

The Preventive Medicine Milestone Project: Public Health and General Preventive Medicine

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. 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 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 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).

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 midresidency 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 4 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 ACGME website's Milestone page under the heading "Educational Materials." These assessment tools are not required.

ACGME Milestone Report Form

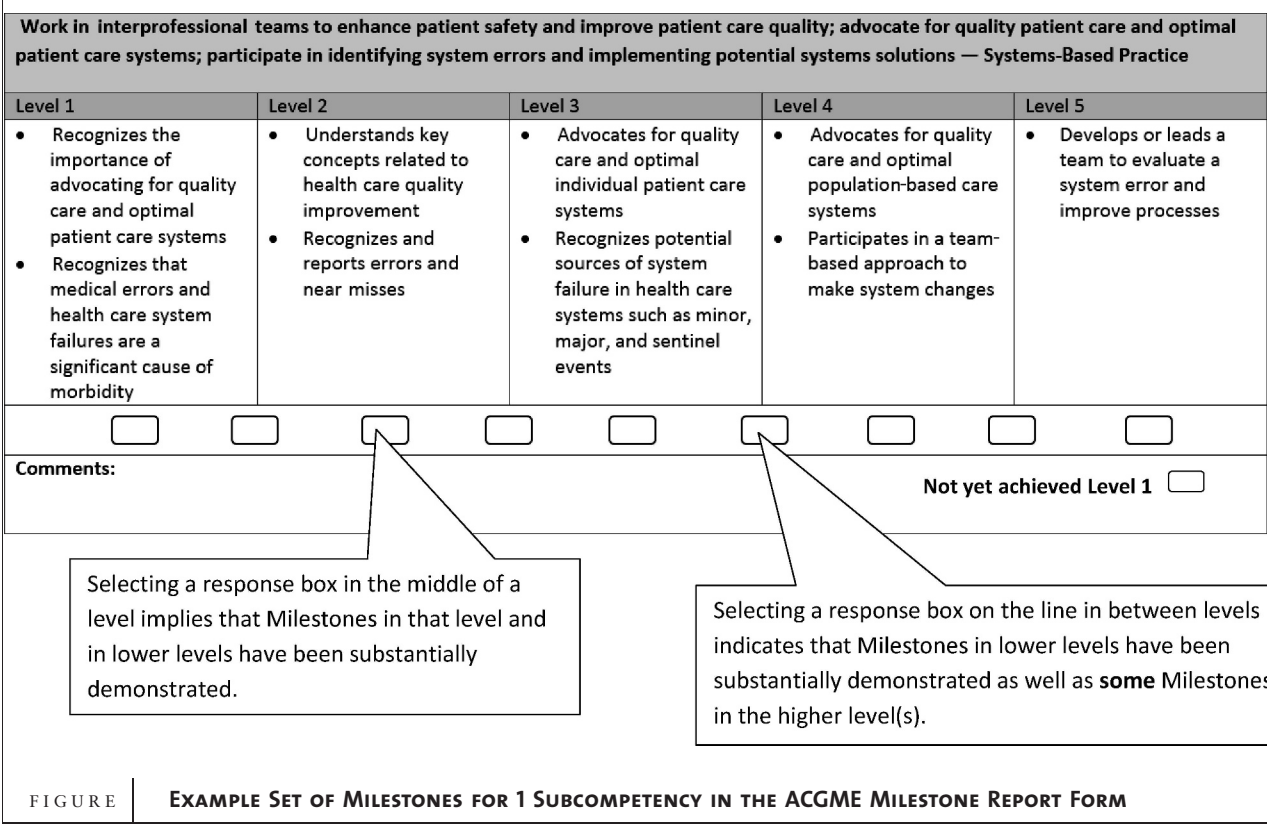
The FIGURE presents an example set of Milestones for 1 subcompetency in the same format as the Milestone Report Form. For each reporting period, a resident's performance on the Milestones for each subcompetency will be indicated by:

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- 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.”



