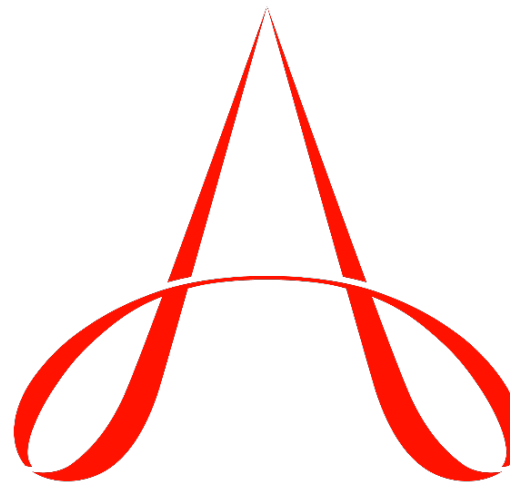




Hematopathology Milestones

The Accreditation Council for Graduate Medical Education



ACGME

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Second Revision: November 2020
First Revision: May 2014

Hematopathology 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.

Hematopathology Milestones Work Group

Laura Edgar, EdD, CAE

Lauren King, MD

Kamran Mirza, MD, PhD

Sydney McLean, MHA

Megan Nakashima, MD

Benjamin Rosen, DO

Teresa Scordino, MD

Filiz Sen, MD

Aaron Shaver, MD, PhD

Lori Soma, MD

Cody Thomas, MD

Kristie White, MD, MAEd

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American Board of Pathology

Review Committee for Pathology

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 resident/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 resident 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.

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 subcompetency will be indicated by selecting the level of milestones that best describes that fellow's performance in relation to those milestones.

Practice-Based Learning and Improvement 2: Commitment to Reflective Practice and Personal Growth				
Level 1	Level 2	Level 3	Level 4	Level 5
Establishes personal and professional goals, identifying gap(s) between goals and current performance	Demonstrates receptiveness to feedback, analyzing and reflecting on factors contributing to gap(s) between goals and current performance Designs and implements a learning plan, with prompting	Seeks feedback episodically, and institutes behavioral change(s) when necessary Independently creates and implements an individualized learning plan	Seeks feedback consistently, and sustains behavioral change as necessary Uses performance data to measure the effectiveness of the learning plan and when necessary, improves it	Role models consistently seeking performance data with adaptability and humility, and coaches others on reflective practice Facilitates the design and implementing learning plans for others
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

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: Interdisciplinary Consultation				
Level 1	Level 2	Level 3	Level 4	Level 5
For simple consultations, outlines next steps in basic hematology and hematopathology work-up and lists available resources useful in consultation	Manages consultations (e.g., obtains appropriate additional clinical information, accesses available resources, recommends next steps, documents appropriately), with assistance	Manages complex consultations, with assistance; manages simple consultations independently	Manages complex consultations independently	Recognized as an expert in providing comprehensive consultations
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Patient Care 2: Reporting				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies the importance of key elements of a report and timely reporting for optimal patient care	Generates a timely report including key elements for a simple case, with assistance	Generates a timely report for a complex case, with assistance; independently generates well-organized reports for simple cases	Independently generates a timely, well-organized, integrated report for complex cases	Independently generates a nuanced, integrated report that expresses the ambiguity and uncertainty for a complex case
Identifies the need for amended/addended reports when appropriate	Generates an amended/addended report that includes updated information, with assistance	Independently generates an amended/addended report that includes updated information	Generates an amended/addended report that includes updated information, and integrates findings into a final diagnosis	
☐	☐	☐	☐	☐
Comments:			Not Yet Completed Level 1 ☐ Not Yet Rotated ☐	

