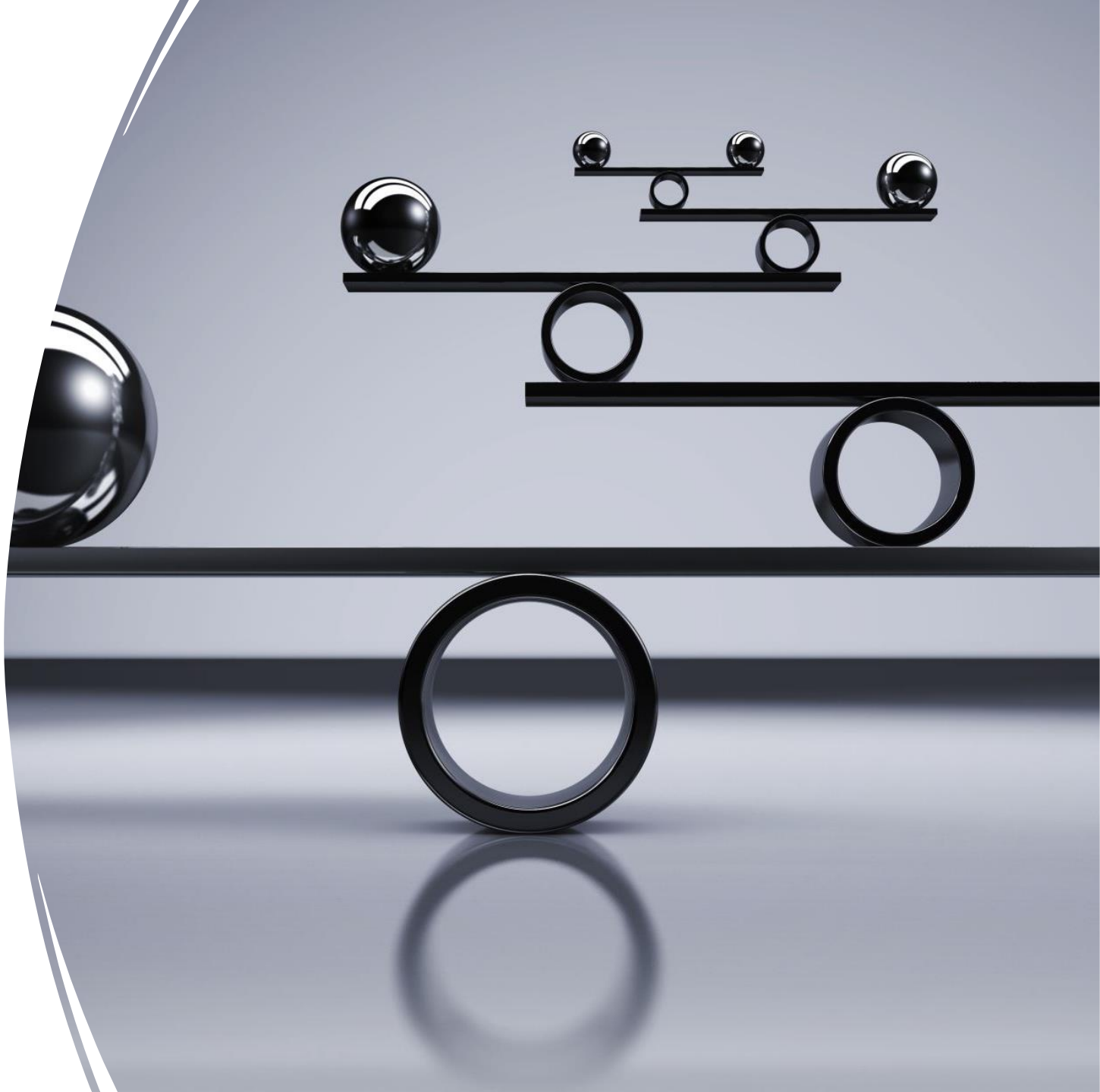# Measuring Clinical Judgment in Simulation

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Conflicts of Interest

None

Objectives

- Review current concepts of clinical judgment, simulation, and competency.

- Identify challenges in measuring competency.

- Explore the use of standards in nursing education.

- Review the competency and sub-competency model introduced through the BSN Essentials

- Examine an example of using competency to measure clinical judgment in simulation.

