Domain of Competence: Personal and Professional Development

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THE DOMAIN OF personal and professional development was constructed as a new domain of competency on the basis of the Association of Pediatric Program Directors' (APPD) input during an ethnographic inquiry[1] at the 2009 fall APPD meeting. This new domain encompasses both individual aspects of professional formation, characterized as the development of professional values, actions and aspirations,[2] as well as overarching concepts of global professional attributes, such as trustworthiness. In a brief glance at the 8 competencies within this new domain, one will observe that these new areas stand on their own as important competencies. These new competencies also serve as rich qualifiers of many of the other competencies: the response to and management of stress (relates to professional conduct, humanism, and professionalization); the recognition and management of ambiguity and uncertainty (relates to aspects of problem solving and communication); the degree of confidence in interacting with patients (relates to interpersonal skills and communications); the degree of help-seeking based on self-reflection (relates to directed learning activities); management of conflict between personal and professional work (relates to professionalism); and others. As such, these descriptive milestones provide insight into contemporary values in the field of pediatrics; their richness stems from the cultural values of personal and professional development likely shared by all specialties. These new content areas functionally add to and embellish the other competencies. Recent evidence suggests that some personality traits, particularly empathy and conscientiousness, have a significant impact on overall academic and performance.[3]

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Competency 1. Develop the ability to use self-awareness of one's own knowledge, skills, and emotional limitations that leads to appropriate help-seeking behaviors

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BACKGROUND: Help-seeking behaviors stem from uncertainty. An individual's ability to deal with uncertainty is shaped by his identity development, the culture and context in which he finds himself, and the socialization process within that culture.[1,2] Identity development plays a critical role in the professional formation of physicians. In the early stages, one relies almost exclusively on external prompts and judgments to guide behavior. This translates into doing something because we are told to do it and either want the praise or want to avoid the consequences.[2] As one

matures, there is a shift to more intrinsic motivation and values. One begins to look at the identity of the profession and emulate behaviors that are perceived as important in belonging to the physician community.[2] The perceived values of the profession are incorporated as one's own value system. It is only with greater maturity that one is able to integrate one's own personal and professional value systems in a way that minimizes conflict that may arise between the two.[2]

When applying what is known about identity development to the construct of help seeking, we know that learners early in their development may recognize deficiencies but may not ask for help because they fear it will negatively affect their evaluation or they want to avoid being made to feel inadequate. Because they are driven by external influences, a supervisor can step in and direct them to resources or prompt help-seeking behaviors; role modeling is an excellent venue for accomplishing the latter. The exceptions to desired behaviors in response to prompts are individuals who may not recognize their shortcomings even when pointed out by those who supervise them. For this small group of learners, ongoing feedback and concrete examples of deficiencies are most helpful.

As the learner begins to mature, he will try on the perceived values of the profession by emulating witnessed behaviors of other physicians. This is where the perception of autonomy as a valued behavior competes with the recognition of limitations and becomes a barrier to asking for help. Faculty development is critical in educating the physician community about the great influence of the "hidden curriculum" on learners.[3]

It is only with the later stages of identity development that one is able to engage in help-seeking behaviors despite concerns about the perceptions of others, because one's personal value system for patient safety supersedes any perceived values of professional autonomy. At this stage, the outcome for the patient is more important than the evaluation or personal consequences. The learner is secure enough in his own identity as a physician that he can be true to his own values.

Socialization within the culture and context of the medical community greatly influences personal and professional identity development, one element of which is appropriate help-seeking behaviors. The socialization process in medicine has not traditionally embraced acknowledgment of one's uncertainty; rather, it has placed a premium on the attributes of autonomy and independence. A recent study of learners in the emergency department and general internal medicine inpatient units underscored the pressure learners experience to act independently. This pressure was based on their perception that independence in thought and action was an identifying characteristic of a doctor and the community to which they aspired to belong. Organizational issues such as heavy workload and the impact on their constant process of evaluation were also contributing factors.[1]

The work of Lingard et al[4] also describes the professional socialization process through the learning and language of students' verbal case presentations in the context of rounds on a pediatric inpatient unit. In this qualitative study, which illustrates the development of identity described above, the authors were able to elucidate themes such as "thinking like a student" and "thinking like a doctor." The student presentations typically focused not only on seeking guidance for the sake of patient care but for their own agenda of proving competence and deflecting criticism, demonstrating that uncertainty is an uncomfortable realm for students. Faculty attendings, however, modeled a more comfortable realm for uncertainty through professional rhetoric that placed uncertainty in the context of personal limits in knowledge as well as limits in evidence, information from primary histories, professional agreement, scientific knowledge, and a contrary concept of limitless possibilities. The authors also demonstrated that students had the capacity to progress from student thinking toward doctor thinking during the study period.

Of note is the fact that the traditional hierarchical and autonomous social context and culture of medicine facilitates keeping the novice at the novice stage by placing true or perceived value on certainty, autonomy, and independence. To move learners from novice, or student, thinking to doctor thinking, faculty have to mitigate the value placed on these traditional beliefs and model the value of uncertainty, explicitly stating that not only is it acceptable to acknowledge uncertainty, but that it is a critical ingredient in improvement. Although faculty behaviors will not alter the developmental stages of help-seeking behaviors per se, they can slow or hasten a learner's progression through them. This has important implications for faculty development and emphasizes the need for faculty to embrace and reward the acknowledgment of uncertainty by learners.

DEVELOPMENTAL MILESTONES:

- Demonstrates a limited insight into limitations in knowledge, skills, or attitudes, which results in the learner not seeking help when needed, sometimes resulting in unintended consequences.
- Expresses concern that limitations may be seen as weaknesses that will negatively impact evaluations. This results in help-seeking behavior typically only in response to external prompts rather than internal drive.
- Recognizes limitations but has the perception that autonomy is a key element of one's identity as a physician. The need to emulate autonomous behavior to belong to the profession may interfere with internal drive to engage in appropriate help-seeking behavior.
- Recognizes limitations and has matured to the stage where help-seeking for the sake of the patient supersedes any perceived value of physician autonomy, resulting in appropriate requests for help when needed.
- Demonstrates the personal drive to learn and improve results in the habit of engaging in help-seeking behaviors and explicitly modeling and encouraging these behaviors in others.

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Competency 2. Use healthy coping mechanisms to respond to stress

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BACKGROUND: Physicians face stress from a number of sources each day. Most physician stress can be categorized as arising from their professional responsibilities, their work environment and situations, or their personal lives.[1] Because stress is often multifactorial, there can be significant overlap between these categories.

Sources of professional stress include patient care responsibilities, supervisory duties, patients with complex medical problems, difficult patients and families, working with terminally ill and dying children, and information overload. For learners with limited clinical experience, professional stress can also arise from their high levels of uncertainty and low tolerance for ambiguity,[2] which is discussed in other milestones. Performance anxiety may also be a contributor for these learners.

Sources of work environment and situational stress include sleep deprivation, fatigue, excessive workload, and lack of control over work and call schedules. For learners, especially those with limited clinical experience, situational stress can also include having too many patients, having complex patients with difficult management issues, or working in a learning environment that is ineffective or lacks appropriate support.

Sources of personal stress include family problems, financial concerns, lack of free time, and psychosocial struggles. For trainees, personal stress can also include feelings of isolation when moving to a new city to begin training and difficulty with choosing a career focus or securing their first job after training. As learners first encounter the time and work demands of the medical profession and have not yet developed a mature professional identity, conflict between personal and professional obligations can also be a source of stress. Furthermore, immature coping skills in response to this stress may only exacerbate it.

In addressing the development of healthy responses to stressors, it is important to note that this development is multifactorial, with clinical experience possibly having less of an impact on the rate of progression than other factors such as previous life experiences, personality type, communication style, and conflict resolution mode. Thus, an early clinical learner could be someone with advanced development in healthy responses to stressors.