Patient Care 3: Procedure: Bone Marrow Aspiration and Biopsy				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes the indications and contraindications of bone marrow aspiration and biopsy	Assists in the performance of bone marrow aspiration and biopsy	Performs bone marrow aspiration and biopsy, with supervision	Independently performs bone marrows aspiration and biopsy	Teaches others to perform bone marrow aspiration and biopsy
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Patient Care 4: Specimen Handling and Triaging				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes specimen handling and processing requirements for blood, bone marrow, and body fluid samples	Designates blood, bone marrow, and body fluid for required ancillary testing given indication for procedure	Prioritizes blood, bone marrow, and body fluid for required ancillary testing given indication for procedure, including limited samples, under supervision	Independently prioritizes blood, bone marrow, and body fluid for required ancillary testing given indication for procedure, including limited samples	Serves as a resource for specimen handling and triaging
Describes specimen handling and processing requirements for lymphoid tissue samples	Designates lymphoid tissue for required ancillary testing given indication for procedure	Prioritizes lymphoid tissue for required ancillary testing given indication for procedure, including limited samples, under supervision	Independently prioritizes lymphoid tissue for required ancillary testing given indication for procedure, including limited samples	
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Medical Knowledge 1: Interpretation of Hematology Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic methodology and pathophysiology of hematology disorders	Interprets testing results for common hematology disorders, with assistance	Independently interprets testing results for common hematology disorders and recognizes limitations of testing	Interprets testing results for complex hematology disorders and recognizes limitations of testing	Serves as an expert resource in hematology testing
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Medical Knowledge 2: Interpretation of Coagulation Testing				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic methodology and pathophysiology of coagulation disorders	Interprets testing results for common coagulation disorders, with assistance	Independently interprets testing results for common coagulation disorders and recognizes limitations of testing	Interprets testing results for complex coagulation disorders and recognizes limitations of testing	Serves as an expert resource in coagulation testing
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Medical Knowledge 3: Interpretation of Flow Cytometry				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes basic methodology of flow cytometry and patterns of antigen expression of hematopoietic cells	Interprets flow cytometry results for common disorders, with assistance	Independently interprets flow cytometry results for common disorders and recognizes pitfalls and limitations of testing	Interprets flow cytometry results for complex disorders and recognizes pitfalls and limitations of testing	Serves as an expert resource in interpretation of flow cytometry
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Medical Knowledge 4: Morphologic Interpretation and Diagnosis				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates basic knowledge of peripheral blood, bone marrow, and body fluid morphology to identify simple pathologic diagnoses, with guidance	Independently applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify simple pathologic diagnoses	Applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify complex pathologic diagnoses, with guidance	Independently applies knowledge of peripheral blood, bone marrow, and body fluid morphology to identify complex pathologic diagnoses	Recognized as an expert in the integration of hematolymphoid morphologic knowledge to pathologic diagnoses
Demonstrates basic knowledge of lymphoid tissue morphology to identify simple pathologic diagnoses, with guidance	Independently applies knowledge of lymphoid tissue morphology to identify simple pathologic diagnoses	Applies knowledge of lymphoid tissue morphology to identify complex pathologic diagnoses, with guidance	Independently applies knowledge of lymphoid tissue morphology to identify complex pathologic diagnoses	
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Medical Knowledge 5: Selection of Molecular and Cytogenetics Testing and Interpretation of Reports				
Level 1	Level 2	Level 3	Level 4	Level 5
Describes available ancillary tests, including cytogenetics and molecular testing, based on morphologic findings	Proposes appropriate ancillary tests for morphologic findings	Interprets simple ancillary test reports, considering technical limitations	Interprets complex ancillary test reports including diagnostic uncertainty and clinical ramifications	Serves as an expert resource for the interpretation of ancillary test reports
☐	☐	☐	☐	☐
Comments:			Not Yet Completed Level 1 ☐ Not Yet Rotated ☐	

Medical Knowledge 6: Clinical Reasoning in Hematopathology and Hematology				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates a basic framework for clinical reasoning	Demonstrates clinical reasoning to determine relevant information	Synthesizes information to inform clinical reasoning, with assistance	Independently synthesizes information to inform clinical reasoning in complex cases	Demonstrates intuitive approach to clinical reasoning for complex cases
Identifies resources to inform clinical reasoning	Selects relevant resources based on scenario to inform decisions	Seeks and integrates evidence-based information to inform diagnostic decision making in complex cases, with assistance	Independently seeks out, analyzes, and applies relevant original research to diagnostic decision making in complex clinical cases	
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐ Not Yet Rotated ☐				

