

Innovations from Healthcare Education for Measuring Human Connections

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University of Illinois College of Medicine

IMPS Symposium

June 21, 2026

Importance of Human Connections (Relationships)



Are Human Connections (Relational Intelligence) Measurable?

Impact of Human Connections

Physician-Patient Interaction for Treatment



Physician A

Technically Excellent
Poor Communication
Lacking Interpersonal
Skills

Physician B

Listens carefully,
builds patient trust,
understand patient
concerns



Trust and Relationships → Patient Outcomes

Other Disciplines

- Business/Entrepreneurial Leadership
- Teacher and Principal Education
- Basic Science / Laboratory Research – Team Science

RQ → Core Skill in Medical Education

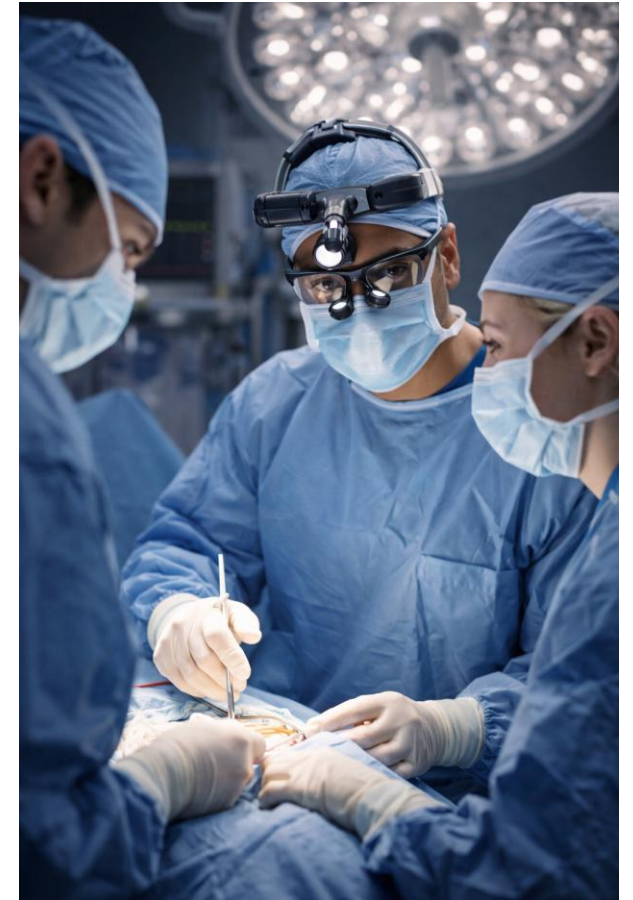
Interpersonal skills in
psychiatrists



Teamwork in
emergency room



Trust built between
patient and surgeon



Medical Competencies

Accrediting Core Competencies (ACGME)

Patient Care

Medical
Knowledge

Practice-Based
Learning
Improvement

Systems-Based
Practice

Interpersonal
Communication
Skills

Professionalism



How is Relational Intelligence Measured in Medical Education?

Simulation

Case/Scenario
Based Interactions
(simulated
environment)



Observation

Direct / Indirect
Observations
(authentic clinical
environment)



Consensus

Committee-Based
Evaluations
(multiple
assessments)



Clinical Skills Examination



Differences in expectations of passing standards in communication skills for pre-clinical and clinical medical students

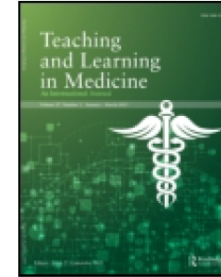
Yoon Soo Park^{a,*}, Carol Kamin^a, Daisuke Son^b, Ginnie Kim^c, Rachel Yudkowsky^a