PREVENTIVE MEDICINE: PUBLIC HEALTH AND GENERAL PREVENTIVE MEDICINE MILESTONES

PATIENT CARE					
Emergency Preparedness and Response: Apply skills in emergency preparedness and response—Patient Care 1					
Level 1	Level 2	Level 3	Level 4	Level 5	
Demonstrates basic skills in emergency medical care	- Demonstrates knowledge of triage concepts - Demonstrates basic knowledge of emergency preparedness programs	Demonstrates and applies understanding of emergency preparedness programs	Demonstrates the ability to develop and evaluate the medical portion of an emergency plan	Provides leadership in developing, implementing, and evaluating emergency preparedness programs	
Community Health: Monitor, diagnose, and investigate community health problems—Patient Care 2					
Level 1	Level 2	Level 3	Level 4	Level 5	
Identifies common health issues in a community	Identifies basic health status measures to assess/investigate a community's health	Selects and describes appropriate health status measures to assess a community's health	Monitors and interprets single health status indicator of the community	Monitors and interprets multiple and/or complex health status indicators of the community	
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	
Conveys basic health information to individuals or small groups	Identifies proper communication techniques related to health threats and risks	Prepares and delivers a basic health hazard/risk presentation	Conveys complex health information to educate a community or group and responds to queries about risk	Conveys sensitive/high-stakes health information to educate a community or group through a variety of media platforms	
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	
Diagnoses disease and develops an individualized treatment plan	Links individuals to needed personal health services including appropriate referrals and follow-ups	Applies primary, secondary, and tertiary preventive approaches to disease prevention and health promotion for individuals or communities, with minimal supervision	Applies primary, secondary, and tertiary preventive approaches to disease prevention and health promotion for the individuals and community	Contributes to the development and/or implementation of a policy to improve community health efforts	

Evaluating Health Services: Evaluate population-based health services—Patient Care 5				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes distinctions between population and individual health services	- Describes basic measures of effect (eg, risk ratio) - Describes basic measures of quality (eg, benchmarking) - Lists populations known to be underserved (eg, low income)	- Assesses evidence for effectiveness of a population-based health service - Uses scientific literature to identify a target population for a given population-based health service - Uses scientific literature to identify barriers to delivery of population-based health service	- Uses program goals and/or established performance criteria to evaluate a population-based health service - Uses evaluation findings to recommend strategic or operational improvements - Uses data to identify barriers to population-based health services	Develops program goals and/or performance criteria to evaluate a population-based health service
Descriptive Epidemiology: Able to characterize the health of a community—Patient Care 6				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies and recognizes basic measures of disease frequency (incidence, prevalence, mortality) and risk (risk ratios, odds ratios)	Knows methods for calculating basic measures of disease frequency and risk	For a defined population, uses data to calculate measures of disease frequency and 1 or more risk factors for a specified disease or condition	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 1 disease or condition	Uses data to fully characterize the health of a 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 a range of diseases and conditions
Analytic Epidemiology: Able to design and conduct an epidemiologic study—Patient Care 7				
Level 1	Level 2	Level 3	Level 4	Level 5
Distinguishes between experimental and observational studies	Explains what is meant by validity, bias, confounding, and effect modification; describes commonly used study designs (eg, randomized controlled trial, cohort, case-control, cross-sectional); distinguishes between association and causation; lists criteria for causal inference	Critically reviews and interprets epidemiologic literature for commonly used study designs, identifying purpose, population, design, and biases	Able to design and conduct a basic epidemiological study (defines aims; selects appropriate study designs; collects, analyzes, and interprets data; identifies limitations; summarizes and discusses findings)	Independently designs and conducts a complex epidemiological study that addresses confounding and effect modification analytically, suitable for peer-reviewed publication