Systems-Based Practice 1: Patient Safety and Quality Improvement (QI)				
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 clinicians and/or patients and families, as appropriate (simulated or actual)	Discloses patient safety events to clinicians and/or patients and families, as appropriate (simulated or actual)	Role models or mentors others in the disclosure of patient safety events
Demonstrates knowledge of basic QI methodologies and metrics	Describes departmental and institutional QI initiatives	Participates in departmental and institutional QI initiatives	Demonstrates the skills required to identify, develop, implement, and analyze a QI project	Creates, implements, and assesses QI initiatives at the institutional or community level
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 2: Systems Navigation for Patient-Centered Care				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of case coordination	Coordinates care of patients/specimens in routine cases effectively using interprofessional teams	Coordinates care of patients/specimens in complex cases effectively using interprofessional teams	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 safe and effective transitions of care and hand-offs	Performs safe and effective transitions of care/hand-offs in routine situations	Performs safe and effective transitions of care/hand-offs in complex situations	Models and advocates for safe and effective transitions of care/hand-offs within and across health care delivery systems	Improves quality of transitions of care within and across health care delivery systems to optimize patient outcomes
Demonstrates knowledge of population and community health needs and disparities	Identifies pathology's role in population and community health needs and inequities for the local population	Identifies opportunities for pathology to participate in community and population health	Recommends and/or participates in changing and adapting practice to provide for the needs of communities and populations	Leads innovations and advocates for populations and communities with health care inequities
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 3: Physician Role in Health Care System				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies key components of the complex health care system (e.g., hospital, 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., test use, turnaround time)	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	Documents testing detail and explains the impact of documentation on billing and reimbursement	Engages with clinicians and/or patients in shared decision making, such as use of preauthorization for complex testing	Practices and advocates for cost effective patient care with consideration of the limitations of each patient's payment model	Participates in health policy advocacy activities
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 4: Accreditation, Compliance, and Quality				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge that laboratories must be accredited	Demonstrates knowledge of the components of laboratory accreditation and regulatory compliance (Clinical Laboratory Improvement Amendments and others), either through training or experience	Identifies the differences between accreditation and regulatory compliance; discusses the process for achieving accreditation and maintaining regulatory compliance	Participates in an internal or external laboratory inspection	Serves as a resource for accreditation at the regional or national level
Discusses the need for quality control and proficiency testing	Interprets quality data and charts and trends, including proficiency testing results, with supervision	Demonstrates knowledge of the components of a laboratory quality management plan	Reviews the quality management plan to identify areas for improvement	Creates and follows a comprehensive quality management plan
		Discusses implications of proficiency testing failures	Performs analysis and review of proficiency testing failures and recommends a course of action, with oversight	Independently formulates a response for proficiency testing failures
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Systems-Based Practice 5: Utilization				
Level 1	Level 2	Level 3	Level 4	Level 5
Identifies general hematopathology work practices and workflow (e.g., molecular diagnostic, immunohistochemistry, chemical tests)	Explains rationale for utilization patterns in own practice setting	Identifies opportunities to optimize utilization of pathology resources	Initiates efforts to optimize utilization	Completes a utilization review and implements change
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Practice-Based Learning and Improvement 1: Evidence-Based Practice and Scholarship				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates how to access and select applicable evidence	Identifies and applies the best available evidence to guide diagnostic work-up of simple cases	Identifies and applies the best available evidence to guide diagnostic work-up of complex cases	Critically appraises and applies evidence to guide care, even in the face of conflicting data	Teaches others to critically appraise and apply evidence for complex cases; and/or participates in the development of guidelines
Is aware of the need for patient privacy, autonomy, and consent as applied to clinical research	Develops knowledge of the basic principles of research (demographics, Institutional Review Board, human subjects), including how research is evaluated, explained to patients, and applied to patient care	Applies knowledge of the basic principles of research such as informed consent and research protocols to clinical practice, with supervision	Proactively and consistently applies knowledge of the basic principles of research such as informed consent and research protocols to clinical practice	Suggests improvements to research regulations and/or substantially contributes to the primary literature through basic, translational, or clinical research
☐	☐	☐	☐	☐
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 receiving performance data and feedback in order to inform goals	Seeks performance data and feedback with humility	Actively and consistently seeks performance data and feedback with humility	Models seeking performance data and accepting feedback with humility
Identifies the gap(s) between expectations and actual performance	Analyzes and reflects on the factors which contribute to gap(s) between expectations and actual performance	Institutes behavioral change(s) to narrow the gap(s) between expectations and actual performance	Critically evaluates the effectiveness of behavioral changes in narrowing the gap(s) between expectations and actual performance	Coaches others in reflective practice
Actively seeks opportunities to improve	Designs and implements a learning plan, with assistance	Independently creates and implements a learning plan	Uses performance data to measure the effectiveness of the learning plan and improves it when necessary	Facilitates the design and implementing learning plans for others
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Professionalism 1: Professional Behavior and Ethical Principles				
Level 1	Level 2	Level 3	Level 4	Level 5
Demonstrates knowledge of the ethical principles underlying informed consent, surrogate decision making, advance directives, confidentiality, error disclosure, stewardship of limited resources, and related topics Describes when and how to appropriately report professionalism lapses, including strategies for addressing common barriers; identifies and describes potential triggers for professionalism lapses	Analyzes straightforward situations using ethical principles Demonstrates insight into professional behavior in routine situations; takes responsibility for one's own professionalism lapses	Recognizes the need and uses relevant resources to seek help in managing and resolving complex ethical situations Demonstrates professional behavior in complex or stressful situations	Independently resolves and manages complex ethical situations Recognizes situations that may trigger professionalism lapses and intervenes to prevent lapses in self and others	Identifies and seeks to address system-level factors that induce or exacerbate ethical problems or impede their resolution Coaches others when their behavior fails to meet professional expectations
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Professionalism 2: Accountability and Conscientiousness				
Level 1	Level 2	Level 3	Level 4	Level 5
Responds promptly to instructions, requests, or reminders to complete tasks and responsibilities	Takes appropriate ownership and performs tasks and responsibilities in a timely manner with attention to detail	Recognizes situations that may impact own ability to complete tasks and responsibilities in a timely manner and describes the impact on team	Anticipates and intervenes in situations that may impact others' ability to complete tasks and responsibilities in a timely manner	Takes ownership of system outcomes, and implements new strategies when necessary
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				