EARLY AND INTERMEDIATE DEVELOPMENT: THE PRESENCE OF UNHEALTHY RESPONSES TO STRESSORS: The least healthy responses to stressors mimic those maladaptive signs that are seen in individuals with burnout. Maslach and colleagues[3] describe the 3 dimensions of burnout as emotional exhaustion, depersonalization and cynicism, and feelings of inefficacy and perceived lack of personal accomplishment. Even without suffering from burnout, a learner early in the development of healthy responses to stressors can struggle when confronted with stressful situations and respond with these manifestations. Without appropriate coping mechanisms, even minor stressors for these individuals can lead to emotional outbursts and blaming others. These learners may also demonstrate performance impairment with inability to fulfill basic professional or personal responsibilities. Indeed, a previous study[4] demonstrated that residents who self-report feelings of depersonalization are significantly more likely to also report suboptimal patient care practices—perhaps the most concerning manifestation of an unhealthy response to stress.

Professional identity plays a significant role in how one responds to stressors. Early in professional identity development, learners' thoughts, words, and actions are greatly influenced by what they perceive will please others; therefore, they are unable to truly embrace the professional identity of a physician.[5] Rather, they shroud themselves in what they see as that identity in others to receive the praise of acting the part and avoid the consequences of not acting the part. Although this has the potential to help them project healthy responses to stressors, their lack of true identification with their professional role places them at risk. Because they are merely playing the part, there is potential for them to mimic the unhealthy responses to stressors that they learn from the hidden curriculum of those who work around them. Although previous development in self-regulation and self-monitoring may temporize their responses to stress in more public situations, these skills may fail them in more private settings away from supervisors or when confronted with more significant stressors.

ADVANCING DEVELOPMENT: DEVELOPING CONSISTENTLY HEALTHY RESPONSES TO STRESSORS: With advancing professional identity formation, learners internalize what it means to be a physician.[5] The external expectations that were previously important in driving thought, word, and action are broken down and reformed into internal expectations for themselves. By internalizing the values and expectations of the profession and making them their own, learner responses to stressors tend to become healthier, as that is how more mature physicians should behave.

This development of healthier responses to stressors through advancing professional identity formation is associated with development in other areas. These include personal awareness, described as "insight into how one's life

experiences and emotional make-up affect one's interactions with patients, families, and other professionals,"[6] and reflective practice. However, it is important to note that personal awareness and reflective practice are necessary but not sufficient to exhibit healthy responses to stressors. Advanced development in skills such as self-regulation and self-monitoring in the moment are also necessary. Together, personal awareness, reflective practice, self-regulation, and self-monitoring are all important in the development of emotional intelligence[7] and mindfulness,[8,9] which are central to developing healthy responses to stressors. Epstein[9] describes mindful practice as

> *being attentive, on purpose, to one's own thoughts and feelings during everyday activities [in this case, clinical practice] to be able to practice with greater clarity, insight, and compassion. Mindfulness implies a nonjudgmental stance in which the practitioner can observe not only the patient situation but also his or her own reactions to it before taking action. A mindful practitioner can see a situation from several angles at the same time. Mindful practice implies curiosity rather than premature closure and presence rather than detachment. Mindfulness is especially helpful when dealing with difficult relationships with patients and families, challenging clinical situations, and in recognizing the need for self-care.*

Exhibiting a healthy response to stress is context specific, as even individuals at the most advanced levels of development may show instances of regression when encountering major personal, professional, or situational stressors. However, these individuals would be anticipated to demonstrate advanced coping skills and healthy responses in almost all circumstances.

OVERVIEW OF STRATEGIES TO MODEL, PROMOTE, AND DEVELOP HEALTHY RESPONSES TO STRESSORS: As we look to develop and model healthy responses to professional stressors, there are several useful personal and occupational strategies that can also have positive impacts on the larger health care system.[10] Additionally, emotional intelligence and mindfulness can be cultivated and developed through several venues, including individual and group reflection, narrative medicine, and appreciative inquiry.[8]

A more thorough discussion of modeling, promoting, and developing healthy responses to stressors is beyond our scope here. However, developing and modeling healthy responses is vitally important, and we hope this introduction will serve as a starting point for exploring this in the referenced works and beyond.

Personal strategies that demonstrate healthy responses to stressors include[10]:

- Pursuing personal awareness and participating in reflective practice.
- Prioritizing values.
- Maintaining connectedness with family, friends, hobbies, and interests outside of work.
- Maintaining good physical health through physical activity and nutrition.
- Accepting limitations.
- Using high level defense mechanisms, such as appropriate humor.
- Setting and pursuing goals.[11]
- Possessing positive self-regard.[11]

Occupational strategies that demonstrate healthy responses to stressors include[10]:

- Setting limits.
- Trying to improve the doctor–patient relationship.
- Using a team approach, including mutual support for all members.
- Valuing and promoting collegiality.
- Seeking further education to prepare oneself for professional duties.

When individuals are facing minimal or controllable stress, they are more able to explore these strategies on their own and find ways to integrate them into their personal and professional lives. However, as stress increases, individuals become less able to explore these strategies on their own. Therefore, the role of colleagues, residency program leadership, and other professionals in the immediate environment become vitally important. These individuals, especially those in leadership positions, must implement meaningful and deliberate techniques to alleviate the stress of residents and faculty and to promote the adoption and integration of strategies that demonstrate healthy responses to stress.

DEVELOPMENTAL MILESTONES:

- Demonstrate significant impairment in performance and ability to fulfill basic professional or personal responsibilities in response to stressors (inability to use coping mechanisms or engages in unhealthy coping mechanisms to manage stress).
- Demonstrates depersonalization with colleagues, patients, and/or families; cynicism; and/or emotional exhaustion in response to stressors, but able to perform professional duties. May verbalize feelings of inefficacy. Even minor stressors may lead to emotional outbursts and blaming others, demonstrating limited coping mechanisms to manage stress.
- Demonstrates behavior in public settings that usually conforms to social norms when responding to minor stressors, displaying personal and occupational strategies (eg, acknowledging limitations, using high-level defense mechanisms such as humor, setting limits, and promoting collegiality) to respond to stress in a healthy manner. In more private settings or when encountering more significant stressors, may demonstrate compromised behaviors such as depersonalization, cynicism, emotional outbursts, or blaming others. May verbalize feelings of inefficacy or emotional exhaustion in these situations.
- Demonstrates advanced coping mechanisms and healthy responses to stressors, including mindfulness and reflection on what has gone well in stressful situations and how to apply lessons learned in the future; displays personal and occupational strategies (eg, acknowledging limitations, using high-level defense mechanism such as humor, setting limits, and promoting collegiality) to respond to stressors in a healthy way.
- Demonstrates healthy responses to stressors that lead to proactive planning of how to personally respond before anticipated stressors fully present themselves; anticipates and alleviates the stress felt by patients, families, and colleagues; conveys success and satisfaction in being a physician that mitigates the negative impact of stressors.

Adapted from Epstein.[8]

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Competency 3. Manage conflict between personal and professional responsibilities

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BACKGROUND: Conflict between personal and professional values and the ability to resolve the conflict are important elements of professionalism.[1] Conflicting values may be between 2 professional values or between a personal and a professional value. The most appropriate action that occurs in response to these competing values is context and situation dependent. For example, in most situations, keeping one's promise of confidentially to patients is a primary value. However, this may conflict with, and be superseded by, a value that upholds the supremacy of patient safety above all other values (eg, breaching confidentiality to protect a depressed adolescent with suicidal ideations). In isolation, it is difficult to predict the supremacy of one professional value over another. For this reason, it is critical to understand the context, thought processes, and rationale that go into decision making about how to resolve conflict and the subsequent actions that are taken.

Professional identity formation is central to managing conflict between one's personal and professional responsibilities. "The process of [professional identity] formation includes experience and reflection, service, growth in knowledge of self, and of the field, and constant attention to the inner life as well as the life of action."[2] Stern[3] makes the case for a developmental model of professional identity formation and also cites the work of Forsythe[4] to enhance the developmental framework. The earliest stage is awareness that guiding principles of professional behavior exist. The application of these principles in a clinical setting requires learning to prioritize these principles. The process of prioritization is predicated on a process of critical reasoning to develop a rationale for why one value supersedes another.[3] Early in the process of identity development, one recognizes that there are guiding principles for professional behavior, but these tenets are typically viewed as rules to be followed for the purposes of either gaining personal recognition or avoiding negative consequences. As one begins to mature, these principles become viewed as values of the profession that must be reflected in personal behaviors to be considered a member of the profession. Initially, the values of the profession can lead to conflict between personal and professional values because the latter have not been internalized and reconciled with one's personal values. It is only when one is able to see himself as a professional, and not just a member of the profession, that he is able to internalize professional values and reconcile them with personal values. This process of reconciliation helps to prevent significant future conflict between personal and professional values and provides experience with anticipating conflict and resolving it.