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Repeat



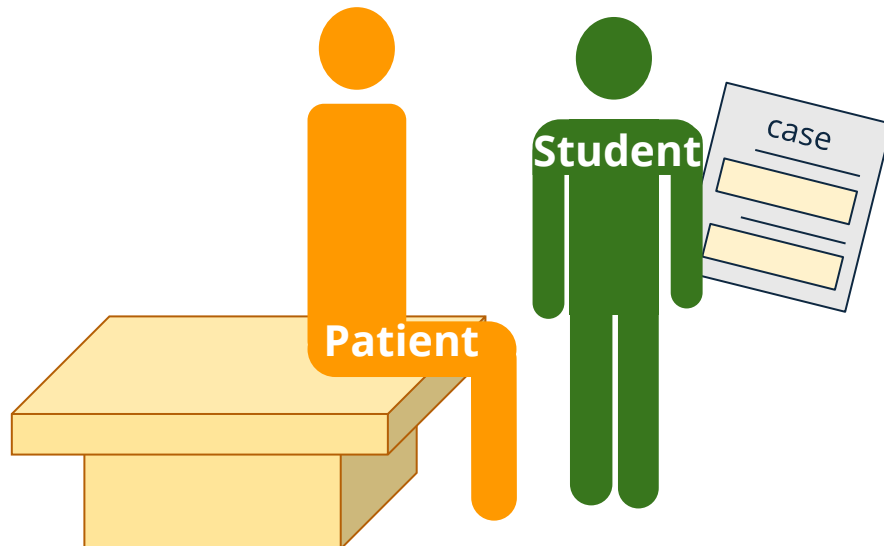
Teaching and Learning in Medicine: An International Journal

Publication details, including instructions for authors and subscription information:
<http://www.tandfonline.com/loi/htlm20>

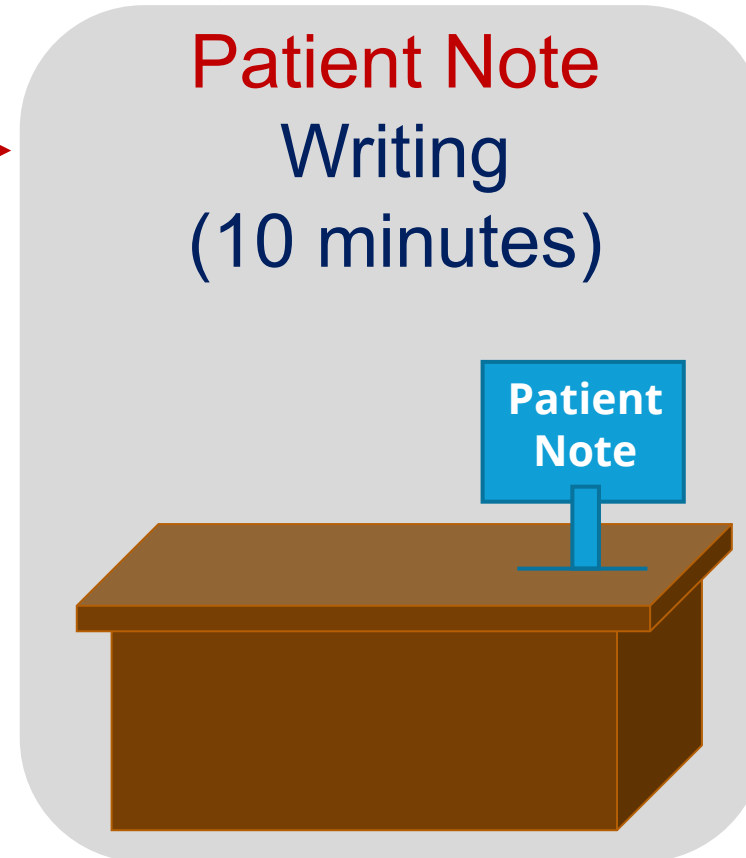
The IDEA Assessment Tool: Assessing the Reporting, Diagnostic Reasoning, and Decision-Making Skills Demonstrated in Medical Students' Hospital Admission Notes

Elizabeth A. Baker^a, Cynthia H. Ledford^b, Louis Fogg^c, David P. Way^d & Yoon Soo Park^e

