Competencies to Improve Diagnosis - Sample Milestones

Introduction: The Curriculum to Improve Diagnosis is organized into three overall domains: **Individual, System-Related, and Team-Based**. These are generic competency concepts applicable to each member of the interprofessional team, and should be adapted to each profession's specific roles:

Individual competencies relate to the knowledge, skills and attitudes that a health care professional must demonstrate on an individual level in order to contribute in their specific role to the diagnostic process**.**

Team-based competencies relate to the knowledge, skills, and attitudes that a health care professional must demonstrate in collaboration as a member of the diagnostic team.

Systems-based competencies relate to the knowledge, skills, and attitudes that a health care professional must demonstrate in relation to how the diagnostic process operates within a particular health care system.

The following milestones provide an approach to evaluate competency in each of these 3 areas:

Individual competencies for diagnosis (I-components)

I. Demonstrate clinical reasoning to arrive at a justifiable diagnosis (an explanation for a health-related condition)

I-1. Accurately, efficiently, and comprehensively collect key clinical findings needed to inform diagnostic hypotheses.

Use these tools appropriately and efficiently in the diagnostic process: Effective interpersonal communication skills, history-taking, the physical examination, and record review; diagnostic testing; and the electronic health record and health IT resources.

Milestone I-1				
Novice	Advanced Beginner	Competent	Proficient	Expert
	Performs the clinical examination accurately and thoroughly but in a rote, non hypothesis-driven manner. Relies heavily on data obtained and impressions formed by others and incompletely confirms clinical findings.	Peforms the clinical examination accurately and comprehensively and sometimes in a hypothesis-driven manner. Confirms most key findings and forms independent impressions.	Performs the clinical examination in an efficient, hypothesis driven manner. Comfirms all key findings and forms independent impressions that take patient viewpoint into account.	Role models performing all elements of the clinical examination in an efficient, evidence-based, hypothesis-driven manner. Confirms all key findings and forms indepdendent impressions that take patient viewpoint into account.

I-2. Formulate, or contribute to, an accurate problem representation expressed in a concise summary statement that includes essential epidemiological, clinical, and psychosocial information.

Milestone I-2				
Novice	Advanced Beginner	Competent	Proficient	Expert
	Usually able to identify life-threatening problems, but unable to distinguish relevant from irrelevant clinical information. Forms a summary statement that contains most essential information but may omit key features and include irrelevant information.	Consistiently able to identify life-threatening problems and usually distinguishes relevant from irrelevant information. Forms a summary statement that contains all essential information but may irrelevant information.	Consistiently able to identify life-threatening problems and consistently distinguishes relevant from irrelevant information. Forms a concsise summary statement that contains all essential information.	Role-models identifcication of life-threatening problems and identification of relevant information even in subtle or complex cases. Forms a concsise summary statement that contains all essential information.

I-3. Produce, or contribute to, a correctly prioritized, relevant differential diagnosis, including can't miss diagnoses.

Milestone I-3				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Develops a lengthy but neither complete nor prioritized differential diagnosis that may omit important diagnostic possibilities.	Develops a thorough but not complete differential diagnosis that includes "can't miss" diagnoses but may omit atypical presentations of disease.	Develops a complete and prioritized differential diagnosis that includes "can't miss" diagnoses and atypical presentations of disease.	Role-models development of a complete and prioritized differential diagnosis that includes "can't miss" diagnoses and atypical presentations of disease, even for complex clinical presentations.

I-4. Explain and justify the prioritization of the differential diagnosis by comparing and contrasting the patient's findings and test results with accurate knowledge about prototypical or characteristic disease manifestations and atypical presentations, and considering pathophysiology, disease likelihood, and clinical experience.

Milestone I-4				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Able to use a standard aid (such as a mnemonic) to develop a differential diagnosis but has difficulty	Usually able to justify the prioritization of a differential diagnosis for common complaints and	Consistently able to justify the prioritization of a differential diagnosis by discussing personal knowledge	Role-models the justification of the prioritization of a differential diagnosis by discussing personal

justifying its prioritization.	conditions, typically based on causal reasoning alone.	and experience for common and atypical complaints and conditions.	knowledge and experience for common and atypical complaints and conditions.

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I-5. Use decision support tools, including point-of-care resources, checklists, consultation, and second opinions to improve diagnostic accuracy and timeliness.

Milestone I-5				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Aware of available decision-support tools, but only uses tools when prompted to do so.	Aware of important decision-support tools and uses tools in certain clinical situations, but may not be able to discuss the strengths and drawbacks of each tool.	Uses decision-support tools when appropriate and is able to discuss the strengths and benefits of each tool and determine which tool to apply for most patients.	Role models the appropriate use of decision-support tools and is able to identify which tool to apply even in complex clinical situations.