Professionalism 3: Self-Awareness and Help-Seeking				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes limitations in the knowledge/skills/ behaviors of self or team, with assistance	Independently recognizes limitations in the knowledge/skills/ behaviors of self or team and seeks help when needed	Proposes and implements a plan to remediate or improve the knowledge/ skills/behaviors of self or team, with assistance	Independently develops and implements a plan to remediate or improve the knowledge/skills/ behaviors of self or team	Serves as a resource or consultant for developing a plan to remediate or improve the knowledge/ skills/behaviors
Recognizes status of personal and professional well-being, with assistance	Independently recognizes status of personal and professional well-being and seeks help when needed	Proposes and implements a plan to optimize personal and professional well-being, with assistance	Independently develops and implements a plan to optimize personal and professional well-being	Coaches others when responses or limitations in knowledge/skills do not meet professional expectations
☐	☐	☐	☐	☐
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.

Interpersonal and Communication Skills 1: Patient- and Family-Centered Communication				
Level 1	Level 2	Level 3	Level 4	Level 5
Uses language and nonverbal behavior to demonstrate respect and establish rapport Identifies common barriers to effective communication (e.g., language, disability) while accurately communicating own role within the health care system	Establishes a relationship in straightforward encounters using active listening and clear language Identifies complex barriers to effective communication (e.g., health literacy, cultural)	Sensitively and compassionately delivers medical information, with supervision When prompted, reflects on personal biases while attempting to minimize communication barriers	Independently, sensitively, and compassionately delivers medical information and acknowledges uncertainty and conflict Independently recognizes personal biases while attempting to proactively minimize communication barriers	Mentors others in the sensitive and compassionate delivery of medical information Models self-awareness while teaching a contextual approach to minimize communication barriers
☐	☐	☐	☐	☐
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
Uses language that values all members of the health care team	Communicates information effectively with all health care team members	Uses active listening to adapt communication style to fit team needs	Coordinates recommendations from different members of the health care team to optimize patient care	Models flexible communication strategies that value input from all health care team members, resolving conflict when needed
Describes the utility of constructive feedback	Solicits feedback on performance as a member of the health care team	Integrates feedback from team members to improve communication	Communicates feedback and constructive criticism to superiors	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
Safeguards patient personal health information by communicating through appropriate means as required by institutional policy (e.g., patient safety reports, cell phone/pager usage)	Selects forms of communication based on context and urgency of the situation	Communicates while ensuring security of personal health information, with supervision	Independently communicates while ensuring security of personal health information	Guides departmental or institutional communication around policies and procedures regarding the security of personal health information
Identifies institutional and departmental structure for communication of issues	Respectfully communicates concerns about the system	Uses institutional structure to effectively communicate clear and constructive suggestions to improve the system	Initiates conversations on difficult subjects with appropriate stakeholders to improve the system	Facilitates dialogue regarding systems issues among larger community stakeholders (institution, health care system, field)
☐	☐	☐	☐	☐
Comments: Not Yet Completed Level 1 ☐				