When assessing this competency, Ginsburg et al[1] remind us that we must include conflict, context, and resolution as we develop evaluation methods. Avowed, unavowed, and disavowed principles may be a helpful classification system for understanding a person's decision making about the prioritization of personal and professional values and the resolution of conflict.[5] Avowed principles are those embodied by the profession, such as putting patient interests before self-interests. Unavowed principles are those that likely go unexpressed and are typically representative of the hidden curriculum, such as protecting colleagues so they do not look bad. Disavowed principles are often thought of as breaches or lapses of professionalism, such as placing self-interests before patient interests.

In evaluating behavior, it is critical to consider the developmental level of the individual, realizing that time and experience are important in learning and acting on professional values. Context is also important, as early medical students are not in a position to have significant impact on patient care, limiting assessment of professionalism to their ability to identify values and prioritize competing values on the basis of an appropriate rationale, often of hypothetical situations. The latter should take into account both the avowed and disavowed principles. The more experienced students and residents will be expected to act on their prioritized principles in a clinical context, making

witnessed behaviors an important part of the assessment process. Even at later developmental stages, however, it is critical to return to an individual's rationale for choosing an action to better understand why a lapse may have occurred and to use the process of assessment as the teachable moment for future conflict resolution.

DEVELOPMENTAL MILESTONES:

- Unable to identify conflicting personal and professional values, even in hypothetical situations.
- Identifies conflicting personal and professional principles and can justify the importance of the competing principles in the context of a given hypothetical situation. (One is not called upon to act on these professional principles at this early stage in professional development.)
- Identifies competing principles and prioritizes them on the basis of personal implications; actions reflect an early stage of identity development in which the focus is on recognition for doing the right thing and/or avoiding negative consequences. This rationalization may result in the unintended consequence of a lapse in professional behavior.
- Prioritizes principles on the basis of the perception of values espoused by the profession; these values are not yet incorporated into one's personal value system, which can lead to inner conflict and subsequent rare outward lapses in professional behavior.
- Reconciles personal values with those of the profession; uses a proactive approach to conflict prevention and resolution in anticipation of internal conflicts that may arise.

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Competency 4. Practice flexibility and maturity in adjusting to change with the capacity to alter behavior

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BACKGROUND: When considering the developmental progression of flexibility and maturity in adjusting to change with the capacity to alter one's own behaviors, it is helpful to consider a few theories from the psychology literature. These theories frame the concepts of flexibility and maturity, as well as bring to light other attributes or personality characteristics, such as resilience. This framework is multifactorial and complex. For example, how does a resident deal with news that another resident is ill and he must take call for that colleague? Does the resident constantly complain about difficult patients? How do faculty members deal with the new electronic medical record system? How does a resident who has just had a new baby cope with balancing life and learning? Are they able to balance personal and professional responsibilities and keep it together? All of these examples are nuanced on multiple psychological and contextual levels. Each individual functions with a complex set of factors, making it difficult to define the weight of various experiences, values, motivations, personality factors, and stressors for each individual. However, in examining some psychological factors, we may gain some understanding into our learners' development.

There is healthy debate and discussion about some of the major psychological theories regarding personality. These theories include trait perspective, type perspective, psychodynamic/psychoanalytic, behavioral, social cognitive, humanistic, and biopsychological.[1] Additionally, emotional intelligence,[2,3] which will be described later in this milestone, informs the understanding of the developmental progression of this competency. The context in which this competency is placed, whether personal or professional, also impacts one's flexibility and maturity in adjusting to change and one's ability to alter behaviors. Maturity, flexibility, and the ability to adapt and show resilience play out and are readily assessed in the professional setting.

FLEXIBILITY AND MATURITY: Psychological flexibility includes a wide range of human abilities, including recognizing and adapting to various situational demands; shifting mind-sets and behavioral repertoires when these strategies compromise personal or social functioning; maintaining balance among important life domains; and being aware of and open and committed to behaviors that are congruent with deeply held values.[4]

In cognitive psychology, flexibility can be defined as "the ability to switch cognitive mindsets to adapt to changing environmental stimuli."[5] Aspects of flexibility, as defined by psychologists on validated instruments, include 3 distinct domains: the tendency to perceive difficult situations as controllable, the ability to perceive multiple alternative explanations for life occurrences and human

behavior, and the ability to generate multiple alternative solutions to difficult situations.[5,6] Further, other psychologists and researchers have commented on the dynamic processes of human psychological flexibility as a "slippery construct"[4] that is somewhat hard to define. Other terms utilized in the literature to describe the same abstract collection of behaviors include ego resiliency, self-regulation, and response modulation.[5,7]

Flexibility correlates positively with many aspects of health and well-being.[4,7,8] Further, the construct of flexibility and ego resiliency has been associated with greater progression through the stages of identity development and maturity. The spectrum of identity development involves moving from being impulsive and relatively less insightful to learning social rules and conforming to the most advanced stage of being wise and self-determined.[4,9] Additionally, studies in the field of psychology demonstrate that adults at increasingly mature stages of identity development had greater flexibility, and this difference could not be explained by general intelligence based on IQ testing.[10] In addition to wisdom and maturity, other features in flexible teens and adults include descriptors such as self-reliant, resilient, confident, creative, curious, quick to recover from stressful events, adaptable, and able to effectively master challenges.[9–11] A number of tools exist that can be used to assess the construct of flexibility, including the Cognitive Flexibility Inventory (CFI)[5] and Schaie's Test of Behavioral Rigidity (TBR).[12,13] As described above, there is evidence in the psychology literature that the concepts/constructs of maturity and flexibility tend to be correlated.

Although there are multiple streams of psychological theories and frameworks for personality, we will focus on the Five Factor Personality Traits theory.[14,15] This theory is advanced by the trait perspective theorists and consists of the following trait descriptors[16,17]:

Openness

Inventive and curious versus cautious and conservative. Appreciation for art, emotion, adventure, unusual ideas, and variety of experience.

Extraversion

Outgoing and energetic versus shy and withdrawn. Seeks stimulation in the company of others; has energy, positive emotions, enthusiasm, and warmth toward others.

Conscientiousness

Efficient and organized versus careless and overly easy-going. A tendency to show self-discipline, act dutifully, and aim for achievement. Comforted by planned rather than spontaneous behavior.

Neuroticism

Sensitive and nervous versus secure and confident. Tends to easily experience unpleasant emotions (anger, vulnerability, anxiety, and depression).

Agreeableness

Friendly and compassionate versus competitive and outspoken. Tends to be compassionate and cooperative rather than suspicious and antagonistic toward others.

Many of the personality traits described in this construct overlap with and influence individual flexibility.[4] Specifically, one who scores highly on the neuroticism scale would tend to be less likely to change their behavior after feedback is given by another person.[16,18] Positive emotions that come from the other end of the neuroticism spectrum can induce increased attention span, greater working memory, and openness to new information.[19] A study of physician functioning revealed that doctors experiencing positive emotions (the antithesis of neuroticism) actually consider a greater number of alternative hypotheses before committing to the initial diagnostic consideration.[20] Overall, personality traits impact how residents function in this competency within the context of the working environment. It is helpful to know that there are instruments[21–23] that assign numeric scores to these traits to help assess learners and, via the results, assist them in their journey to develop insight into their own functioning. There are also commonly known and validated instruments that characterize other personality theories but align with the Five Factor Model, such as the Minnesota Multiphasic Personality Inventory (MMPI).[23]

The Capacity to Alter One's Own Behaviors and Emotional Intelligence: When considering the capacity to alter one's own behaviors, the role of emotional intelligence (EI) cannot be underscored enough. EI was initially defined as an individual's ability to monitor his or her own and other's emotions, to discriminate between the positive and negative effects of emotions, and to use emotional information to guide his or her thoughts.[3,24] This has been discussed in other milestones. Mayer and colleagues[3] further divide the concepts into the current form with 4 branches:

- Having the ability to perceive emotions in oneself and others.
- Facilitating thought, or the ability to generate, use, and feel emotion to communicate feelings or use them in other cognitive processes.
- Understanding emotions, or the ability to understand information and how emotions combine and to progress through relationship transitions and appreciate such emotional meanings.
- Managing emotions, or the ability to be open to feelings and to modulate them in oneself and others so as to promote personal understanding and growth.