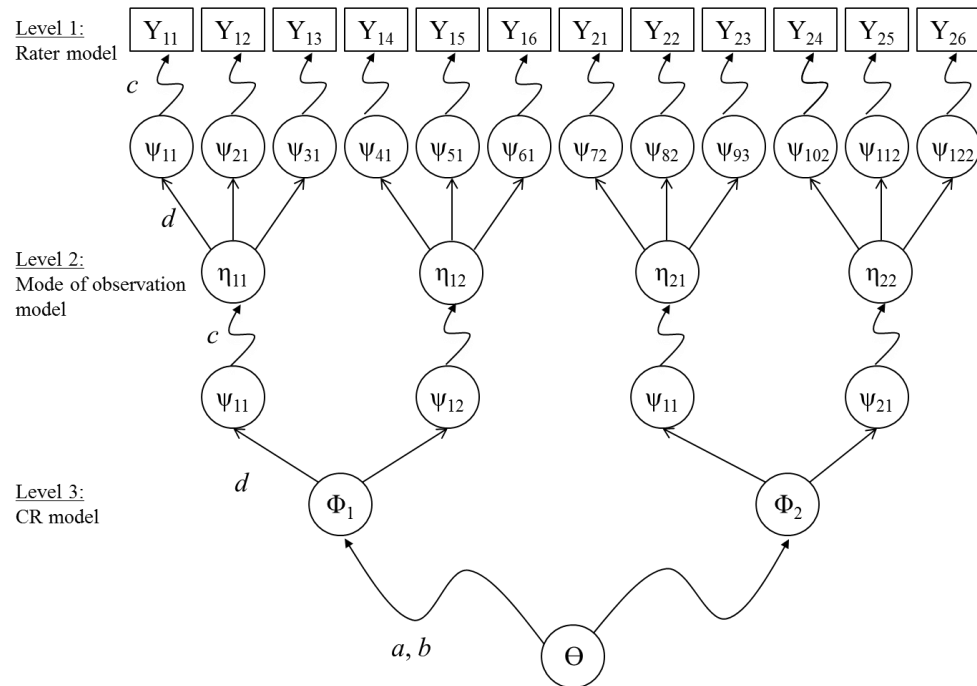
Patient Encounter
(15 minutes)



Patient Note Writing
(10 minutes)



Measurement Model for Medical Education



- **Level 1:** SDT model (Rater model)

$$p(Y_{jl} \leq k | \eta_l = \eta) = F(c_{jkl} - d_{jl} \eta_l)$$

- **Level 2:** SDT model (Mode of observation)

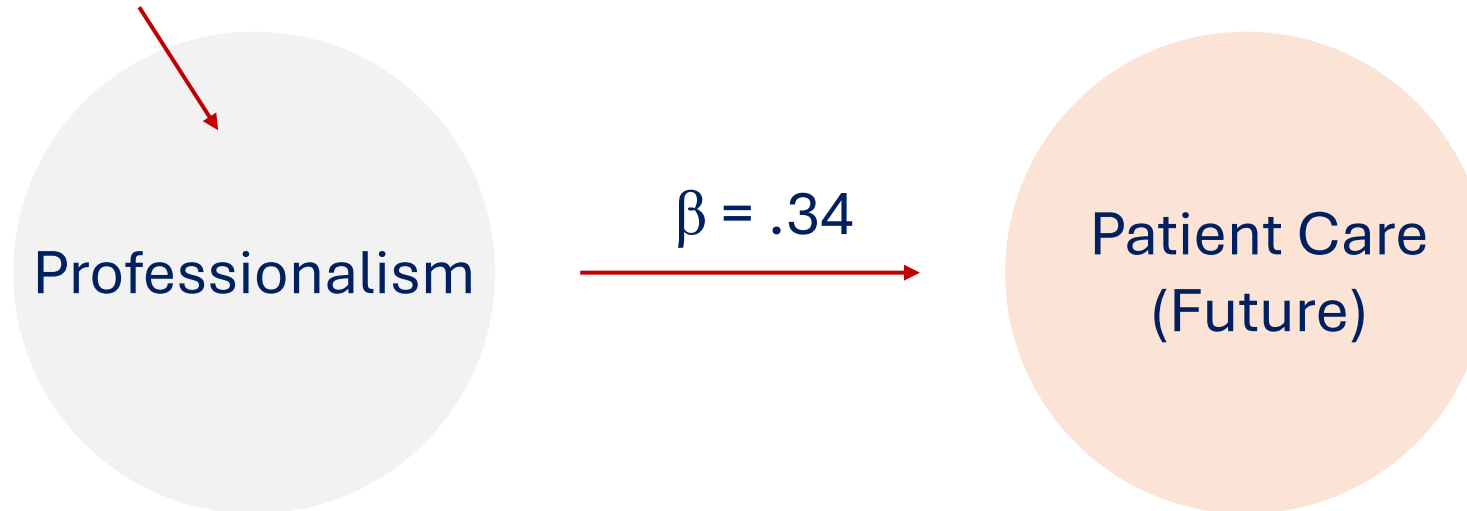
$$p(\eta_{ol} = \eta | \Phi) = F(f_{okl} - h_{ol} \Phi_{ol})$$