1-6. Use reflection, surveillance, and critical thinking to improve diagnostic performance and mitigate detrimental cognitive bias throughout the clinical encounter. Discuss and reflect on the strengths and weaknesses of cognition, the impact of contextual factors on diagnosis, and the challenges of uncertainty. Demonstrate awareness of atypical presentations, information that is missing, and key findings that don't 'fit'.

Milestone I-6				
Novice	Advanced Beginner	Competent	Proficient	Expert
	Able to identify the role that cognitive biases play only through facilitated discussion. Sometimes identifies uncertainty but may have difficulty discussing the uncertainty in a given case.	Usually able to identify high-risk clinical situations in real time and sometimes able to use reflection to improve personal performance. Identifies uncertainty and discusses the uncertainty present in obvious cases.	Consistently able to identify high-risk clinical situations in real-time and is consistently able to use reflection to improve personal performance. Identifies and discusses uncertainty in most cases.	Role models the identification of high-risk clinical situations in real-time and is consistently able to use reflection to improve personal performance. Has robust personal situational awareness. Identifies and discusses uncertainty in nearly all cases.

Team-based competencies for diagnosis (T-components)

T. Partner effectively as part of an interprofessional diagnostic team. Communicate effectively and solicit information from all members of the team (including the patient and family) to create a shared mental model of a patient's illness and the plan for diagnostic evaluation.

T-1. Engage and collaborate with patients and families, in accordance with their values and preferences when making a plan for diagnostic evaluation. Listen actively, encourage questions, and be alert to new or changing information. Explain the diagnostic process, including the patient's and family's role in helping to identify the most likely diagnosis. Share appropriately when diagnostic uncertainty exists.

Milestone T-1				
Novice	Advanced Beginner	Competent	Proficient	Expert
	May inform patients and families about the diagnostic process after a plan is made, but does not seek to actively engage patients and families in the process.

Sometimes identifies uncertainty but may have difficulty discussing the uncertainty in a given case with patients and families. | Usually partners with patients and families as members of the diagnostic team, but may not adapt the engagement strategies to each patient's unique values and preferences.

Identifies uncertainty and discusses the uncertainty present in obvious cases with patients and families. | Routinely partners with patients and families as equal members of the diagnostic team, adapting engagement strategies to each patient's until values and preferences.

Identifies and discusses the uncertainty in most cases with patients and families. | Role models partnership with patients and families as equal members of the diagnostic team, enabling others to adapt engagement strategies to each patient's values and perspective.

Role-models the identification and discussion of uncertainty with patients and families |

T-2. Collaborate with other healthcare professionals (including nurses, physicians, radiologists, laboratory professionals, pharmacists, social workers, physical therapists, medical librarians, and others) and communicate effectively throughout the diagnostic process. Acknowledge and challenge authority gradients, especially between clinicians and patients\families, constructively.

Milestone T-2

Novice	Advanced Beginner	Competent	Proficient	Expert
	Informs other health care professionals about the diagnostic process after a plan is made, but does not seek to actively engage them in the process. Communicates with other health care professionals using directive communication without seeking collaboration.	Sometimes partners with other health care professionals as members of the diagnostic team and is able to identify the unique contributions of each team members. Communicates with other health care professionals, sometimes using collaborative communication.	Routinely partners with other health care professionals as equal members of the diagnostic team, engaging the unique contributions of each team member. Communicates with other health care professionals using collaborative communication techniques.	Role models (and may help identify other professionals who role model) parternship with other health care care professionals as equal members of the diagnostic team, celebrating the unique contributions of each team member. Role models effective, collaborative communication and relationships with other health care professionals.

T-3. Apply effective strategies at transitions of care to facilitate accurate and sufficient information transfer about the diagnosis, including any pending workup and areas of uncertainty. Close the loop on test result communication and clarify expectations with the team for test result follow-up.

Milestone T-3				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Able to identify and communicate some information about a patient during a transition of care, but unable to prioritize and anticipate problems. May not convey uncertainty during transitions of care.

Infrequently works with other team members to create a follow-up plan for pending tests. | Usually able to identify and communicate accurate, sometimes prioritized information about a patient during a transition of care and anticipates some problems. Begins to convey uncertainty during transtions of care.

Usually works with other team members to create a follow-up plan for pending tests. | Consistently able to identify and communicate accurate, prioritized information about a patient during a transition of care and anticipates most problems. Often conveys uncertainty during transitions of care and invites others to help resolve uncertainty.

Consistently works with other team members to create a follow-up plan for pending tests and seeks to learn from test results. | Role-models identifcication and communication of accurate, prioritized information about a patient during a transition of care and helps others anticipate problems. Aids others in conveying uncertainty during transitions of care and helps others resolve uncertainty when appropriate.

Role-models collaborative creation o of a plan for following up pending tests and helps develop processes to learn from test results. |

System-related competencies for diagnosis   (S-components)

S. Identify and understand the systems factors that facilitate and contribute to timely, accurate diagnoses and error avoidance.