Disease Outbreak: Investigate and respond to a cluster or outbreak—Patient Care 8				
Level 1	Level 2	Level 3	Level 4	Level 5
- Understands that clusters or outbreaks occur - Identifies most common methods for preventing individual disease spread (eg, hand hygiene)	- Understands common environmental, health, and behavioral risk factors associated with clusters or outbreaks occurring (eg, congregate settings, immunocompromised populations, and drug abuse) - Understands aspects of disease that predispose to outbreak development (eg, high infectivity, subclinical phase) - Identifies most common methods for preventing disease spread in populations (eg, quarantine, isolation)	- Recognizes sentinel event; uses surveillance, hospital, vital statistics, or other data to establish the existence of a cluster or outbreak - Establishes a case definition, including clinical and laboratory findings; participates in collection of demographic, clinical, and/or risk factor information from cases - Understands approaches for mitigating and responding to a cluster or outbreak	- Implements a plan to investigate and collects data to describe a cluster or outbreak - Characterizes and interprets data collected from a cluster or outbreak investigation - Applies a strategy or plan for management of an outbreak (eg, limiting spread, mitigating effects)	- Designs a strategy to investigate a cluster or outbreak of a novel disease or atypical disease presentation - Leads a team to investigate and manages an outbreak, including supervision of staff, assignment of roles, program design, monitoring of effectiveness, etc
Surveillance Systems: Design and operate a surveillance system—Patient Care 9				
Level 1	Level 2	Level 3	Level 4	Level 5
- Aware of the need to report selected diseases to public health authorities - Aware of the need for surveillance systems in a variety of settings (eg, public health agencies, hospitals, clinics, nursing homes)	- Identifies commonly used surveillance data sources (eg, Behavioral Risk Factor Surveillance System, vital statistics, hospital discharge data) and the conditions typically monitored using such systems - Recognizes difference between active and passive surveillance	- Thoroughly describes the components of an existing surveillance system (eg, aims, stakeholders, data sources, quality, uses, etc) - Develops a list of challenges in designing and maintaining a surveillance system	- Analyzes surveillance data to identify appropriate targets for individual, community, and/or systems interventions - Evaluates 1 or more aspects of the quality and effectiveness of a surveillance system (eg, data completeness, ease of use, compliance)	Independently designs and operates a new surveillance system
Clinical Preventive Services (CPS): Analyze evidence regarding the performance of proposed clinical preventive services for individuals and populations—Patient Care 10				
Level 1	Level 2	Level 3	Level 4	Level 5
Locates and appraises evidence from a scientific study related to a patient's health problem	Leads a discussion with peers of the strengths and weaknesses of an individual study relevant to CPS	Participates in the examination of evidence to address proposed CPS	Participates in the development or analysis of a guideline to address proposed CPS	Systematically examines scientific evidence and develops an evidence-based guideline to address proposed CPS

Conditions of Public Health Significance: Implement appropriate clinical care for individuals with conditions of public health significance—Patient Care 11				
Level 1	Level 2	Level 3	Level 4	Level 5
- Obtains history and basic physical - Prescribes indicated medications	- Generates a differential diagnosis for a disease or condition of public health significance and proposes a treatment plan - Identifies diseases and conditions that require a public health response	- Accurately diagnoses and effectively treats common presentations of diseases/conditions of public health significance with direct supervision - Participates in an appropriate public health intervention for a disease or condition that requires a public health response	- Accurately diagnoses and effectively treats common presentations of diseases/conditions of public health significance - Initiates an appropriate public health intervention for a disease or condition that requires a public health response	Accurately diagnoses and effectively treats complex conditions and unusual presentations of diseases/conditions of public health significance
Preventive Services: Select and provide appropriate evidence-based CPS—Patient Care 12				
Level 1	Level 2	Level 3	Level 4	Level 5
Prescribes immunizations and chemoprophylaxis	Identifies major risk factors of individual patients that would benefit from CPS; understands the recommendations of the US Preventive Services Task Force (USPSTF)	Assesses relevant risks for disease and injury in individual patients and uses patient information, scientific evidence, USPSTF guidelines, and clinical judgment to select appropriate CPS for individual patients	Comprehensively assesses risks for diseases and injuries, and appropriately applies USPSTF and other evidence-based guidelines regarding screening, counseling, preventive medications, and immunization to individual patients	Comprehensively assesses risks for diseases and injuries, and appropriately applies USPSTF and other evidence-based guidelines regarding clinical preventive services in individual patients with complex health or social conditions (eg, hospitalized, homeless, or nursing home patients)
MEDICAL KNOWLEDGE				
Behavioral Health—Medical Knowledge 1				
Level 1	Level 2	Level 3	Level 4	Level 5
- Lists major effects of individual behavior on health - Recognizes that social and behavioral factors influence population health	- Identifies social and behavioral factors that affect health of individuals - Identifies social and behavioral factors that affect health of populations	- Identifies best practice and tools to assess risk behaviors - Describes effective approaches to modify individual health behaviors - Describes effective approaches to modify population health behaviors - Identifies the causes of social and behavioral factors that affect health of populations	- Integrates best practices and tools to assess risk behaviors - Implements effective approaches to modify individual health behaviors - Integrates best practices and tools to assess population risk behaviors - Implements effective approaches to modify population health behaviors	Develops and evaluates programs to change health behaviors of individuals