- Explore ways to measure competency in different simulation modalities.
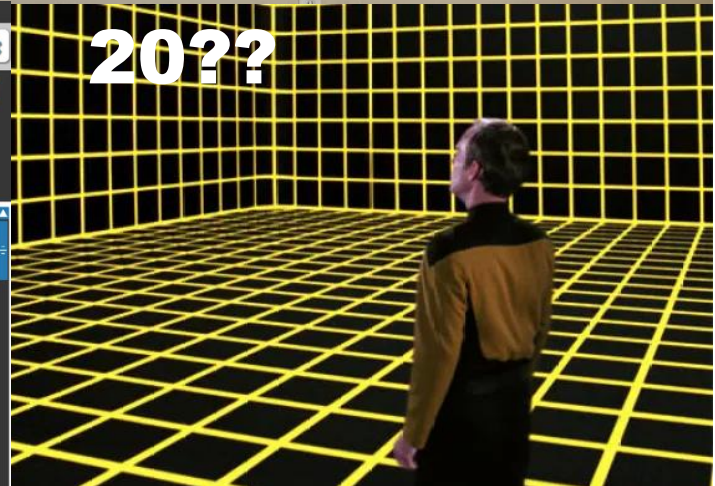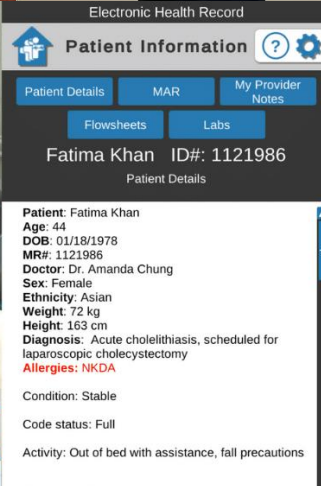
Conference Handouts
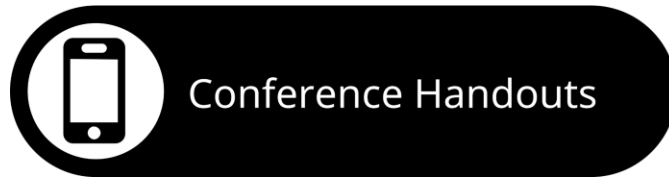
Question

How do you measure clinical judgment in simulation now? What tools do you use?

Simulation

- Before
- Now
- The future

Measuring Clinical Judgment

- Historical Context
  - Tanner (2006)
    - 1) Decisions are more influenced by experience than objective data.
    - 2) Knowledge about the patient and patient engagement are essential to good decisions.
    - 3) Decisions are influenced by context and culture.
    - 4) Professionals arrive at decisions in different ways.
    - 5) A failed decision triggers reflection and is important for self-improvement.

Lasater Clinical Judgment Rubric (LCJR)

Information Seeking	Assertively seeks information to plan intervention: carefully collects useful subjective data from observing the client and from interacting with the client and family	Actively seeks subjective information about the client's situation from the client and family to support planning interventions; occasionally does not pursue important leads	Makes limited efforts to seek additional information from the client/family; often seems not to know what information to seek and/or pursues unrelated information	Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the client and family and fails to collect important subjective data

LASATER CLINICAL JUDGMENT RUBRIC
Noticing and Interpreting

Effective NOTICING involves:	Exemplary	Accomplished	Developing	Beginning
Focused Observation	Focuses observation appropriately; regularly observes and monitors a wide variety of objective and subjective data to uncover any information	Regularly observes/monitors a variety of data, including both subjective and objective; most useful information is noticed, may miss the most subtle signs	Attempts to monitor a variety of subjective and objective data, but is overwhelmed by the array of data; focuses on the most obvious data, missing some important information	Confused by the clinical situation and the amount/type of data; observation is not organized and important data is missed, and/or assessment errors are made
Recognizing Deviations from Expected Patterns	Recognizes patterns and deviations from expected patterns and uses these to the assessment	Recognizes most obvious patterns and deviations in data and uses these to continually	Identifies obvious patterns and deviations, missing some important information; unsure how to continue the assessment	Focuses on one thing at a time and misses most patterns/deviations from expectations; misses opportunities to refine the assessment
Information Seeking	Assertively seeks information to plan intervention: carefully collects useful subjective data from observing the client and from interacting with the client and family	Actively seeks subjective information about the client's situation from the client and family to support planning interventions; occasionally does not pursue important leads	Makes limited efforts to seek additional information from the client/family; often seems not to know what information to seek and/or pursues unrelated information	Is ineffective in seeking information; relies mostly on objective data; has difficulty interacting with the client and family and fails to collect important subjective data

Effective INTERPRETING involves:	Exemplary	Accomplished	Developing	Beginning
Prioritizing Data	Focuses on the most relevant and important data and seeks further information useful for explaining the client's condition	Generally focuses on the most important data and seeks further relevant information, but also may try to attend to less pertinent data	Makes an effort to prioritize data and focus on the most important, but also attends to less relevant/useful data	Has difficulty focusing and appears not to know which data are most important to the diagnosis; attempts to attend to all available data
Making Sense of Data	Even when facing complex, conflicting or confusing data, is able to (1) note and make sense of patterns in the client's data, (2) compare these with known patterns (from the nursing knowledge base, research, personal experience, and intuition), and (3) develop plans for interventions that can be justified in terms of their likelihood of success	In most situations, interprets the client's data patterns and compares with known patterns to develop an intervention plan and accompanying rationale; the exceptions are rare or complicated cases where it is appropriate to seek the guidance of a specialist or more experienced nurse	In simple or common/familiar situations, is able to compare the client's data patterns with those known and to develop/explain intervention plans; has difficulty, however, with even moderately difficult data/situations that are within the expectations for students; inappropriately requires advice or assistance	Even in simple of familiar/common situations has difficulty interpreting or making sense of data; has trouble distinguishing among competing explanations and appropriate interventions, requiring assistance both in diagnosing the problem and in developing an intervention