- **Level 3:** GPC model (CR model)

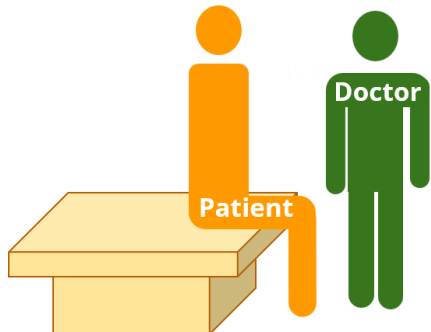
$$p(\Phi_l = \Phi | \theta) = \left[\exp \sum_{m=0}^{\eta} (a_l \theta - b_{lm}) \right] / \left[\sum_{v=0}^{M-1} \exp \sum_{g=0}^v a_l \theta - b_{lg} \right]$$

Measures of Professionalism → Patient Care

Education “Futures” Index



Standardized Patient
Encounter



Pediatrics Case Examples – Sampling

- Reticent mother who refuses care
- Explanation of error concerning vaccination of the patient
- Parental pressure to prescribe medication
- Difficulty discharging patient due to parent’s difficult social situation

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Nadia M Bajwa, MD, MHPE, PhD ✉, Mathieu R Nendaz, MD, MHPE, Klara M Posfay-Barbe,
MD, MS, Rachel Yudkowsky, MD, MHPE, Yoon Soo Park, PhD [Author Notes](#)

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<https://doi.org/10.1097/ACM.0000000000004286>

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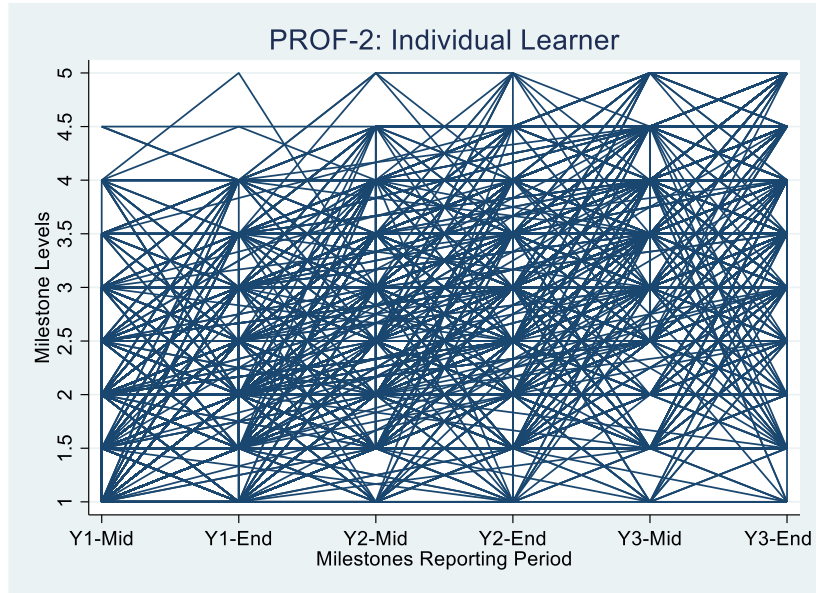
Nadia M Bajwa, MD, MHPE ✉, Mathieu R Nendaz, MD, MHPE, Annick Galetto-Lacour, MD,
Klara Posfay-Barbe, MD, MS, Rachel Yudkowsky, MD, MHPE, Yoon Soo Park, PhD