S-1. Discuss how human factors contribute to diagnostic safety and error by identifying how the work environment influences human performance. Take steps to mitigate common systems factors that detract from diagnostic quality and safety.

Use local resources (including people, teams and technology, especially the electronic health record) effectively and efficiently to optimize patients' access to care, diagnostic testing services, and appropriate experts for consultation.

Milestone S-1				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Passively aware of how the work environement influences decision-making, but does not take steps to actively mitigate negative influences on one's decision-making or performance.

Able to identify common systems factors that lead to diagnostic error. | Often actively aware of how the work system influences decision-making and starts to take steps to mitigate negative influences on one's decision-making or performance.

Able to identify common systems factors that lead to diagnostic error as well as strategies to address these common systems factors. | Consistenly proactively aware of how the work system influences decision-making and consistenly takes steps to actively mitigate negative influences on one's decision-making or performance.

Able to identify common systems factors that lead to diagnostic error, their root causes, as well as | Role-models proactive awareness of how the work system influences decision-making and, in addition to taking personal steps to actively mitigate these negative influences, helps others mitigate the negative influences of systems factors on decision-making and performance.

Actively identifies even nuanced systems factors that lead to |

Unaware of when consultation or second opinons would be helpful in improving the diagnostic process.	Sometimes aware of when consultation or second opinons would be helpful in improving the diagnostic process.	strategies to address these systems factors. Usually aware of when consultation or second opinons would be helpful in improving the diagnostic process and collaborates effectively with consultants.	diagnostic errors, their root causes, and ensures that all team members are able to emply strategies to address these sytems factors. Aids others in developing awareness of when consultation or second opinons would be helpful in improving the diagnostic process and collaborates effectively with consultants. .

S-2. **Advance a culture of diagnostic safety** that encourages open dialogue and continuous learning from analysis and discussion of excellent diagnostic performance, near misses and errors.

Give and receive feedback at an individual and team level to improve subsequent diagnostic performance.

Milestone S-2				
Novice	Advanced Beginner	Competent	Proficient	Expert
.	Plays a passive role in the local healthcare	Begins to play an active role in the local	Consistenly plays an active role in the local	Role models leadership in an active role in the

ecosystem, accessing local resources when instructed or guided to do so. Passively uses the EHR using inefficient or incomplete methods. Learns from diagnostic errors and near misses only when presented back to the individual, without actively seeking out feedback.	healthcare ecosystem, seeking to access commonly employed local resources. Concsiouly uses the EHR using more efficient, complete methods to ensure safe diagnostic evaluation. Seeks to actively identify and learn from diagnostic errors and near misses in one's own practice . Gives and receives feedback about one's and others' diagnostic decision-making when prompted to do so.	healthcare ecosystem, seeking to access commonly and less commonly employed local resources. Harnesses the EHR as a tool to improve diagnosis. Develops and refines EHR workflows to ensure efficient, complete diagnostic evaluation. Consistently seeks to actively identify and learn from diagnostic excellence, diagnostic errors, and near misses in one's own practice, developing sustainable strategies for ensure follow-up. Consistently gives and receives effective, emphathetic feedback as a matter of standard practice, not only when prompted.	local healthcare ecosystem, seeking to access commonly and less commonly employed local resources. Enables others to harness the EHR as a tool to improve diagnosis, aiding them in developing and refining EHR workflows to ensure efficient, complete diagnostic evaluation. Role-models seeking and actively identifying diagnostic excellence, diagnostic errors, and near misses in order to ensure learning at individual and team levels. Ensures that all team members have access to sustainable follow-up about their patients.

				Role models giving and receiving effective, empathetic feedback, even in difficult or emotional situations.

S-3. Disclose diagnostic errors and missed opportunities transparently and in a timely manner to patients, families, team members, supervisors, and appropriate quality and risk management staff.

Milestone S-3				
Novice	Advanced Beginner	Competent	Proficient	Expert
	Participates in the disclosure of diagnostic errors and missed opportunities when prompted to do so. Observes but does not engage effectively in the discussion of diagnostic errors with patients and families.	Seeks to disclose diagnostic errors and missed opportunities when they are discovered, rather than when prompted to do so. Engages in the discussion of diagnostic errors with patients and families and attempts to be	Consistiently discloses diagnostic errors and missed opprotunities throughout the diagnostic process. Consistenly seeks to improve the diagnostic process through disclosure and anlaysis of errors. Consistenly engages in empathetic, effective discussion with	Role models the disclosure of diagnostic errors and missed opprotunities throughout the diagnostic process. Helps others to consistently seek to improve the diagnostic process through disclosure and anlaysis of errors.

13

		transparent about the causes of the errors.	patients and families about diagnostic errors, seeking their perspective while ensuring transparency.	Role models engagement in empathetic, effective discussion with patients and families about diagnostic errors, seeking their perspective while ensuring transparency.