LASATER CLINICAL JUDGMENT RUBRIC
Responding and Reflecting

Effective RESPONDING involves:	Exemplary	Accomplished	Developing	Beginning
Calm, Confident Manner	Assumes responsibility: delegates team assignments, assess the client and reassures them and their families	Generally displays leadership and confidence, and is able to control/calm most situations; may show stress in particularly difficult or complex situations	Is tentative in the leader's role; reassures clients/families in routine and relatively simple situations, but becomes stressed and disorganized easily	Except in simple and routine situations, is stressed and disorganized, lacks control, making clients and families anxious/less able to cooperate
Clear Communication	Communicates effectively; explains interventions; calms/reassures clients and families; directs and involves team members, explaining and giving directions; checks for understanding	Generally communicates well; explains carefully to clients, gives clear directions to team; could be more effective in establishing rapport	Shows some communication ability (e.g., giving directions); communication with clients/families/team members is only partly successful; displays caring but not competence	Has difficulty communicating; explanations are confusing, directions are unclear or contradictory, and clients/families are made confused/anxious, not reassured
Well-Planned Intervention/Flexibility	Interventions are tailored for the individual client; monitors client progress closely and is able to adjust treatment as indicated by the client response	Develops interventions based on relevant patient data; monitors progress regularly but does not expect to have to change treatments	Develops interventions based on the most obvious data; monitors progress, but is unable to make adjustments based on the patient response	Focuses on developing a single intervention addressing a likely solution, but it may be vague, confusing, and/or incomplete; some monitoring may occur
Being Skillful	Shows mastery of necessary nursing skills	Displays proficiency in the use of most nursing skills; could improve speed or accuracy	Is hesitant or ineffective in utilizing nursing skills	Is unable to select and/or perform the nursing skills

Effective REFLECTING involves:	Exemplary	Accomplished	Developing	Beginning
Evaluation/Self-Analysis	Independently evaluates/analyzes personal clinical performance, noting decision points, elaborating alternatives and accurately evaluating choices against alternatives	Evaluates/analyzes personal clinical performance with minimal prompting, primarily major events/decisions; key decision points are identified and alternatives are considered	Even when prompted, briefly verbalizes the most obvious evaluations; has difficulty imagining alternative choices; is self-protective in evaluating personal choices	Even prompted evaluations are brief, cursory, and not used to improve performance; justifies personal decisions/choices without evaluating them
Commitment to Improvement	Demonstrates commitment to ongoing improvement: reflects on and critically evaluates nursing experiences; accurately identifies strengths/weaknesses and develops specific plans to eliminate weaknesses	Demonstrates a desire to improve nursing performance: reflects on and evaluates experiences; identifies strengths/weaknesses; could be more systematic in evaluating weaknesses	Demonstrates awareness of the need for ongoing improvement and makes some effort to learn from experience and improve performance but tends to state the obvious, and needs external evaluation	Appears uninterested in improving performance or unable to do so; rarely reflects; is uncritical of him/herself, or overly critical (given level of development); is unable to see flaws or need for improvement

Quint Leveled Clinical Competency Tool (QLCCT)
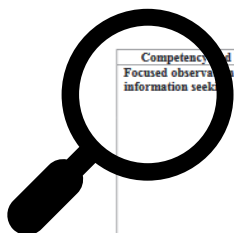
Competency and level	4 = Graduate nurse	3=Advancing	2=Progressing	1=Novice
Focused observation & information seeking	Focuses subjective and objective observations and can anticipate most important client needs	Focuses subjective and objective observations using a variety of data and can identify most important current client needs	Collects a variety of subjective and objective data, but is unable to identify the most important data or client needs	Collects minimal subjective and objective data, does not understand relevancy
	Regularly identifies pertinent and subtle information important to client assessment	Usually identifies pertinent information for assessment of the client	Focuses only on the most obvious data for the assessment of the client	Data gathering is unorganized at times
	Uses all pertinent data to develop accurate assessments	Increasingly able to identify relevant data for developing assessments	Collects obvious information, may miss data relevant to assessment	Does not gather all data pertinent for assessment
	Seeks out all objective and subjective information from client and families that supports the entire plan of care	Seeks out subjective/objective information from the client and families that supports most of the plan of care	Makes limited efforts to seek objective and/or subjective information from the client and/or families to support the plan of care	Gathers minimal objective and/or subjective information to support plan of care

Prion, et al. (2017)

Simulation Effectiveness Tool (SET)

- Initial tool development was the Medical Education Technologies Incorporated (METI) tool

- Utilized as part of the Program for Nursing Curriculum Integration (PNCI).

- Updated in 2009 and published as the Simulation Effectiveness Tool (SET)

- Measures student attitudes

Please circle the number that best reflects your opinion about your simulation experience.