Academic Medicine, Volume 94, Issue Supplement_1, November 2019, Pages S57–S63,
<https://doi.org/10.1097/ACM.0000000000002895>

Published: 01 November 2019

Family Medicine (US National Data)

$n = 514$ programs and 3,872 residents

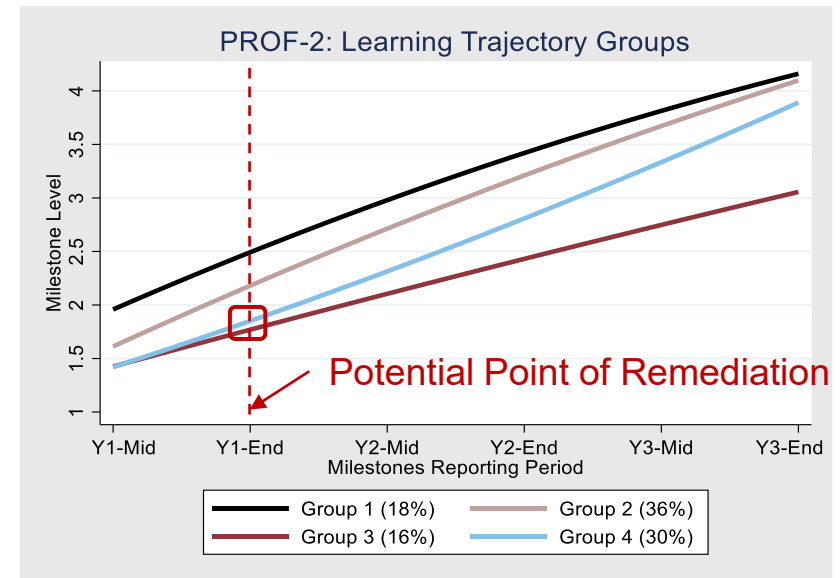
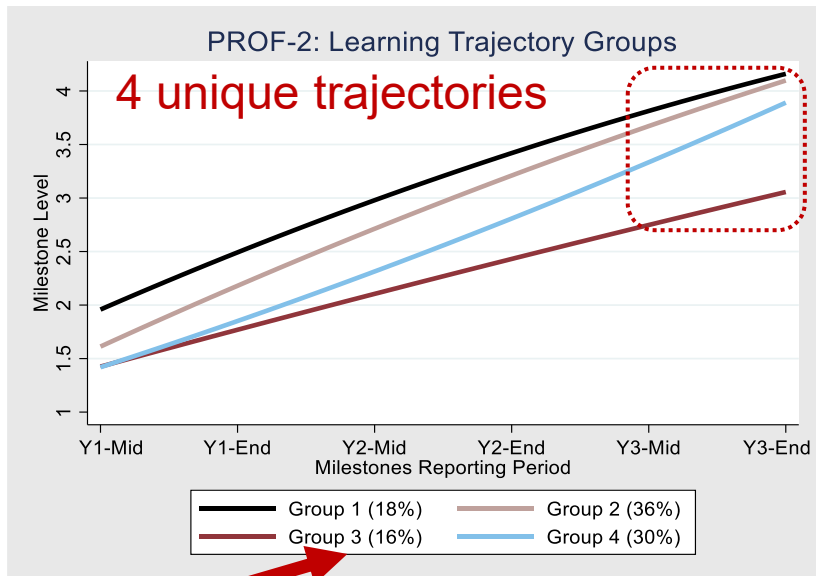


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Original Investigation | Medical Education

Longitudinal Reliability of Milestones-Based Learning Trajectories in Family Medicine Residents

Yoon Soo Park, PhD; Stanley J. Hamstra, PhD; Kenji Yamazaki, PhD; Eric Holmboe, MD



Studies in Other Specialties

Anesthesiology

ANESTHESIOLOGY

ASA Publications

EDUCATION: ORIGINAL INVESTIGATION: EDUCATION

Longitudinal Reliability of Milestones Learning Trajectories during Anesthesiology Residency