Environmental Health—Medical Knowledge 2				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies major routes of human exposure to environmental toxicants	- Identifies common illnesses that may be caused or influenced by environmental exposures - Identifies broad environmental factors that may impact the health of a community	- Describes individual factors that impact susceptibility to adverse health effects from environmental exposures - Identifies potential population health effects from exposure to chemical, physical, and biological hazards	- Recommends methods of reducing adverse environmental health effects for individuals - Identifies sources and routes of environmental exposures to chemical, physical, and biological hazards for defined populations	- Recommends, interprets, and explains the results of individual environmental monitoring - Interprets and explains population level environmental monitoring results
Biostatistics—Medical Knowledge 3				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes common statistical concepts (eg, measures of central tendency, <i>P</i> values, and confidence intervals)	Defines common statistical concepts (eg, <i>P</i> values and confidence intervals); describes frequently used statistical tests (eg, paired and unpaired <i>t</i> tests, chi-square tests, and others)	Independently utilizes simple statistical methods (eg, paired and unpaired <i>t</i> tests, chi-square tests, and appropriate nonparametric tests) to describe small data sets; participates in the use of statistical software to perform statistical tests; understands more advanced statistical methods (eg, linear and logistic regression)	Selects appropriate methods for analyzing data; performs data analyses using more advanced statistical methods (eg, linear and logistic regression); utilizes appropriate software for data management and statistical analyses; recognizes the need to use complex statistical analyses (eg, survival analysis, repeated measures)	Independently analyzes large data sets using complex statistical methods
SYSTEMS-BASED PRACTICE				
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
Recognizes various individual and population-based health care/ services delivery settings and systems	Works and coordinates individual patient care in various health care delivery settings and systems	Works and coordinates population-based health services in various health care delivery settings and systems	Assesses organizational performance of health care delivery system	Interacts with other stakeholders to improve the performance of the system
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
Recognizes the importance of cost awareness and risk-benefit analysis in patient and/or population-based care	Identifies risks, benefits, and costs for a preventive service in an individual clinical patient	Demonstrates sound judgment relating to risks, benefits, and costs for a preventive service in an individual clinical patient	Demonstrates sound judgment relating to risks, benefits, and costs for a preventive service for a population	Articulates and weighs the costs, benefits, and risks of a proposed population-based service