	Do Not Agree	Somewhat Agree	Strongly Agree
The instructor's questions helped me to critically think (L)	0	1	2
I feel better prepared to care for real patients (C)	0	1	2
I developed a better understanding of the pathophysiology of the conditions in the SCE (L)	0	1	2
I developed a better understanding of the medications that were in the SCE (L)	0	1	2
I feel more confident in my decision making skills (C)	0	1	2
I am more confident in determining what to tell the healthcare provider (C)	0	1	2
My assessment skills improved (L)	0	1	2
I feel more confident that I will be able to recognize changes in my real patient's condition (C)	0	1	2
I am able to better predict what changes may occur with my real patients (C)	0	1	2
Completing the SCE helped me understand classroom information better (L)	0	1	2
I was challenged in my thinking and decision-making skills (L)	0	1	2
I learned as much from observing my peers as I did when I was actively involved in caring for the simulated patient (L)	0	1	2
Debriefing and group discussion were valuable (L)	0	1	2

Note. C Confidence subscale; L Learning subscale; SCE simulated clinical experience.

Figure 2   Simulation Effectiveness Tool (subscales identified).

Elfrick, et al (2012)

Simulation Effectiveness Tool – Modified (SET-M)

Simulation Effectiveness Tool - Modified (SET-M)

After completing a simulated clinical experience, please respond to the following statements by circling your response.

PREBRIEFING:	Strongly Agree	Somewhat Agree	Do Not Agree
Prebriefing increased my confidence	3	2	1
Prebriefing was beneficial to my learning.	3	2	1
SCENARIO:			
I am better prepared to respond to changes in my patient's condition.	3	2	1
I developed a better understanding of the pathophysiology.	3	2	1
I am more confident of my nursing assessment skills.	3	2	1
I felt empowered to make clinical decisions.	3	2	1
I developed a better understanding of medications. (Leave blank if no medications in scenario)	3	2	1
I had the opportunity to practice my clinical decision making skills.	3	2	1
I am more confident in my ability to prioritize care and interventions	3	2	1
I am more confident in communicating with my patient.	3	2	1
I am more confident in my ability to teach patients about their illness and interventions.	3	2	1
I am more confident in my ability to report information to health care team.	3	2	1
I am more confident in providing interventions that foster patient safety.	3	2	1
I am more confident in using evidence-based practice to provide nursing care.	3	2	1
DEBRIEFING:			
Debriefing contributed to my learning.	3	2	1
Debriefing allowed me to verbalize my feelings before focusing on the scenario	3	2	1
Debriefing was valuable in helping me improve my clinical judgment.	3	2	1
Debriefing provided opportunities to self-reflect on my performance during simulation.	3	2	1
Debriefing was a constructive evaluation of the simulation.	3	2	1
What else would you like to say about today's simulated clinical experience?			

Leighton, K., Ravert, P., Mudra, V., & Macintosh, C. (2015). Update the Simulation Effectiveness Tool: Item modifications and reevaluation of psychometric properties. *Nursing Education Perspectives, 36*(5), 317-323. Doi: 10.5480/1 5-1671.

Information Processing Framework

Clinical Judgment Model (NCSBN-CJM)

Integrating the National Council of State Boards of Nursing Clinical Judgment Model Into Nursing Educational Frameworks

Philip Dickison, PhD, RN; Katie A. Haerling, PhD, RN; and Kathie Lasater, EdD, RN, ANEF, FAAN

Figure 3. The assessment model of NCJ with the multilayer representation of NCJ.

Clinical Judgment Model (CJM)

Question

How many of you have seen or are using these type of questions based on a clinical judgment model?

Example of Augmented Reality Evaluation

Questionnaire Item

1. It was possible to diagnose the patient using this simulator
2. This virtual simulator provides a reliable cranial representation of a real patient
3. I would participate in future preoperative planning sessions with this simulator
4. I believe practicing with this simulator will improve my ability to define the best surgical access
5. I believe that the 3D visualization of the anatomical aspects of the simulator is an appropriate tool for multidisciplinary discussions
6. I believe that AR may contribute to the patient (or family) understanding the pathology
7. I believe that AR may contribute to the patient (or family) understanding the surgery that will be performed
8. Using the AR virtual simulator as a preoperative planning tool is extremely useful
9. Preoperative planning with this simulator can improve postoperative outcome
10. The 3D reconstruction from real images was very realistic
11. The metopic craniosynostosis video was very realistic
12. The spatial orientation of the tissues (skin and skull) was realistic
13. It was possible to visualize skull base changes accurately
14. The possibility of manually enlarging the object can help in understanding the pathology and discussing surgical access
15. The possibility of manually rotating the object can help in understanding the pathology and discussing surgical access

Coelho, G et al (2020)

Popular Measurement Tools Summarized

Measurement	Abbreviation	What it measures
Simulation Evaluation Tool	METI/SET	Learner attitudes towards simulation experience
Lasater Clinical Judgment Rubric	LCJR	Single action competencies
Simulation Evaluation Tool – Modified	SET-M	Learner attitudes towards simulation experience
Quint Leveled Clinical Competency Tool	QLCCT	Multiple competencies
Next Generation NCLEX Test Items	NCLEX	Content

Question

What tools have you seen as the most popular in your experience?

What do they measure?

