestones in that level, as well as those in lower levels (see the diagram on page vi).

Additional Notes

Level 4 is designed as a graduation *goal* but *does not* represent a graduation *requirement*. Making decisions about readiness for graduation and unsupervised practice is the purview of the program director. Furthermore, Milestones 2.0 include revisions and changes that preclude using Milestones as a sole assessment in high-stakes decisions (i.e., determination of eligibility for certification or credentialing). Level 5 is designed to represent an expert fellow whose achievements in a subcompetency are greater than the expectation. Milestones are primarily designed for formative, developmental purposes to support continuous quality improvement for individual learners, education programs, and the specialty. The ACGME and its partners will continue to evaluate and perform research on the Milestones to assess their impact and value.

Examples are provided for some milestones within this document. Please note: the examples are not the required element or outcome; they are provided as a way to share the intent of the element.

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

A Supplemental Guide is also available to provide the intent of each subcompetency, examples for each level, assessment methods or tools, and other available resources. The Supplemental Guide, like examples contained within the Milestones, is designed only to assist the program director and Clinical Competency Committee, and is not meant to demonstrate any required element or outcome.

Supplemental Guides and other resources are available on the Milestones page of each specialty section of the ACGME website. On www.acgme.org, choose the applicable specialty under the “Specialties” menu, then select the “Milestones” link in the lower navigation bar.

The diagram below presents an example set of milestones for one sub-competency in the same format as the ACGME Report Worksheet. For each reporting period, a fellow's performance on the milestones for each sub-competency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Patient Care 4: Chronic Care for Cardiovascular Conditions				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes clinical signs and symptoms of common chronic cardiovascular conditions	Diagnoses and monitors for complications or changes related to common chronic cardiovascular conditions, with direct supervision	Diagnoses and monitors for complications or changes related to common chronic cardiovascular conditions, with indirect supervision	Diagnoses and monitors for complications or changes related to complex chronic cardiovascular conditions	Functions as an exceptional team leader in the chronic care setting
Discusses the treatment strategies for common cardiovascular conditions	Develops treatment strategies for common chronic cardiovascular conditions, with direct supervision	Develops treatment strategies for common chronic cardiovascular conditions, with indirect supervision	Develops treatment strategies for complex chronic cardiovascular conditions	Advances quality of clinical practice in the treatment strategies for chronic cardiovascular conditions
	Effectively participates in team-based care in management of common chronic cardiovascular conditions, with direct supervision	Effectively participates in team-based care in management of common chronic cardiovascular conditions, with indirect supervision	Effectively participates in team-based care in management of complex chronic cardiovascular conditions	Effectively develops team-based care models in management of chronic cardiovascular conditions
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Critical Deficiencies ☐				

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).

Patient Care 1: Invasive Cardiovascular Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Discusses the key steps and anatomy relevant to the procedure	Obtains and manages vascular access, with direct supervision	Performs some elements of diagnostic cardiac catheterization, with direct supervision Performs some elements of selected common procedures, with direct supervision	Performs diagnostic cardiac catheterization, with direct supervision Independently performs selected common procedures (e.g., pulmonary artery catheter, temporary pacing wire, arterial and venous access)	Independently performs diagnostic cardiac catheterization
	Recognizes normal coronary anatomy and standard angiographic views	Interprets angiographic and hemodynamic data, with supervision	Independently interprets angiographic and hemodynamic data and integrates with other clinical findings for common clinical conditions	Independently interprets angiographic and hemodynamic data and integrates with other clinical findings for complex clinical conditions
☐	☐	☐	☐	☐
Comments:				Not Yet Assessable ☐ Critical Deficiencies ☐

Patient Care 2: Non-Invasive Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Discusses the key steps of the test	Obtains and identifies standard views for transthoracic echocardiography	Performs and interprets a complete transthoracic echocardiography, with guidance	Independently performs and interprets transthoracic echocardiography in common clinical conditions	Independently performs and interprets transthoracic echocardiography in complex clinical conditions
	Participates in selected common tests, with direct supervision	Integrates data from selected common tests (e.g., nuclear, computed tomography [CT], magnetic resonance imaging [MRI], vascular ultrasound), with guidance	Independently integrates the data from selected common tests (e.g., nuclear, CT, MRI, vascular ultrasound)	Independently performs, interprets, and integrates selected common tests (e.g., nuclear, CT, MRI, vascular ultrasound)
Interprets electrocardiogram (ECG) patterns for common clinical conditions	Interprets ECG and ambulatory ECG; performs and interprets stress testing, with guidance	Interprets complex ECG, ambulatory ECG, and stress testing, with guidance	Independently interprets ECG and ambulatory ECG; independently performs and interprets stress testing	
☐	☐	☐	☐	☐
Comments:				Not Yet Assessable ☐ Critical Deficiencies ☐