Another informative way to consider EI was put forward by Goleman,[25] who describes 5 elements of EI: self-awareness, self-regulation, motivation, empathy, and adeptness in relationships.

EI is a broad, complex concept that has gained much interest over the past 2 decades. Literature on mindful practice and physician self-awareness expresses EI without

Table 1. Progression of Development for Characteristics of Flexibility and Maturity

Flexibility	Worries about change, does not take calculated risks, does not deal with uncertainty well.	→	Resilient, confident, self-efficacious, and adaptable.
Personality	Cautious, shy, withdrawn, careless, nervous, overly competitive, insecure, immature.	→	Inventive, energetic, organized, confident, and friendly. Moves toward stable, mature way of dealing with events and life stressors. Can go against personal tendencies (negativity, rigidity) as a result of insight.
Emotional intelligence	Low—lacks self-awareness and self-confidence, poor self-control, inadaptable, pessimistic, unable to be empathetic.	→	High—self-aware and self-confident. Understands and controls internal states and impulses. Aware of other's needs, concerns. Easily handles relationships. Ability to modulate own behaviors to assist others. Understands emotions and cues from others.

actually naming the construct as such.[26,27] The concepts of self-awareness, compassion based on insight into one's own values, modifying conclusions to fit the situation, and self-actualization, as discussed in the literature on mindful practice, are actually subscales on the most widely used scale for EI, the Emotional Quotient Inventory.[28]

Some of the concepts in EI, personality traits, and flexibility overlap significantly. In constructing a framework for this milestone, the developmental progressions of these themes move and mature together. Similar to other milestones, such as professionalism, this milestone (adaptive flexibility) can be fluid in regard to observable behaviors, depending on the situational context and stressors. However, an individual would not likely mature and/or regress more than one level as context varies. Further, these personality traits, skills, and psychological constructs, although sometimes interpreted as static and innate (eg, "I am an extrovert.") are demonstrated time and again in the literature to be modifiable.[1–3,14,25–27] Stated differently, a person would be able to mature and progress in this adaptive flexibility milestone through practice, guided reflection, role modeling, and knowledge of concepts. As Goleman[25] states:

> *Our level of emotional intelligence is not fixed genetically, nor does it only develop in early childhood. Unlike IQ, which changes little after our teen years, emotional intelligence seems to be largely learned, and it continues to develop as we go through life and learn from our experiences—our competence in it can keep growing…. People get better and better in these capabilities as they grow more adept at handling their own emotions and impulses, at motivating themselves, and at honing their empathy and social adroitness. There is an old-fashioned word for this growth in emotional intelligence:* maturity.

Table 1 provides the progression of development for characteristics of flexibility and maturity.

DEVELOPMENTAL MILESTONES:

- Demonstrates rigid behavior. Has a difficult time making decisions when faced with challenging situations. Fears loss of control when moving outside of the usual realm of cognitive concepts/thinking. Emotionally reactive and vulnerable to stress. Uses unproductive coping mechanisms such as fight or flight, blaming of others, and/or displaying a fussy attitude. Does not modify behavior, seeing no reason to do so. Low level of EI with inability to be self-aware or effectively self-regulate, and displays little optimism. Social skills are limited.

  Example: *A physician becomes irritated with a nurse who pages her that a newly admitted patient, with a fever and rash, is on the floor. She complains to her medical student that she should not even have to be on call today because she has one more call this month than the other senior resident. Later she feels badly that she complained, but she just feels so out of control sometimes. The nurse calls again to let her know that the family is Spanish speaking, so she will need to arrange an interpreter. This sends the resident into a tailspin of moodiness, frustration, worry, and inability to gather herself to take care of the patient. She again feels disturbed by her inability to cope. The idea of apologizing to the student and nurse does not even occur to her.*

- Demonstrates less rigidity; possesses some flexible behaviors. May realize that there is more than one solution to some problems. Uncomfortable with loss of control, but able to recognize that feeling and start to adjust and modify. When not stressed, can demonstrate self-awareness with reflection. Tough situations may cause reversion to unproductive or primitive (eg, fight or flight, blaming, fussy) behaviors and unhealthy coping mechanisms. Intermediate level of EI, with some ability to self-regulate. Has some self-awareness and insight, some optimism, and awareness of need for social skills.
  Example: *Life has been running smoothly for one of the residents in the PICU, who had some minor difficulty in the past. To his colleagues, he seems to have figured it out. He seems to care more about them, is more self-confident, and some interns have actually requested to be on call with him because he is good at solving problems. His wife pages him during rounds one day to tell him that she had a car accident. She has a shoulder injury and her car is totaled, but she is otherwise OK. He takes off a few days to make arrangements for the car and to take her to the doctor. He feels out of control internally as a result of worry and is moody to others. He does not feel back to normal for 2 months. He recognizes and apologizes to his colleagues for his moodiness.*
- Demonstrates flexibility. Easily shifts mind-sets and behaviors when emotional and social functioning is compromised. Utilizes mature and healthy[4] mechanisms to cope (ie, maintains a positive attitude, displays resilience). Self-resilience and confidence seem to carry through both daily behaviors and stressful times. Tends to have a positive attitude. Upper middle to high EI, with high level of self-awareness, self-regulation, motivation, empathy, and social skills.
  Example: *A seemingly happy resident who is well liked by peers has just had premature twins (25 weeks) who are in the NICU. He does not complain about it at work; in fact, he actually has the outlook (coping mechanism) that he is glad they are both alive and his wife is fine. He continues to take call, despite offers of help from colleagues. He seems to take care of his wife, patients, and peers with his usual enthusiasm, friendliness, and openness to life experience.*
- Demonstrates flexibility, resilience, confidence, and has high EI consistently. Maturity and self-awareness lead her to anticipate stressors and invoke coping mechanisms that work well, so she is always in control. Adapts easily to almost any situation and embraces change as a positive experience. High level of EI allows her to read others and anticipate their needs, proactively helping them to cope with stress and change.
  Example: *The senior resident on the team is doing an amazing job on the ward. It is time for midrotation feedback, and her supervisor tries to tease out what makes her performance so outstanding. He has worked with other knowledgeable and skilled residents, but as he thinks about this resident, he realizes that it is not the knowledge and skill that sets her apart but her attitude. She is perceptive and anticipates the needs of everyone on the team, carefully monitoring workloads and providing the right amount of help. In the middle of what can be total chaos, she is in control and is able to easily adapt to the ever-changing status of patients and care priorities. She helps others embrace constant flux as a learning opportunity. Her spirit and motivation are infectious.*
- Current literature does not distinguish between behaviors of proficient and expert practitioners. Expertise is not an expectation of GME training, as it requires deliberate practice over time.

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Competency 5. Demonstrate trustworthiness that makes colleagues feel secure when one is responsible for the care of patients

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BACKGROUND: Trustworthiness can be defined as the combination of clinical knowledge/skill, discernment, conscientiousness, and truthfulness that allows supervisors and care team members to be more certain that the individual is responsible and capable of providing competent patient care without direct supervision. At first blush, the term *trustworthiness* is a seemingly a value-laden, subjective term that would render assessment difficult. However, the construct of trustworthiness of Kennedy et al[1] allows us to objectify the term and determine the level of supervision needed for that individual. In their construct, the term *trustworthiness* is not being used in the general sense of "trusted," a judgment of the nature of one's character or intent. Rather, the term is used to describe a collection of outcome data that may provide support for being able to count on an individual to carry out a given task, decision-making process, or other aspect of clinical care within a specified context with minimal or no supervision.