Challenges of Measuring

- Measurement lagging technology

- No standardization of measurement

- Subjectivity

- Measuring the wrong thing (experiences)

- Some measurements are time consuming and complex (frequent complaint about both the LJCR and QLCCT measurement tools [Prion et al. (2016)]

Competency

Bradshaw (1998)

- "applying knowledge, skills, and attitudes"

IOM (2003) -> QSEN (2005)

- "the habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individuals and community being served" (Hundert et al., 1996).

AACN (2021)

- "An observable ability of a health professional, integrating multiple components such as knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure their acquisition (Frank, Snell, Cate, et al., 2010)."

Setting the Standard

- Common Standards Used in Nursing Education
  - International Nursing Association for Clinical Simulation and Learning
  - Quality and Safety Education for Nurses
  - American Association of Colleges of Nursing
  - NCLEX Test Plan

Standards in Other Area

Emergency Medical Management

- [National Emergency Services Education Standards](#)

Medical Education

- Accreditation Council for Graduate Medical Education
  - [Milestone Guide](#)

National EMS Education Standards

		EMR	EMT	AEMT	Paramedic
Preparatory	**Preparatory**	Uses knowledge of the EMS system, safety/well-being of the EMR, medical/legal issues and ethical issues at the scene of an emergency while awaiting a higher level of care.	Applies knowledge of the EMS system, safety/well-being of the EMT, medical/legal and ethical issues to the provision of emergency care.	Applies knowledge of the EMS system, safety/well-being of the AEMT, medical/legal and ethical issues to the provision of emergency care.	Integrates knowledge of EMS systems, the safety/well-being of the paramedic, and medical/legal and ethical issues intended to improve the health of EMS personnel, patients and the community.
	EMS Systems	• EMS systems (S,S) • Roles, responsibilities and professionalism of EMS personnel (S,S) • Quality improvement vs. quality assurance (S,S) • Role of medical oversight (S,S) • Culture of safety / patient safety (S,S) • Continuum of care (S,S)	• EMS systems (S,F) • Roles, responsibilities and professionalism of EMS personnel (F,F) • Quality improvement vs. quality assurance (S,F) • Role of medical oversight (S,S) • Culture of safety / patient safety (S,F) • Continuum of care (S,F) • History of EMS (S,F) • Systems of care, e.g., Stroke,	• EMS systems (S,F) • Roles, responsibilities and professionalism of EMS personnel (F,F) • Quality improvement vs. quality assurance (F,F) • Role of medical oversight (F,F) • Culture of safety / patient safety (F,F) • Continuum of care (F,F) • History of EMS (S,F) • Systems of care, e.g., Stroke,	• EMS systems (C,C) • Roles, responsibilities, and professionalism of EMS personnel (C,C) • Quality improvement vs. quality assurance (C,C) • Role of medical oversight (C,C) • Culture or safety / patient safety (C,C) • Continuum of care (F,F) • History of EMS (F,F) • Systems of care, e.g., Stroke,

Figure 1a: General Description of Milestone Levels Related to Stage of Education

Competency: Subcompetency				
Level 1	Level 2	Level 3	Level 4	Level 5
Novice Resident/Fellow	Advanced Beginner Resident/Fellow	Competent Resident/Fellow	Proficient Resident/Fellow	Resident/Fellow Expert
Brand new to the specialty	Performs some tasks with limited autonomy	Performs common tasks with autonomy	Target for graduation (not a requirement)	Exceeds their peers
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐

Figure 1b: Example of the Basic Anatomy of a Milestone

Patient Care 5: Urgent and Emergent Medical Conditions				
Level 1	Level 2	Level 3	Level 4	Level 5
Recognizes urgent and emergent medical conditions and initiates system protocols as appropriate	Performs an initial assessment of patients with urgent and emergent conditions	Provides initial stabilization of patients with urgent and emergent medical conditions, as well as safe transitions in care	Coordinates the initial assessment and management of urgent and emergent conditions with the interprofessional care team	Anticipates clinical decompensation and intervenes early
Knows code status	Discusses and clarifies code status with patient and family	Uses code status in clinical decision making	Considers patient and family wishes to modify code status and subsequent care as appropriate	Leads conversation with medical team when care is futile
☐ ☐	☐ ☐	☐ ☐	☐ ☐	☐
Comments:				Not Yet Completed Level 1 ☐ Not Yet Assessable ☐

Competency

Subcompetency

Milestone

Question

How many times is the word competency used in the INASCL Simulation Standards?

How Could We Measure Clinical Judgement in Simulation?

Measuring Clinical Judgment in Simulation

What are we measuring?

- Outcomes
- Attitudes
- Skills
- Competencies

How are we measuring?

- Self Reflection
- Observation
- Curated Observation
- Assessment
- Debrief

How can we set the standard?