Patient Care 3: Acute Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies patients with acute cardiac conditions (e.g., acute coronary syndromes, cardiogenic shock, decompensated heart failure, arrhythmias)	Manages patients with acute cardiac conditions (e.g., acute coronary syndromes, cardiogenic shock, decompensated heart failure, and arrhythmias), with direct supervision Performs inpatient cardiovascular consultation, with direct supervision Identifies options available for advanced therapies	Manages patients with acute cardiac conditions (e.g., acute coronary syndromes, cardiogenic shock, decompensated heart failure, and arrhythmias), with indirect supervision Performs inpatient cardiovascular consultation, with indirect supervision Identifies patients appropriate for advanced therapies and when to initiate end-of-life care	Manages independently patients with acute cardiac conditions (e.g., acute coronary syndromes, cardiogenic shock, decompensated heart failure, and arrhythmias) Effectively performs inpatient cardiovascular consultation Coordinates advanced therapies and end-of-life care	Functions as an exceptional team leader in the acute care setting Advances quality of clinical practice in the treatment strategies for acute cardiovascular conditions Effectively develops team-based care models in management of acute cardiovascular conditions
☐	☐	☐	☐	☐
Comments: Not Yet Assessable ☐ Critical Deficiencies ☐				

Patient Care 4: Chronic Care for Cardiovascular Conditions				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes clinical signs and symptoms of common chronic cardiovascular conditions	Diagnoses and monitors for complications or changes related to common chronic cardiovascular conditions, with direct supervision	Diagnoses and monitors for complications or changes related to common chronic cardiovascular conditions, with indirect supervision	Diagnoses and monitors for complications or changes related to complex chronic cardiovascular conditions	Functions as an exceptional team leader in the chronic care setting
Discusses the treatment strategies for common cardiovascular conditions	Develops treatment strategies for common chronic cardiovascular conditions, with direct supervision	Develops treatment strategies for common chronic cardiovascular conditions, with indirect supervision	Develops treatment strategies for complex chronic cardiovascular conditions	Advances quality of clinical practice in the treatment strategies for chronic cardiovascular conditions
	Effectively participates in team-based care in management of common chronic cardiovascular conditions, with direct supervision	Effectively participates in team-based care in management of common chronic cardiovascular conditions, with indirect supervision	Effectively participates in team-based care in management of complex chronic cardiovascular conditions	Effectively develops and implements team-based care models in management of chronic cardiovascular conditions
☐	☐	☐	☐	☐
Comments:				Not Yet Assessable ☐ Critical Deficiencies ☐

Patient Care

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

_____ Yes _____ No _____ Conditional on Improvement

Medical Knowledge 1: Cardiovascular Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Knows available cardiovascular tests	Demonstrates knowledge of indications and contraindications for cardiovascular testing Knows the basic measurements obtained from the various cardiovascular testing modalities	Demonstrates knowledge of appropriate selection and use of cardiovascular testing for patients with common cardiovascular disorders Identifies key test findings in common cardiovascular disorders	Applies knowledge of appropriate selection and use of cardiovascular testing for patients with complex cardiovascular disorders Identifies key test findings in complex cardiovascular disorders	Advances knowledge in indications, contraindications, and appropriate use for cardiovascular testing Advances knowledge in defining the role of cardiovascular testing
☐	☐	☐	☐	☐
Comments:				Not Yet Assessable ☐ Critical Deficiencies ☐

Medical Knowledge 2: Critical Thinking for Diagnosis and Therapy				
Level 1	Level 2	Level 3	Level 4	Level 5
Lists a differential diagnosis for common clinical presentations	Provides a comprehensive differential diagnosis for a wide range of clinical presentations	Provides a focused differential diagnosis based on individual patient presentation	Diagnoses patients with challenging presentations and uncommon disorders	Disseminates knowledge of challenging presentations and uncommon disorders
Lists therapeutic options for common clinical presentations	Explains advantages and drawbacks of standard therapeutic options	Justifies optimal therapeutic option based on individual patient presentation	Develops therapeutic plan for patients with challenging presentations and uncommon disorders	
☐	☐	☐	☐	☐
Comments:				Not Yet Assessable ☐ Critical Deficiencies ☐