Sun, Ting Ph.D.¹; Park, Yoon Soo Ph.D.²; Chen, Fei Ph.D.³; Hogan, Sean O. Ph.D.⁴; Tanaka, Pedro M.D., Ph.D., M.A.C.M.⁵

Author Information

Anesthesiology 142(5):p 918-928, May 2025. | DOI: 10.1097/ALN.0000000000005388

Neurosurgery

CNS

Neurosurgery

CLINICAL RESEARCH: EDUCATION AND TRAINING

Delineating Neurosurgery Resident Development: Insights from a 10-Year National Accreditation Council for Graduate Medical Education Milestones and Learning Trajectories

Khalid, Syed I. MD^{*}; Mehta, Ankit I. MD^{*}; Atwal, Gursant MD^{*}; Hogan, Sean O. PhD^{†,5}; Park, Yoon Soo PhD⁵; Charbel, Fady T. MD^{*}

General Surgery



Contents lists available at ScienceDirect

The American Journal of Surgery

journal homepage: www.americanjournalofsurgery.com



What do quantitative ratings and qualitative comments tell us about general surgery residents' progress toward independent practice? Evidence from a 5-year longitudinal cohort

Ara Tekian^{a,*}, Martin Borhani^b, Sarette Tilton^c, Eric Abasolo^c, Yoon Soo Park^a

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Psychiatry

Academic Psychiatry

<https://doi.org/10.1007/s40596-019-01168-x>

EMPIRICAL REPORT

Understanding Assessment Systems for Clinical Competency Committee Decisions: Evidence from a Multisite Study of Psychiatry Residency Training Programs

R. Brett Lloyd¹ • Yoon Soo Park¹ • Ara Tekian² • Robert Marvin²

Received: 17 July 2019 / Accepted: 11 December 2019

© Academic Psychiatry 2019





RQ → Surgery Board Certification

(Years: 2015 – 2021; $n = 1,118$ residents)

ANNALS
OF
SURGERY

ORIGINAL STUDY

The Association of ACGME Milestones with Performance on American Board of Surgery Assessments A National Investigation of Surgical Trainees

Weaver, M. Libby MD^{*}; Carter, Taylor MD[†]; Yamazaki, Kenji PhD[‡]; Hamstra, Stanley J. PhD^{§||}; Holmboe, Eric MD[‡]; Chaer, Rabi
MD[¶]; Park, Yoon Soo PhD[#]; Smith, Brigitte K. MD^{**}

Author Information 

Annals of Surgery ():10.1097/SLA.0000000000005998, July 13, 2023. | DOI: 10.1097/SLA.0000000000005998

Comparison (Rowe et al, 2022)
Medical Knowledge (MCQ) –
OR = 1.02

Interpersonal
Communication
Skills
(during training)

OR = 3.83, $P < .001$

American Board of
Surgery (ABS)
Vascular Surgery
Certifying Exam
(in practice)

“Translational Effect” of RQ → Patient Outcomes

Vascular Surgery Graduates
(2015 – 2019)
814 VS Graduates



OR = 3.73, $p = .004$



$n = 4,213$ patients
(VQI Registry)



JAMA Surgery

Original Investigation

March 13, 2024

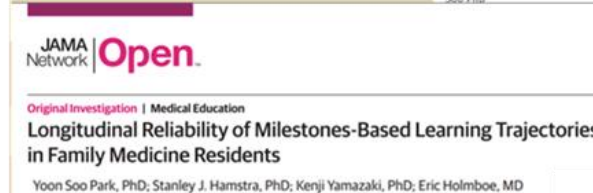
Accreditation Council for Graduate Medical Education Milestone Training Ratings and Surgeons' Early Outcomes

Brigitte K. Smith, MD, MHPE; Kenji Yamazaki, PhD¹; Ara Tekian, PhD, MHPE²; Benjamin S. Brooke, MD, PhD³; Erica L. Mitchell, MD, MEd⁴; Yoon Soo Park, PhD²; Eric S. Holmboe, MD¹; Stanley J. Hamstra, PhD^{5,6,7}

Relational
Intelligence



Patient
Outcomes



Technology and AI



Virtual
Learning



Immersive
Technology

AI-Based Measurement – “Virtual Learning”

Clinical Assessment Platform

SIGN IN

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Password

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Scenarios

Validated Cases ▾ ☒ Subfolders

- Aaron/Erin Lennon**
30yo with Bad Headache and ...
- Blanca**
18yo with Ongoing Fevers
- Carlos Santos**
68yo with Belly Pain and Weig...
- Maria Oliveira**
55yo with Ongoing Back Pain
- Post-survey**
Post-survey
- Pre-survey**
Pre-survey
- Welcome!**
Welcome!