Remember…

- Any Measurement Needs to be:
  - Reliable
    - Same result every time
      - Test – Retest
      - Interrater
  - Valid
    - Measuring what you actually want to measure
      - Content
      - Construct
      - Face
      - Criterion

AACN Essentials (2021 Update)

- 10 Domains
  - Knowledge for Nursing Practice
  - Person-Centered Care
  - Population Health
  - Scholarship for Nursing Discipline
  - Quality and Safety
  - Interprofessional Partnerships
  - Systems-Based Practice
  - Informatics and Healthcare
  - Professionalism
  - Person, Professional, and Leadership Development

- Featured Concepts
  - Clinical Judgment
  - Communication
  - Compassionate Care
  - Diversity, Equity, and Inclusion
  - Ethics
  - Evidence-Based Practice
  - Health Policy
  - Social Determinants of Health

Sub-Competencies

ESSENTIALS MODEL

LEVEL 1

AACN Essentials

Entry-Level Professional Nursing Education sub-competencies

Used by programs preparing a nurse for an initial professional nursing degree.

LEVEL 2

AACN Essentials

Advanced-Level Nursing Education sub-competencies

— and —

Specialty/role requirements/ competencies

Used by programs preparing a nurse for an advanced nursing practice specialty or advanced nursing practice role.

Figure 1: Model for Nursing Education
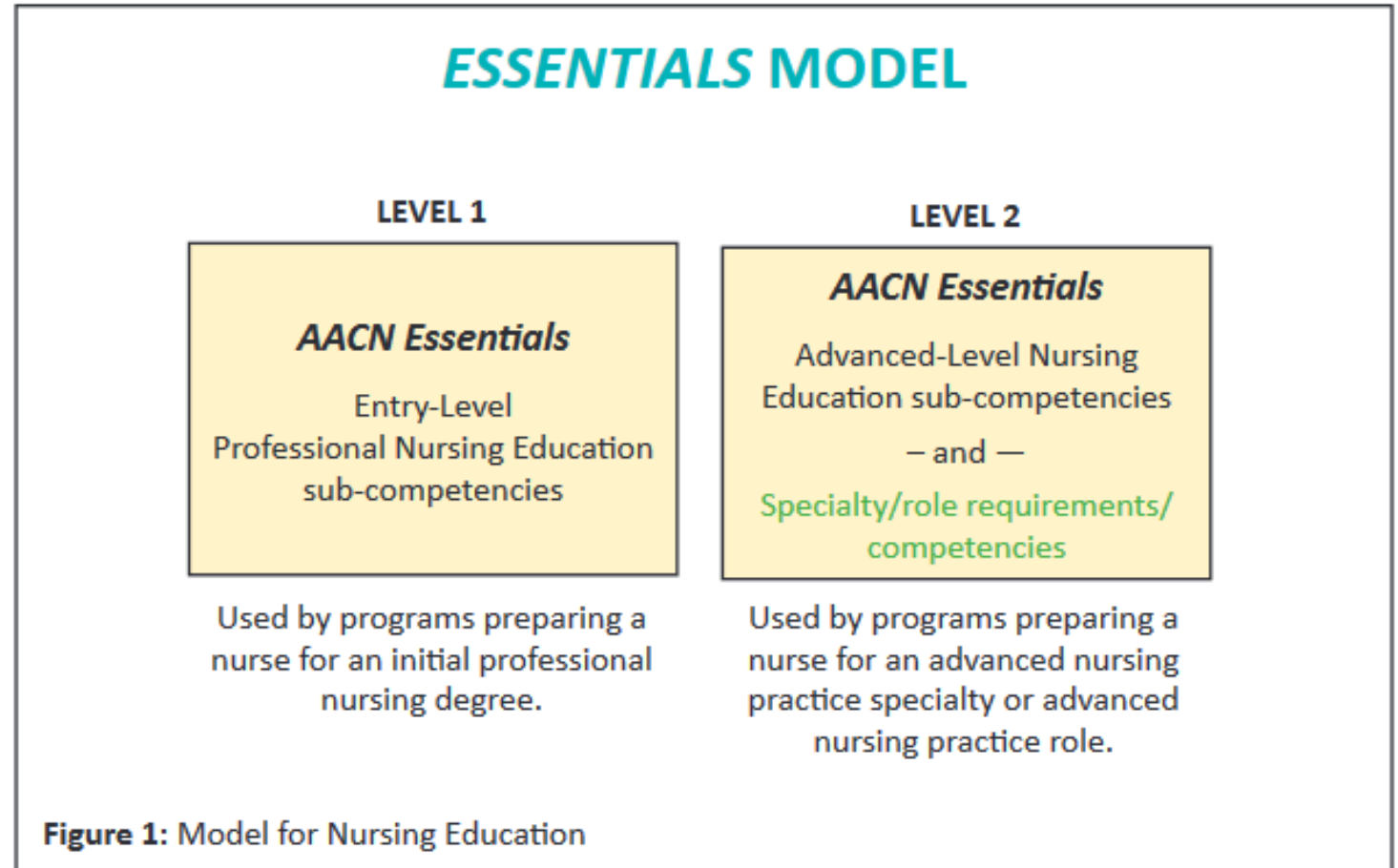
Competency Example

5.2 Contribute to a culture of patient safety.

5.2a Describe the factors that create a culture of safety.

5.2b Articulate the nurse's role within an interprofessional team in promoting safety and preventing errors and near misses.

