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.

REFERENCES

1. Erikson E. The nature of clinical evidence. In: Lerner D, ed. *Evidence and Inference*. New York, NY: The Free Press of Glencoe; 1959:72.
2. Schon DA. *The Reflective Practitioner: How Professionals Think in Action*. New York, NY: Basic Books; 1983.
3. Kleitman S, Syankov L. Self-confidence and metacognitive processes. *Learn Individ Differ*. 2007;17:161–173.
4. Mayer JD, Salovey P, Caruso DR. Emotional intelligence: theory, findings and implication. *Psychol Inq*. 2004;15:197–215.
5. Di Fabio A, Palazzeschi L. An in-depth look at scholastic success: fluid intelligence, personality traits or emotional intelligence? *Pers Individ Dif*. 2009;46:581–585.
6. Brody N. What cognitive intelligence is and what emotional intelligence is not. *Psychol Inq*. 2004;15:234–238.

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*)