Blanca 18yo with Ongoing Fevers

SCENARIO INTRODUCTION

Blanca, an 18-year-old college student, presents with a month of intermittent fevers and fatigue that have progressed to daily fevers with worsening shortness of breath, chest pain, swelling, and joint pain.

USER INSTRUCTIONS

- Speak to the patient the way you would in a real visit: introduce yourself, ask what's going on, and respond empathetically.
- Ask a few clear questions at a time to gather the story (symptoms, timing, severity, exposures, relevant past history/meds), and clarify anything unclear.
- Don't make up exam findings or test results—if you want them, tell the patient what you'd examine or order and why.

Supervisor Auto Rate →

No supervisor messages yet.

Talk to the virtual patient...

Start voice RT voice English



THE PLATFORM – EXAMPLE FROM MEDICAL EDUCATION

A Candidate's Experience

1 Select Scenario

The candidate chooses a virtual case from the case set assigned for their assessment.

2 Interact

Cases span the spectrum of clinical practice from pediatrics to geriatrics, routine follow-ups to acute presentations

3 Get Feedback



Alex S. — 35yo with Persistent Stomach: Alex Smith, a 35-year-old patient, presents with several months of worsening abdominal pain that has become daily and unrelieved by over-the-counter medications.



Infant 8 months — 8mo with Viral URI Symptoms plus Fever and Focal Findings: An 8-month-old is brought into the Emergency Department with a 3-day history of coryzal symptoms and increased work of breathing, now with new high fever and worsening lethargy.



Carlos Santos — 68yo with Belly Pain and Weight Loss Scenario: Carlos Santos, a 68-year-old retired engineer, comes in after recent testing for ongoing abdominal pain and weight loss and wants to understand what the results mean, what treatment options exist, and what to expect moving forward.



Blanca — 18yo with Ongoing Fevers: Blanca, an 18-year-old college student, presents with a month of intermittent fevers and fatigue that have progressed to daily fevers with worsening shortness of breath, chest pain, swelling, and joint pain.

A Candidate's Experience

1 Select Scenario

2 Interact

3 Get Feedback

The candidate sees ratings against **RELATE competencies** alongside narrative feedback for the whole encounter.

An integrated reflection prompt asks them to articulate their reasoning before they move on.

Interpersonal and Communication Skills

Uses open-ended questions and pacing that support patient storytelling (avoids s... Score: 4
Rates the learner's question technique and pacing in a sensitive oncology conversation.

- Before we get into that, can you tell me a little bit about what's been going on and how you've been feeling?
- How are you doing with the news so far?

Uses clear visit structure and agenda-setting Score: 3
Rates whether the learner organizes the conversation (agenda, signposting) in a way that supports understanding during a high-stakes results visit.

- I understand you've had some recent testing done and wanted to talk through the results and next steps.
- Before we get into that, can you tell me a little bit about what's been going on and how you've been feeling?

Uses plain language and defines unavoidable medical terms Not yet applicable
Rates whether the learner avoids jargon or explains it clearly (metastatic, stage IV, chemotherapy regimens, molecular testing) in patient-friendly language.
No opportunity for this item yet (per applicability pass).

Summarizes key information and aligns on shared understanding Score: 3
Rates whether the learner provides brief, accurate summaries of what was discussed (diagnosis, goals, next steps) to keep the patient oriented.

- I understand you've had some recent testing done and wanted to talk through the results and next steps.
- Before we get into the medical details, I want to make sure we have the time and space to talk through this properly.

Close

Thank You

yspark2@uic.edu