5.2c Examine basic safety design principles to reduce risk of harm.

5.2d Assume accountability for reporting unsafe conditions, near misses, and errors to reduce harm.

5.2e Describe processes used in understanding causes of error.

5.2f Use national patient safety resources, initiatives, and regulations at the point of care.

Measuring Clinical Judgment - Observation

Competency	Cues	Challenges (Layer 4)	Actions (At least 6 of 8)	Met	Not Met
2.8 Promote self-care management • 2.8a Assist the individual to engage in self-care management • 2.8b Employ individualized educational strategies based on learning theories, methodologies, and health literacy. • 2.8c Educate individuals and families regarding self-care for health promotion, illness prevention, and illness management. • 2.8d Respect individuals and families' self-determination in their healthcare decisions. • 2.8e Identify personal, system, and community resources available to support self-care management.	Patient refuses care	Distractions – busy floor Time Pressure Unable to reach spouse	• Delivered education • Notified provider • Acknowledged refusal and autonomy • Inquired about concerns • Reviewed patient's understanding • Attempted/offered to contact spouse • Did not force or coerce • Offered resources A red action indicates "Not Met"		

Figure 3. The assessment model of NCJ with the multilayer representation of NCJ.

Layer 4
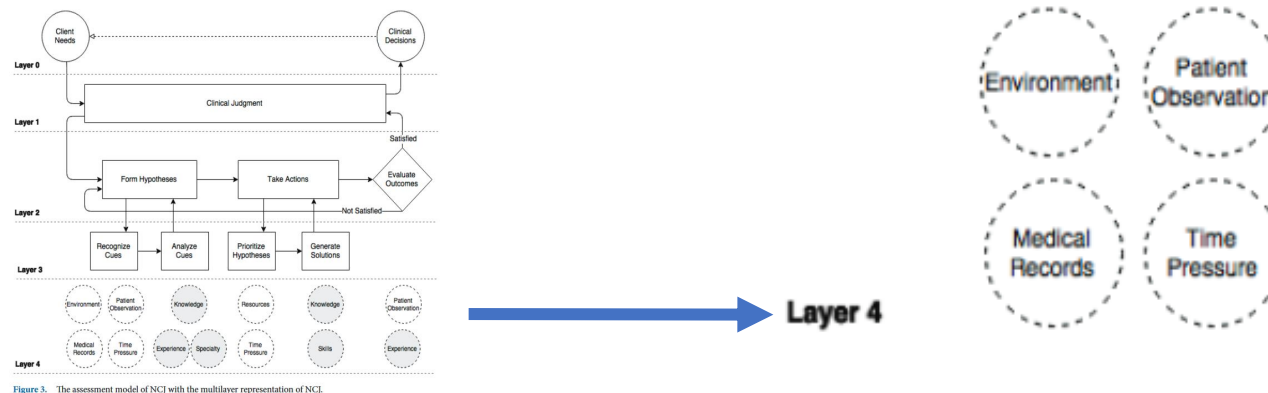
Measuring Clinical Judgment - Reflection

Competency	Agree	Somewhat Agree	Don't Agree
I met the following competencies:			
2.8 Promote self-care management	3	2	1
• 2.8a Assist the individual to engage in self-care management	3	2	1
• 2.8b Employ individualized educational strategies based on learning theories, methodologies, and health literacy.	3	2	1
• 2.8c Educate individuals and families regarding self-care for health promotion, illness prevention, and illness management.	3	2	1
• 2.8d Respect individuals and families' self-determination in their healthcare decisions.	3	2	1
• 2.8e Identify personal, system, and community resources available to support self-care management.	3	2	1
Total Score			

Example - Altmiller, G., & Wilson, C. (2023)

- Used a pre-test/post-test approach

- 6-point Likert – scale from strongly agree to strongly disagree

- Measured several indicators including:
  - Assessment – Clinical Reasoning
  - Attitudes – Socialization in Nursing
  - Clinical Judgment

- Aligned all questions to the updated BSN Essentials

- Results are not published yet

Clinical Judgment

Question	Mean Pre	Mean Post	p	Sub-competency Alignment
Patients with a potassium level of 6.5 should not have hemodialysis treatment. (Reverse-scored)	4.442	5.077	.01	1.3a Demonstrate clinical reasoning. 2.3e Distinguish between normal and abnormal health findings.
ACE inhibitor medications should be held prior to dialysis treatment.	5.135	5.673	.001	1.3a Demonstrate clinical reasoning. 1.3c Incorporate knowledge from nursing and other disciplines to support clinical judgment. 2.5c Prioritize care based on best evidence. 4.2c Use best evidence in practice.
Telemetry monitoring is required for patients with hyperkalemia.	5.481	5.75	.005	1.3a Demonstrate clinical reasoning. 2.4c Prioritize problems/health concerns. 4.2c Use best evidence in practice.
Administering D50 and regular insulin IV is an effective regimen to lower serum potassium.	5.288	5.75	.001	2.5d Incorporate evidence-based interventions to improve outcomes and safety. 4.2c Use best evidence in practice.