Graded, progressive responsibility is thought to be critical to the development of a competent physician.[2] A careful balance between the appropriate level of supervision of learners (students, residents, fellows, and practitioners) and their development, which takes place through progressively more independent opportunities and deliberate practice, is critical. Supervision may take many forms, as described by Kennedy et al[1]: 1) direct, hands-on care and demonstration with immediate course correction; 2) routine oversight (eg, rounds or case presentations); 3) responsive oversight where the patient, learner, or other prompt raises a patient care issue requiring escalation of care or involvement of supervisors; and 4) backstage oversight practiced by the seasoned supervisor who has confidence that the learner is trustworthy.

With the goal of examining trustworthiness in the context of its implications for supervision, Kennedy et al[1,3] define a multidimensional construct with 4 domains: 1) ability or level of knowledge, skills, and attitudes (KSA); 2) discernment or level of awareness of one's limits in KSA; 3) conscientiousness (degree of thoroughness in data gathering and dependability in following through with assigned tasks); and 4) truthfulness (absence of deception in trainee's interactions with the supervisor).[3]

One's ability or level of KSA is a necessary but not sufficient element of the overall trustworthiness of an individual. Unlike other aspects of development, KSA are particularly sensitive to the educational and experiential history of the individual. Each new clinical task or situation requires that an individual address his or her development of KSA as it relates to that clinical context. This often means that an older or more experienced individual in one context may find himself at a very early stage of development within a new clinical context where different KSA are required.

Discernment in this construct of trustworthiness refers to acknowledgment of uncertainty and the willingness to be transparent in communicating that uncertainty to a supervisor who can help close the gaps. Discernment is predicated on the practitioner's awareness of his limits and the consequences of these limits in a given clinical context. As an example, a practitioner would be characterized as discerning if he expressed both concern for a patient's condition given a change in status and acknowledged his uncertainly about how to best respond to that change. True discernment implies the ability to assess one's level of KSA at the point of care, know when one is in over one's head, and seek help.

Conscientiousness, as described by Kennedy et al,[1] refers to the combination of comprehensive data gathering and the reliability or dependability in completion or follow-through of assigned or necessary tasks. The first of this 2-part element depends heavily on knowledge or understanding of what constitutes the expected comprehensive data collection; the second part depends on agreement of what tasks are assigned. (Completion or follow-through can therefore be determined by a specified task list, either explicitly stated/written or widely accepted as the standard of care.) As such, the assessment or determination of level of learner performance for this element would be a combination of these 2 elements. For the dependability in completion or follow-through of assigned tasks, the starting point would ideally begin with the supervisor review of a to-do list constructed by the learner, by protocol, or by another source and confirmed by the supervisor. The expectation for a conscientious practitioner is comprehensive completion of all assignments in a timely manner without prompting, and with practitioner-initiated help seeking if barriers develop.

Truthfulness, or absence of deception, in a practitioner's interactions with the supervisor can be determined most easily when it is absent and/or inconsistencies are revealed. One mechanism for determining such inconsistencies is through backstage supervision, such as cross-checking data reported verbally with data offered in written communication. A supervisor should also be alerted when there is a lack of transparency about uncertainty in that it is recognized but not communicated. Learner awareness is implicit in all aspects of truthfulness. A culture in which both awareness and communication of uncertainty is embraced is key to professional formation. Supervisor prompting to encourage the expression of uncertainty (not just giving permission but encouraging open expression of uncertainty) rather than making assumptions can reduce the perception that the learner is deceptive or untruthful. Because early learners often feel pressure to not ask questions, to be autonomous, or not to bother a supervisor, explicit supervisor request for learner inquiry regarding uncertainty is critical.

Ethnographic studies of trustworthiness, as defined by the construct of Kennedy et al,[1] reported that supervisors used a combination of 2 strategies to try to ascertain truthfulness: first, "double-checks, where a team member would check or verify a report or finding presented" (eg, reviewing vitals, labs, and nursing notes before a learner presents a patient), and second, "language cues, including the structure and delivery of anticipated information" (eg, when a learner, prompted on rounds to report results of a blood test, states that all lab tests were normal when the phlebotomist was unable to obtain enough blood to run that particular test).[1] Language cues may be difficult to use for such an assessment for the same reason that oral examinations, which are not standardized, pose potential threats to validity.[4] These threats include content underrepresentation[5] (undersampling), anecdotal performance that is generalized to other settings,[6]

Table 2. Developmental Progression of Milestone Elements for the Trustworthiness Competency*

Abbreviation for Element	Description of Element	Milestone 1	Milestone 2	Milestone 3	Milestone 4
KSA	Ability or level of knowledge, skills and attitudes (KSA).	Lacks knowledge and/or skills necessary for the assigned task.	Demonstrates emerging KSA for clinical task through participation as a passive but engaged learner (asks some questions, attempts to build on level of KSA).	Sufficient but incomplete knowledge and/or skills to function at the level assigned, but may have some necessary KSA to participate with supplementary oversight.	Has the ability/level of KSA to achieve expected performance in the context of practice without direct supervision.
D	Discernment (level of awareness of one's limits in KSA as it relates to a clinical context).	Is unaware of limitations or gaps in KSA within the assigned context.	With prompting, becomes aware of gap or gaps in KSA; when questioned, does not express perceived consequences or impact of the gap or gaps on the relevant clinical situation.	States gap or gaps in KSA, without prompting but when questioned does not express perceived consequences or impact of the gap or gaps on the relevant clinical situation.	Aware of gap or gaps in KSA and expresses, without prompting; also expresses known or potentially uncertain consequences of the gap or gaps relevant to the clinical situation.
C	Conscientiousness (degree of thoroughness in data gathering and dependability in following through with assigned tasks).	Incomplete data gathering and/or inconsistent follow-through with assigned tasks, despite prompting.	Partially complete data gathering; requires prompting to generate task list and prompting to carry out completion of task list.	Data gathering is complete for some contexts; incomplete for other contexts; generates initial or first level task list and spontaneously completes most items, but lacks generation of and follow-through for secondary level tasks (tasks that are indicated based on results from primary tasks).	Data gathering is consistently performed in thorough and complete fashion; follow-through on assigned and self-initiated tasks is consistent without external prompts. Spontaneously checks in to report status of data gathering and task completion, initiating questions regarding indications for secondary tasks.
T	Truthfulness (absence of deception in trainee's interactions with the supervisor).	Incomplete truth, transparency or openness to uncertainty present in context where deception and its consequences may not be appreciated.	Pauses, omits or falls short of a full explanation of directly requested or expected content, relevant to the context assessed.	In response to query is transparent, accurate and comprehensive in information sharing, including qualification of uncertainty when applicable.	Initiates contact with others to communicate information and associated uncertainty, missing data or other gaps in KSA relevant to the clinical context.

*Elements are assessed by context; elements may or may not develop together. Some elements may functionally serve to be compensatory in a given context. A truly advanced physician who is said to be trustworthy in a context without direct supervision has "Milestone 4" status in all elements.