Work in interprofessional 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
- Recognizes the importance of advocating for quality care and optimal patient care systems - Recognizes that medical errors and health care system failures are a significant cause of morbidity	- Understands key concepts related to health care quality improvement - Recognizes and reports errors and near misses	- Advocates for quality care and optimal individual patient care systems - Recognizes potential sources of system failure in health care systems, such as minor, major, and sentinel events	- Advocates for quality care and optimal population-based care systems - Participates in a team-based approach to make system changes	Develops or leads a team to evaluate a system error and improve processes
PRACTICE-BASED LEARNING AND IMPROVEMENT				
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				
Level 1	Level 2	Level 3	Level 4	Level 5
- Acknowledges gaps in personal knowledge and expertise, and frequently asks for feedback - Understands the importance of setting learning and improvement goals - Identifies problems in health care delivery and gaps in care	- Assesses professional performance in a structured manner - Begins to develop learning and improvement goals, based on feedback, with some external assistance - Uses information technology to locate scientific studies related to patient health problems - Understands the essentials of quality improvement	- Incorporates feedback and assessments into practice improvement - Develops learning and improvement goals, based on feedback, with minimal external assistance - Critically appraises scientific studies related to patient health problems - Defines and constructs process and outcomes measures of quality	- Assesses performance by incorporating feedback and assessments from multiple stakeholders (eg, patients, members of the health care team, third-party payers) - Assimilates evidence from scientific studies into practice - Participates in a quality improvement project	- Creates novel ways to assess performance - Creates professional educational opportunities for others - Systematically designs and carries out quality improvement project in clinical and other health settings

PROFESSIONALISM					
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					
Level 1	Level 2	Level 3	Level 4	Level 5	
- 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 - Aware of basic bioethical principles; identifies ethical issues in clinical situations	- 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 - Consistently recognizes ethical issues in practice; discusses, analyzes, and manages in common clinical situations	- 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 - Effectively analyzes and manages ethical issues in difficult clinical situations	- Balances ethical principles required for individual patient care with those needed for addressing population health - Consistently and effectively analyzes and manages ethical issues in both clinical and population-based medicine	Develops organizational policies and education to support the application of these principles in the practice of individual and population-based medicine	
Accountability to patients, society, and the profession—Professionalism 2					
Level 1	Level 2	Level 3	Level 4	Level 5	
- Recognizes limits of knowledge in most clinical situations - Understands importance of physician accountability - Aware of the basic causes of impairment in professionals, such as fatigue and substance use	- Consistently recognizes limits of knowledge in common clinical situations and asks for assistance - Demonstrates physician accountability to individual patients in clinical situations - Identifies resources to address impairment of professionals	- Appropriately engages other members of the health care team - Demonstrates physician accountability to a patient population in clinical situations - Able to recognize impairment in themselves or other members of the health care team	- Consistently demonstrates the ability to identify limits of own knowledge and proactively incorporates the expertise of others from the health care team into clinical and population-based practice - Demonstrates physician accountability to patients, society, and profession in the performance of clinical and population-based duties - Able to respond appropriately to impairment in members of the health care team	- Acts as a consultant for clinical and population health topics - Exemplifies ethical leadership in clinical and population-based settings	

Interpersonal Communication and Skills					
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 and Skills 1					
Level 1	Level 2	Level 3	Level 4	Level 5	
- Recognizes the importance of effective communication with patients, families, and the public - Recognizes the importance of effective communication with the health care team - Recognizes the importance of working with other members of the health care team	- Demonstrates effective communication with patients, families, or the public in common situations - Demonstrates effective communication with the health care team in common situations - Works effectively with the health care team in common situations	- Demonstrates effective communication with patients or the public in issues related to confidential and/or highly sensitive medical information - Demonstrates effective communication with the health care team in clinical and population settings - Works effectively with the health care team in clinical and population settings	- Demonstrates effective communication with patients and the public in issues related to confidential and/or highly sensitive medical information using multiple communication modalities - Able to communicate effectively with the health care team in stressful situations/crises - Works effectively with the health care team in stressful situations/crises	- Creates policy for effective communication of complex health information - Demonstrates effective communication outside of the local health care environment, such as state and federal agencies, regional health care systems - 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	
Maintain comprehensive, timely, and legible medical records, including electronic health records (EHR)—Interpersonal Communication and Skills 2					
Level 1	Level 2	Level 3	Level 4	Level 5	
Recognizes the importance of maintaining timely and legible records, including EHR	Maintains timely and legible records, including EHR	Maintains complete, timely, and legible records, including EHR	Consistently maintains complete, timely, and legible records, including EHR	Develops a protocol for record maintenance	