Let's Try One!

Entry-Level Professional Nursing Education	Advanced-Level Nursing Education
2.1 Engage with the individual in establishing a caring relationship.	
2.1a Demonstrate qualities of empathy.	2.1d Promote caring relationships to effect positive outcomes.
2.1b Demonstrate compassionate care.	2.1e Foster caring relationships.
2.1c Establish mutual respect with the individual and family.	

Competency	Cues	Challenges (Layer 4)	Actions (At least 6 of 8)	Met	Not Met
2.1 Engage with the individual in establishing a caring relationship. • 2.1a Demonstrate qualities of empathy. • 2.1b Demonstrate compassionate care. • 2.1c Establish mutual respect with the individual • and family			*A red action indicates "Not Met"		

Using Different Simulation Modalities

- Challenges
  - Observation "mode" not always available
  - Video screen capture not always available
  - Alternative simulations may run 24/7 and off location
  - Software is not always customizable
  - Simulations may not be designed by the learning institution
  - Automated systems for evaluation offer less flexibility
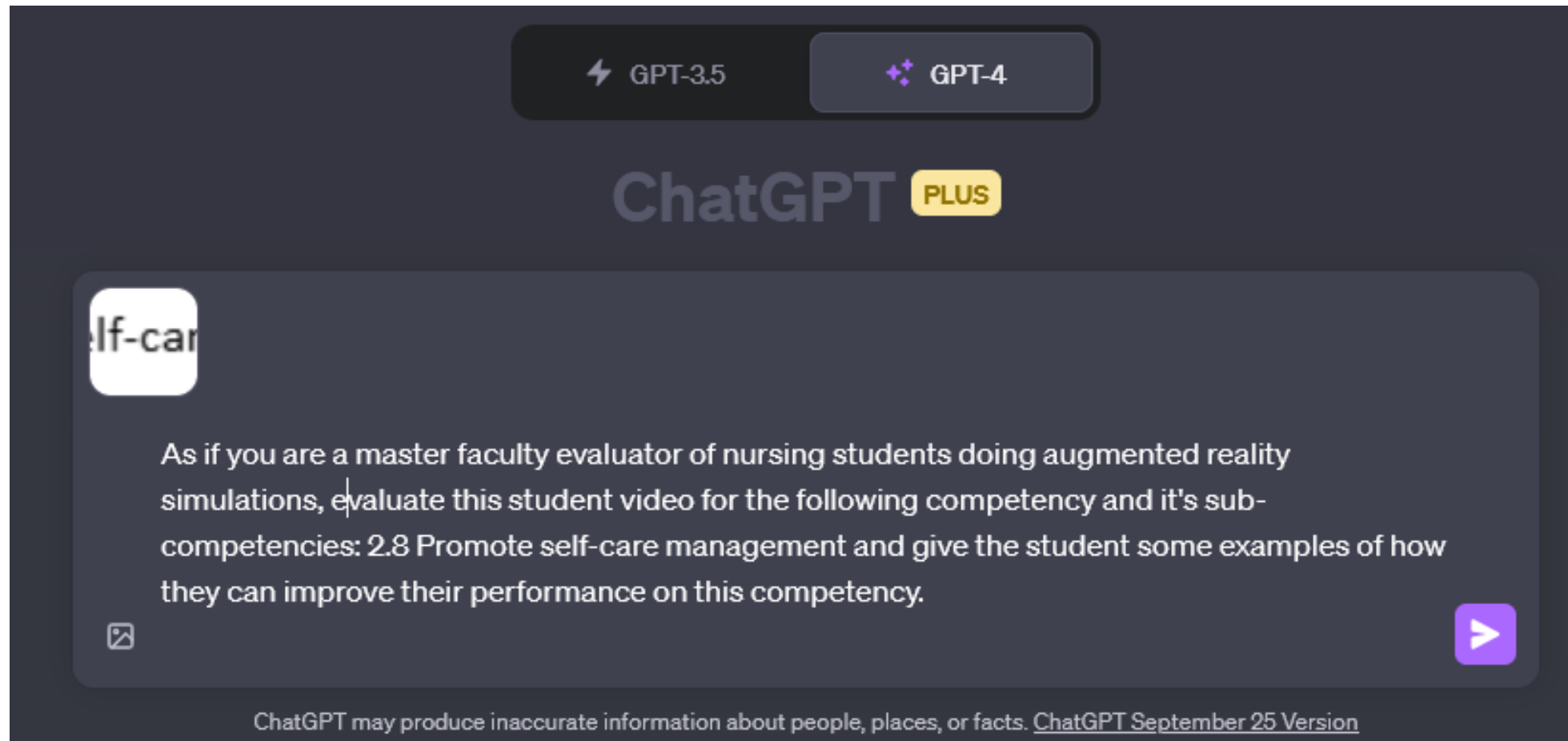 - Technology difficulties and expense

Question

What additional challenges can you think of in evaluating simulation in these alternative simulation modalities?

But then there is always Artificial Intelligence...

Questions,
Comments,
Critiques,
Thoughts,
Dreams?

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