Medical Knowledge

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

____ Yes ____ No ____ Conditional on Improvement

Systems-Based Practice 1: Patient Safety and Quality Improvement				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of common patient safety events	Identifies system factors that lead to patient safety events	Participates in analysis of patient safety events (simulated or actual)	Conducts analysis of patient safety events and offers error prevention strategies (simulated or actual)	Actively engages teams and processes to modify systems to prevent patient safety events
Demonstrates knowledge of how to report patient safety events	Reports patient safety events through institutional reporting systems (simulated or actual)	Participates in disclosure of patient safety events to patients and families (simulated or actual)	Discloses patient safety events to patients and families (simulated or actual)	Role models or mentors others in the disclosure of patient safety events
Demonstrates knowledge of basic quality improvement methodologies and metrics	Describes quality improvement initiatives at the institutional or departmental level	Participates in quality improvement initiatives at the institutional or departmental level	Demonstrates the skills required to identify, develop, implement, and analyze a quality improvement project	Creates, implements, and assesses quality improvement initiatives at the institutional or community level
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 2: System Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of care coordination	Coordinates care of patients in routine clinical situations, effectively using the roles of the interprofessional teams	Coordinates care of patients in complex clinical situations, effectively using the roles of their interprofessional teams	Role models effective coordination of patient-centered care among different disciplines and specialties	Analyzes the process of care coordination and leads in the design and implementation of improvements
Identifies key elements for effective transitions of care	Performs effective transitions of care in routine clinical situations	Performs effective transitions of care in complex clinical situations	Role models and advocates for effective transitions of care within and across health care delivery systems	Improves quality of transitions of care within and across healthcare delivery systems to optimize patient outcomes
	Demonstrates general knowledge of barriers to adherence of care	Identifies barriers to adherence of care to specific populations	Adapts practice to address barriers to adherence of care	Leads innovations and advocates for populations and communities with specific health care needs
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 3: Physician Role in Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key components of the health care system (e.g., hospital, skilled nursing facility, finance, personnel, technology)	Describes how components of a complex health care system are interrelated, and how this impacts patient care	Discusses how individual practice affects the broader system (e.g., length of stay, readmission rates, clinical efficiency)	Manages various components of the complex health care system to provide efficient and effective patient care and transition of care	Advocates for or leads systems change that enhances high-value, efficient and effective patient care and transition of care
Describes basic health payment systems, (e.g., government, private, public, uninsured care) and practice models	Delivers care with consideration of each patient's payment model (e.g., insurance type)	Engages with patients in shared decision making, informed by each patient's payment models	Advocates for patient care needs (e.g., community resources, patient assistance resources) with consideration of the limitations of each patient's payment model	Participates in health policy advocacy activities
	Demonstrates essential skills for documentation required for independent practice (e.g., electronic health record, documentation required for billing and coding)	Seeks knowledge in non-clinical topics needed for independent practice (e.g., malpractice insurance, government regulation, compliance)	Applies knowledge in non-clinical topics needed for independent practice	Educates others in non-clinical topics to prepare them for independent practice
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

_____ Yes _____ No _____ Conditional on Improvement

Practice-Based Learning and Improvement 1: Evidence-Based and Informed Practice				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and use available evidence to manage a patient with cardiac disease	Articulates clinical questions and elicits patient preferences to guide evidence-based care	Locates and applies the best available evidence to the care of patients with complex cardiac disease while integrating patient preference	Critically appraises and applies available, potentially conflicting evidence to guide care of an individual patient	Develops initiatives to educate others to critically appraise and apply evidence for complex patients and/or participates in the development of guidelines
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Practice-Based Learning and Improvement 2: Reflective Practice and Commitment to Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Accepts responsibility for personal and professional development by establishing goals	Demonstrates openness to feedback and performance data in order to form goals	Occasionally seeks feedback and performance data with adaptability and humility	Systematically seeks feedback and performance data with adaptability and humility	Coaches others to seek feedback and performance data
Acknowledges limits and gaps between expectations and performance; demonstrates self-awareness	Analyzes the factors which contribute to limits and gaps; demonstrates appropriate help-seeking behaviors	Creates and implements a learning plan	Uses performance data to assess learning plan and improves it when necessary	Facilitates the design and implementation of learning plans for others
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Practice-Based Learning and Improvement