Table 3. Examples of Observable Scenarios That Represent Clusters of Behaviors at Different Levels of Development for the Elements of Trustworthiness*

Example	Score
An individual calls her supervisor at home to present a patient that she admitted. Key laboratory results are missing in the presentation, and the supervisor requests that she seek this critical information and report back. Several hours later on rounds, the individual is again questioned about the laboratory values; she reports that the results are normal, but she is unable to locate those results in her paperwork.	D-2, C-1, T-2
On handover of patients from the day team to the night team, several tasks are identified as needing follow-up or completion during the next shift. The following day, when the service is handed back over to the original individual, several of these tasks were either incomplete or not completed as specified in the signed-out. When questioned about these tasks, the night-float individual indicated that things were busy, she forgot, or she gives another excuse indicating that she was aware of the expectation but failed to complete the tasks.	KSA-3, D-2, C-3
Presentation of a patient consultation is done in a comprehensive manner, without the need for prompting. Questions posed by the individual allow the consultant to appreciate the individual's understanding of the disease process and the individual's awareness of gaps in her knowledge. Careful attention to detail and accuracy are evident in the history and physical examination that are presented. The next day, the service is busy and the individual needs reminding to recheck the send-out labs.	KSA-3, D-3, C-3
An individual possesses the KSA to lead the team on rounds, asking for pertinent data not presented by other team members (assertive inquiry). Constant review and vigilance of patient status uncovers unexplained findings on laboratory or physical examination. Findings are reported to supervisors as change with unidentified meaning (and potential concern).	KSA-4, D-4, T-4
This is the practitioner who leaves no stone unturned. Colleagues are confident when handing off a patient that the patient will receive exemplary care. In fact, when there is a complex patient, colleagues are relieved when this practitioner is on call because she typically invests much time and energy in searching for needed answers and meticulously reports back on all important developments.	KSA-4, D-4, C-4, T-4

*KSA indicates knowledge, skills, and attitudes; D, discernment; C, conscientiousness; and T, truthfulness. The milestone (level of performance) is indicated by the number from 1 to 4. Thus, the scoring would be a combination of the observed element and their milestone. For example, KSA-1 would be knowledge, skills, and attitudes as described in Milestone 1 in Table 2.

and bias associated with unstated supervisor expectations[7] (including the "read my mind" phenomenon). Comfort with uncertainty and transparency in communication/sharing of dilemmas is consistently displayed in those most trusted.[8,9]

Teachers should prompt learners to establish a personal goal of heightened awareness regarding gaps in KSA and to embrace the uncertainty present at every level of development. The learner adaptation and internalization of this metacognitive process then allows for the self-initiated processes of inquiry and resource seeking necessary to address identified gaps.

In Table 2, each row represents the developmental progression of one of the 4 elements of trustworthiness (knowledge, discernment, conscientiousness, and truthfulness), while each column represents a single stage of development (milestone) for all 4 elements. In attempting to apply the table to the individual learner, the evaluator should note 2 issues for caution. First, the 4 elements may not develop at the same rate; for example, a learner may be at the first milestone for knowledge but the second or third for discernment. Second, individual observations or encounters with students may not be conducive to assessing all 4 of the elements of trustworthiness. The behaviors noted in the "truthfulness" row, in particular, can be difficult to observe. Kennedy et al[3] describe double-checks (eg, when a supervisor checks labs before the presentation of those labs on rounds) and language cues (eg, the qualifications or the uncertainty expressed within the structure and delivery of a patient on rounds) as possible ways of assessing truthfulness. Unfortunately, truthfulness may be most accurately assessed when there is clear evidence of nontruthfulness.

Table 3 provides some examples that represent various combinations of cells from Table 2 of the 4 elements of trustworthiness to emphasize both the potential for differing rates of developmental growth for each of these elements and the likelihood that only some of the 4 elements can be observed in any given encounter. It is anticipated that the scoring of clinical observations that demonstrate multiple elements of trustworthiness will likely require consideration of the variable rates of their development, and multiple observations will be required to ensure proper sampling across all the elements.

DEVELOPMENTAL MILESTONES:

- Demonstrates gaps or is unaware of significant KSA gaps. Demonstrates lapses in data gathering or in follow-through of assigned tasks. May misrepresent data (for a number of reasons) or omit important data, leaving others uncertain as to the nature of the individual's truthfulness or awareness of the importance of attention to detail and accuracy. (Overt lack of truth telling is assessed in a professionalism competency.)
- Demonstrates gaps in KSA but does not always voice awareness of or seek help when confronted with limitations. Demonstrates lapses in follow-up or follow-through with tasks, despite awareness of the importance of these tasks. Follow-through may be limited as a result of inconsistency or yielding to barriers. When barriers are encountered, no escalation occurs (such as notifying others or pursuing alternative solutions).
- Demonstrates inadequate level of KSA for the level of clinical responsibility, with realistic insight into limits with responsive help seeking. Data gathering is complete, with consideration of anticipated patient care needs and careful consideration of high-risk conditions first and foremost. Little prompting is required for follow-up.

- Demonstrates competent level of KSA for the level of clinical responsibility and assumes full responsibility for all aspects of patient care, anticipating problems and demonstrating vigilance in all aspects of management. Pursues answers to questions. Communications include open, transparent expression of uncertainty and limits of knowledge.
- Demonstrates competent level of KSA for the level of clinical responsibility and assumes full responsibility for all aspects of patient care, anticipating problems and demonstrating vigilance in all aspects of management. Pursues answers to questions. Communications include open, transparent expression of uncertainty and limits of knowledge. Uncertainty brings about rigorous search for answers and conscientious and ongoing review of information. May seek the help of a consultant in addition to primary source literature.

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Competency 6. Provide leadership skills that enhance team functioning, the learning environment, and/or the health care delivery system/environment with the ultimate intent of improving care of patients

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BACKGROUND: As physicians move from medical school to residency, fellowship, and on to practice, there are many situations where the physician is in a leadership position. However, leadership training has not been a significant focus during the continuum of medical education. The organizational structure of most residency training programs places senior residents in the position of leading a team of junior trainees (medical students and junior residents) that may also include nurse practitioners, nurses, physician assistants, and others, under the supervision of faculty. There are an infinite number of situations in which a physician may function in a leadership role and at varying levels of responsibility.

The skills necessary to be an effective leader clearly include those of team management.[1] Leadership may take the form of leading a code, running an ambulatory office, or heading a patient safety program. Some residency programs are beginning to incorporate leadership training into their educational curricula.[2] Several residency programs have published articles describing educational retreats, with a focus on developing leadership skills in their trainees.[3,4] Although team leadership is an essential skill, there are broader aspects of leadership that deserve consideration. Physicians take on a variety of roles, such as educational leadership, program or organizational leadership, and community leadership; they may also be an agent of change. They must lead not just through power and authority (direct management) but also through influence. They need to function within various organizational structures, often with groups who do not share a vision and goals. Leadership roles may involve small, homogeneous groups or larger, more heterogeneous groups.

Bolman and Deal[5] have proposed 4 successful frameworks for leadership: 1) *structural,* in which the leader acts as analyst and architect, leading through analysis and design; 2) *human resources,* in which the leader acts as catalyst and servant, leading through support, advocacy, and empowerment; 3) *political,* in which the leader acts as advocate and negotiator, leading through coalition building and persuasion; and 4) *symbolic,* in which the leader acts as prophet and poet, leading through inspiration. Much has been written about effective leadership in the business community and at an organizational level, such as *The Leadership Challenge* by Kouzes and Posnes.[6] However, there is little literature defining the leadership skills required of a resident specifically or a physician in general.

Orlander et al[1] developed a validated 7-item Resident Leadership Scale to help define and assess these skills. On the basis of lessons learned from the literature, several key themes emerge. Competent leaders provide definition and clarification of rules and expectations for team members. They possess both good organizational skills and strong interpersonal/communication skills. They empower their team members to perform, encouraging them to take ownership and participate actively in decisions, thereby having an impact on outcomes.[7] Leaders are consensus builders, and great leaders inspire others to perform.

DEVELOPMENTAL MILESTONES:

- Articulates team composition but is unable to define/clarify team members' roles and expectations. Team management is disorganized and inefficient. Interacts with supervisors in an unfocused and indecisive manner. Does not encourage open communication within the team. Team members are not given ownership or engaged in decision making. Manages by mandate. Unable to advocate effectively for the team with faculty, staff, families, patients, and others.
- Interactions suggest that there are roles and expectations for team members, but these are not explicitly defined. Manages the team in a somewhat organized manner. Demonstrates intermittently focused and decisive interactions with supervisors. Inconsistently encourages open communication within the team. Sometimes engages team members in decision-making processes. Manages most often through direction, with some effort toward consensus building. Attempts to advocate for the team with faculty, staff, families, patients, and others.
- Provides some explicit definition to roles and expectations for team members. Manages the team in an organized manner. Interactions with supervisors are focused and decisive in most cases. Open communication within the team is routinely encouraged. Team members are routinely engaged in decision making and are given some ownership in patient care. Usually manages through consensus building and empowerment of others, but sometimes reverts to being directive. Advocates somewhat effectively for the team with faculty, staff, families, patients, and others.
- Provides definition and clarifies roles and expectations for team members routinely. Manages the team in an organized and fairly efficient manner. Interactions with supervisors are focused and decisive. Engages in and actively encourages open communication within the team. Team members are expected to engage in decision making and are encouraged to take ownership in patient care. Utilizes a consensus-building process and empowerment of others, only in rare instances becoming directive. Advocates effectively for the team with faculty, staff, families, patients, and others.
- Clarifies and orients members to the roles and expectations for each new team member. Team management is organized and efficient. Interacts with supervisors in a focused and decisive manner. Models and actively encourages open communication within the team. Supports team members in decision making and gives them ownership of patient care responsibilities. Consensus building and empowerment are the norm. Proactively and effectively advocates for the team with faculty, staff, families, patients, and others. Inspires others to perform.

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Competency 7. Demonstrate self-confidence that puts patients, families, and members of the health care team at ease

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BACKGROUND: Erik Erikson,[1] the famous psychiatrist, has described each patient as "a universe of one," and an eminent physician has claimed that "85% of the problems a doctor sees in his office are not in the book."[2] As a result of the knowledge explosion, the uncertainty of medicine has increased, as has the complexity of the profession. How does one feel comfortable dealing with uncertainty? There is possibly a mixture and varying degrees of overlap between self-confidence, emotional intelligence (EI), and metacognition at play in this complex construct. The individual learner must have a moderate level of metacognition, insight, and self-efficacy to be able to put families and teams at ease. Metacognition refers to one's awareness of one's own cognitive processes. It is an assessment of one's own ability, knowledge, and understanding of task-relevant factors.[3]

EI has been divided into 4 branches[4–6]:

- Perceiving emotions in oneself and others.
- Facilitating thought, or the ability to generate, use, and feel emotion, to communicate feelings, or use them in other cognitive processes.
- Understanding emotions, or the ability to understand emotional information, how emotions combine, and progress through relationship transitions, and to appreciate such emotional meanings.
- Managing emotions, or the ability to be open to feelings and to modulate them in oneself and others to promote personal understanding and growth.

The dynamic overlap of self-confidence and EI integrated into reflective practice allows us to think of this competency in a complex framework involving a number of maturational skills and/or characteristics and attributes. One such attribute is trustworthiness. Defined as a combination of clinical knowledge/skill, discernment, conscientiousness, and truthfulness, trustworthiness is implicitly related to the complex abilities required in this competency.

DEVELOPMENTAL MILESTONES:

- Demonstrates limited self-confidence and appropriately identifies the need to ask for help. In talking with families, the learner demonstrates difficulty in answering medical questions.
- Speaks in a confident manner, but is still unsure of when and how to clearly articulate his limitations (eg, content knowledge, ability to discuss uncertainty) to the family. Exhibits behaviors that reflect some comfort and confidence with his role as a physician, but families may not feel at ease without reassurance from a more senior colleague or supervisor.
- Demonstrates some insight into when to be confident and when to express uncertainty with situations and diagnoses as observed by discussions with families. Starts to self-reflect and navigate the interplay of the complexity of explaining uncertainty to patients and families while remaining confident with information he knows and understands clinically. Emerging alignment between knowledge/skill and degree of certainty allows families to assess him as effective in placing them at ease in many situations.
- Demonstrates self-confidence commensurate with his abilities. Continues to gain experience and comfort with uncertainty. The balance between confidence and uncertainty allows families and patients to assess him as quite effective in placing them at ease.
- Explains and manages uncertainty with a mature/comforting self-confidence that is easily identified by all; modified to the emotional needs of the family/patient. Able to place families and patients at ease, even in the face of difficult situations.

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Competency 8. Recognize that ambiguity is part of clinical medicine and respond by utilizing appropriate resources in dealing with uncertainty

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BACKGROUND: The practice of medicine is fraught with uncertainty. Uncertainty arises in the world, our knowledge of the world, the structure of the decisions we face, and the preferences and values that are brought to bear in making those decisions.[1]

Ambiguity is defined as the timely absence of information needed to understand a situation or identify its possible future states. As such, ambiguity is a state of uncertainty about the world (construct of uncertainty described in paragraph above) either knowing that we do not know or not being certain that we do know.

In clinical decision making, physicians assist patients in achieving their goals, usually relating to preventing illness, sustaining health status, or achieving a better state of health.[1] An individual's management of uncertainty can influence their approach to clinical decision making for both the physician and the patient.

UNCERTAINTY AS RISK: Uncertainty can be processed as risk. When considering the approach to clinical medicine, individuals can be categorized as risk tolerant or risk averse, and these behaviors affect both the approach to clinical decision making and how uncertainty is considered in that decision making. *Objective risk* is that component of risk that can be calculated by an epidemiologic or pathophysiologic data set. *Subjective risk* is the perception of risk, which may or may not match the objective risk due to the overlay of bias regarding the weight of factors both related and unrelated to the data. As an example, the *objective risk* of placing a gastrostomy tube and performing a Nissen fundoplication in a patient with dysfunctional swallowing and associated aspiration is known and would generally favor action (surgery) to prevent aspiration and its complications. However, the family's perception of risk for that procedure may be much higher as a result of factors associated with the loss of normal body image (eg, visible G-tube) and the loss of the satisfaction that comes with the mother's ability to feed her child naturally. For the physician, objective risk may be altered by previous experiences with poor outcomes, such as post-Nissen fundoplication retching, biasing the physician against the procedure and potentially favoring the risk of aspiration.

Although the risk of uncertainty can bring a negative connotation when it relates to optimal health care outcome, it can also bring about hope. Physicians and patients who embrace or accept the objective risk or potential for suffering, morbidity, or death may have the option to reframe the uncertain outcome as hope of overcoming the odds, often accompanied by a increased focus or appreciation of remaining life or quality of life. Several scales to measure risk aversion or risk-taking behavior have been studied.[2] Among the most useful of these is the Domain-Specific Risk-Taking Scale (DOSPERT).[3]

Perception of risk or quantifying uncertainty requires numeracy, which is the facility for reading and understanding numbers and their representation (including statistics). Numeracy is literacy for numerical health care outcome data. It is an important skill for both the practitioner and patient in understanding risk. A high level of numeracy is rare in the general population. A patient's numeracy can allow for true understanding of the odds for good health care outcomes and thus lead to a celebration of life and current functioning as well as contribute to compliance and

Table 4. Elements and Anchors for the Developmental Extremes of the Components

Domain	Early	Mature
Physician management style in response to uncertainty	Authoritarian. *Physician response to uncertainty is to confidently cite data, recommend a course of treatment without consideration or inclusion of patient perspective, values, uncertainty.*	Informer-advisor/educator/collaborator. *In the face of uncertainty, physician discusses choices with the patient/family with open communication that expresses desire to inform, seek additional resources and collaborate with the patient/family on a plan. All acknowledge the current state of limited knowledge regarding outcome and agree to proceed with uncertainty, but revisit the decision as needed.*
Physician risk position	Risk behavior (averse or prone) related to position held by self without consideration of patient position. *Physician's tendency to choose risk when outcome is uncertain or to choose to not take risk when outcome is uncertain is based on physician beliefs and dominates management and decision-making approach; patient perspective is not considered.*	Balanced risk-aversion with risk-taking. *Physician's approach to uncertainty and risk associated with that uncertainty is balanced, rendering the physician more able to listen and respond to patient concerns regarding uncertain outcomes, diagnoses, processes and management.*
Physician alignment with patient goals	Physician does not consider patient goals and values in weighing risk. *Physician does not explore the patient's personal goals for health, individual circumstances and perceptions regarding health, quality of life and management of uncertainty.*	Physician able to adjust treatment plan (given patient mental health status is maximally adjusted) to patient goals. *After consideration of the patient's and family's mental health status (depression and other conditions rendering patient/family incompetent to participate fully in decision making), the physician is able to navigate conversations regarding treatment plans, outcomes, and alternative therapies in a flexible fashion, adjusting communications and decision-making processes to align with overall patient goals.*
Physician understanding and management of numeracy	Talks "over" the patient or presents information in restricted formats. *Physician uses medical terminology and statistics without regard for patient/family level of understanding. Does not use alternative language, visuals, or analogies to communicate complex statistical data.*	Able to adjust expression of numeracy so that patient is able to understand; seeks patient feedback as evidence of understanding likelihood of various outcomes/choices. *Uses language and graphics appropriate to perceived level of understanding and requests patient/family teach back for complex scenarios involving treatment choices and risk/morbidity.*
Physician response to ambiguity (condition where an outcome cannot be known)	Denial, avoidance, unengaged. *Physician avoids engaging family/patient in complex conversations; unresponsive to family/patient needs or request for clarification.*	Seeks information to improve knowledge of world (of patient problem). *When faced with complex patient care problem for which there is no known therapy, diagnosis, and/or outcome, the physician seeks multiple outside resources for answers to best practice/treatment approach. Pursues research or offers patient the opportunity to seek expertise elsewhere (if/when disease process is rare).*