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

_____ Yes _____ No _____ Conditional on Improvement

Professionalism 1: Professional Behavior and Ethical Principles				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies and describes potential triggers for professionalism lapses	Demonstrates insight into professional behavior in routine situations	Demonstrates professional behavior in complex or stressful situations	Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	Coaches others when their behavior fails to meet professional expectations
Demonstrates knowledge of ethical principles (e.g., informed consent, advance directives, confidentiality, patient autonomy)	Applies knowledge of ethical principles to routine situations	Recognizes need to seek help in managing and resolving complex ethical situations	Uses appropriate resources for managing and resolving ethical dilemmas (e.g., ethics consultations, risk management)	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Professionalism 2: Accountability				
Level 1	Level 2	Level 3	Level 4	Level 5
Takes responsibility for failure to complete tasks and responsibilities, identifies potential contributing factors, and describes strategies for ensuring timely task completion in the future Recognizes the principles of conflict of interest in relationships with industry and other entities	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in routine situations Recognizes personal potential conflicts with industry	Performs tasks and responsibilities in a timely manner with appropriate attention to detail in complex or stressful situations Seeks assistance in managing personal relationships with industry and other entities to minimize bias and undue influence in practice	Recognizes situations that may impact others' ability to complete tasks and responsibilities in a timely manner Identifies, discloses, and manages relationships with industry and other entities to minimize bias and undue influence in practice	Engages with the system to improve outcomes
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Professionalism 3: Self-Awareness and Well-Being				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes the importance of personal and professional well-being	Independently recognizes status of personal and professional well-being	With assistance, proposes a plan to optimize personal and professional well-being	Independently develops a plan to optimize personal and professional well-being	Participates in a system change to improve well-being in self and others
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

This subcompetency is not intended to evaluate a fellow's well-being. Rather, the intent is to ensure that each fellow has the fundamental knowledge of factors that affect well-being, the mechanisms by which those factors affect well-being, and available resources and tools to improve well-being.

Professionalism

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

_____ Yes _____ No _____ Conditional on Improvement

Interpersonal and Communication Skills 1: Patient and Family-Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates respect and establishes rapport in patient encounters	Establishes a therapeutic relationship in routine patient encounters	Establishes a therapeutic relationship in challenging patient encounters, with guidance	Independently establishes a therapeutic relationship in challenging patient encounters	Mentors others in situational awareness and critical self-reflection to consistently develop positive therapeutic relationships
Knows barriers to effective communication (e.g., language, disability, health literacy, bias)	Identifies barriers to effective communication in patient encounters	Attempts to minimize communication barriers, including reflection on any biases	Proactively minimizes communication barriers and independently manages biases	Role models self-awareness to minimize communication barriers
Identifies the need to adjust communication strategies to achieve shared decision making	Organizes and initiates communication with patient/family to facilitate shared decision making	Uses shared decision making to implement a personalized care plan, under guidance	Independently, uses shared decision making to implement a personalized care plan	Role models shared decision making
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Interpersonal and Communication Skills 2: Interprofessional and Team Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Respectfully receives a consultation request	Respectfully and thoroughly completes consultations with effective documentation and communication in common cases, with direct supervision	Completes consultations with effective documentation and communication in common cases, with indirect supervision	Completes consultations with effective documentation and communication in complex cases	
Uses language that values all members of the health care team	Communicates information effectively with all health care team members	Adapts communication style to fit team needs	Coordinates recommendations from different members of the health care team to optimize patient care	Role models flexible communication strategies that value input from all health care team members, resolving conflict when needed
	Participates in team-based discussions to optimize team performance	Initiates team-based discussions to optimize team performance	Facilitates team-based discussions to optimize team performance	Facilitates regular health care team-based feedback in complex situations
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Interpersonal and Communication Skills 3: Communication within Health Care Systems				
Level 1	Level 2	Level 3	Level 4	Level 5
Accurately records information in the patient record and safeguards patient personal health information	Demonstrates organized diagnostic and therapeutic reasoning through notes in the patient record Identifies appropriate communication channels (e.g., cell phone/ pager usage, medical record, email) as required by institutional policy	Concisely reports diagnostic and therapeutic reasoning in the patient record Respectfully communicates concerns about the system	Independently communicates timely information in a written format and verbally when appropriate Uses appropriate channels to offer clear and constructive suggestions to improve the system	Models written communication to improve others' performance Guides departmental or institutional communication around policies and procedures
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Interpersonal and Communication Skills

The fellow is demonstrating satisfactory development of the knowledge, skill, and attitudes/behaviors needed to advance in the training program. He or she is demonstrating a learning trajectory that anticipates the achievement of competency for unsupervised practice that includes the delivery of safe, effective, patient-centered, timely, efficient, and fair care.

_____ Yes _____ No _____ Conditional on Improvement

Overall Clinical Competence

This rating represents the assessment of the fellow's development of overall clinical competence during this year of training:

____ Superior: Far exceeds the expected level of development for this year of training

____ Satisfactory: Always meets and occasionally exceeds the expected level of development for this year of training

____ Conditional on Improvement: Meets some developmental milestones but occasionally falls short of the expected level of development for this year of training. An improvement plan is in place to facilitate achievement of competence appropriate to the level of training.

____ Unsatisfactory: Consistently falls short of the expected level of development for this year of training.