(*Continued*)

Table 4. Continued

Domain	Early	Mature
Physician emotional response to uncertainty (where data regarding outcomes is known but is known to be variable, or poor prognosis)	Physician discomfort with uncertainty results in physician pushing patient to "get it" at the most pessimistic perception of uncertainty (physician desires sharing of burden of uncertainty). *Physician pushes patient/parent to understand and accept the worst-case scenario; physician is motivated by anxiety associated with variation in outcome or lack of guaranteed outcome and selfish desire to avoid experiencing sense of helplessness when patient/family experiences loss/despair associated with minimal chance of good outcome.*	Balance of information seeking with acceptance or peace with self about what cannot be changed. *Physician is able to accept his limited capacity to effect the desirable therapeutic outcome. Is able to express loss, disappointment, and simultaneous engagement with patient/family to continue to hope and look for additional possibilities/resources.*
Physician support of patient's adjustment and hope	No or low recognition of patient despair; when recognized, experiences and responds with frustration to the burden of patient response to uncertainty (eg, fear, anger). *Physician dismissive of patient expression of anticipated loss, and/or responds by distancing self or avoiding conversation.*	Physician anticipates support of patient adjustment; arranges timing of therapeutic plans and other clinical decisions according to patient readiness. *Physician paces information delivery to individual patient/family capacity to cope/manage/adjust to difficult or uncertain diagnosis or treatment plans.*

maintenance of the goal to adhere to a difficult medical regimen or quality of life.[4,5] Physician skill in expressing outcomes through both the differentiation between the biological or clinical significance and the statistical significance is variable. Patients may request interpretation or explanation of the meaning of outcome data stated in statistical fashion, sometimes resorting to the request, "What would you do if this were your child?" Responding to a patient/family request to manage uncertainty by offering one's personal approach can be quite supportive when the patient/family cues indicate that such input may be appropriate.

PHYSICIAN REACTIONS TO UNCERTAINTY: Reactions to uncertainty coupled with the desire for a clearer understanding of the situation can lead to stress, avoidance, delay, suppression, or denial.[6] For most individuals, the response to uncertainty is aversion; however, some people are attracted to the mystery or cognitive challenge that comes from incomplete information, especially when there is no perceived threat. Uncertainty may also be attractive when there is a possibility that the situation may produce a negative outcome[7] and when the uncertainty enables some hope of avoiding that outcome.

Physician responses to uncertainty often differ from the patient's response to the same uncertainty. It is important for the physician to recognize these differences and how clinical decisions and patient adherence to therapy can be affected by a patient's attitudes regarding certainty. Physician awareness of effective psychological responses to uncertainty associated with illness can enable the physician to assist their patients and families with such adjustment.[8] In this way, this milestone has connections to milestones in patient care and interpersonal and communication skills. Physicians can manage uncertainty and assist their patients and families with uncertainty through information-seeking efforts. For example, physicians can individualize the discussion of treatment options by considering whether discussing treatment uncertainties immediately after revealing a devastating diagnosis could alter a patient's management of uncertainty, particularly if that person were fearful or angry (see patient reactions to uncertainty in paragraph below). Physicians can also assist patients and families with coping or adjusting to the realization of uncertainty.[9,10] Physician awareness of effective psychological responses to uncertainty associated with illness can enable the physician to assist patients and families with such adjustment.

PATIENT REACTIONS TO UNCERTAINTY AND RISK PERCEPTION: The patient's attitude toward risk is also an important component of the physician's management of risk. Fearful people tend to be risk averse and pessimistic about uncertainty. Fearful individuals are also less likely to be unrealistically optimistic about their future health when presented with both positive and negative potential outcomes.[11] Individuals with low self-esteem may have a higher intolerance of uncertainty and may be more risk averse.[12] Angry individuals are likely to be unrealistically optimistic about their future health when presented with both positive and negative outcomes.[11] Furthermore, individual risk perceptions and risk attitudes may continue once a particular experience has ended (appraisal-tendency theory), complicating the role that risk can play in future situations.[11] Additionally, patients manage uncertainty within a frame of overall health status, individual values, and outcomes. An individual who has the choice of undergoing a prolonged therapy associated with pain and suffering may choose to do so at a young age or if death is highly probable without the therapy. The same diagnosis and treatment options in an older patient may not lead to a

choice to treat, given the overall length of life and suffering involved in the therapy.

Table 4 provides elements and anchors for the developmental extremes of the components.

DEVELOPMENTAL MILESTONES:

- Demonstrates state of being overwhelmed and unsure when faced with uncertainty or ambiguity. Communications with patients/families and development of therapeutic plan are approached in a limited and authoritarian manner; patient/family numeracy (understanding of probability/risk) is presumed. Seeks only self or self-available resources to manage this uncertainty, resulting in a response characterized by their (individual) preexisting state of risk aversion or risk taking. Does not regard patient need for hope; feels compelled to make sure that patients understand full potential for negative outcome (defensive/protective of physician).
- Expresses recognition of uncertainty and the tension/pressure from not knowing or knowing with limited control of outcomes. Explains situation to the patient in framework most familiar to the physician, rather than framing it with terms, graphics, or analogies familiar to the patient. Seeks rules and statistics and feels compelled to transfer all information to the patient immediately, regardless of patient readiness, patient goals, and patient ability to manage information.
- Anticipates and focuses on uncertainty, looking for resolution by seeking additional information. Informs the patient of the more optimal outcomes, framed by physician goals. Does not manage overall balance of patient/family uncertainty with quality of life, need for hope, and ability to adhere to therapeutic plan. Focuses on own risk management position for a given problem and does not suggest that more or less risk taking (different from physician's position) could be chosen. Still seeks patient/parent recitation of uncertainty/morbidity as proof that patient/family understands the uncertainty. Unresolved balance of expectations with physician/patient expectations, with physician expectations taking precedence.
- Anticipates that uncertainty at the time of diagnostic deliberation will be likely. Uses such uncertainty or ambiguity as a prompt/motivation to seek information or understanding of unknown (to self or world). Balances delivery of diagnosis with hope, information, and exploration of individual patient goals. Concepts of risk versus hope are worked through using conceptual framework that includes cost (eg, suffering, lifestyle changes, financial) versus benefit; framed by patient health care goals. Expresses openness to patient position and patient uncertainty about his or her position and response.
- Acknowledges and manages personal level of risk aversion or risk-taking tendencies. Seeks to understand patient/family goals for health and their capacity to achieve those goals. Engages in discussion with high sensitivity toward health literacy and numeracy, emphasizing patient/family control of choices. Openly and comfortably discusses strategies and outcomes anticipated with the patient/family, emphasizing that all plans are subject to the imperfect knowledge and state of uncertainty. Ongoing information sharing through changes as knowledge and patient health status evolve. Remains flexible and committed to engagement with the patient/family throughout the patient's illness, serving as a resource to gather information. Constant revisiting of knowledge, uncertainty, and developed plans is balanced with acceptance of what is unknown; transparent communication of limits of treatment plan outcomes.

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