Innovative patient communication training using eLearning and simulation

Presented by Megan Hyun

Co-authors: Sam Hendley, Diane Schott, Kyle Gallagher, Ellie Bacon, Sarah Wisnoskie, Jeffrey Wong, Abby Besemer

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Disclosures

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- UNMC IRB_036-23-NH (simulation training)
- UNMC IRB_0086-23-EX (eLearning)

- Physicists can be trained in patient communication[1-2]
- Physics consults may benefit patients[3-4]

1. Brown et al JACMP 2018
2. Brown et al. Int J Radiat Oncol Biol Phys 2020
3. Atwood et al. Int J Radiat Oncol Biol Phys 2023
4. Hyun & Hyun, Ethics & Error in Med 2019

Motivation

Not on board with physics consults?

- Physicists ARE patient communicators
- Trainees should be prepared to do this well[1-3]

11. Patient-centered communication	
a.	Establishing clinical relationships (physics-patient consultation)
b.	Verbal and nonverbal communication, active listening
c.	Empathy, emotional status, and psychological considerations
d.	Patient advocacy and communicating with families
e.	Literacy, language, and cultural barriers

1

1. AAPM Report 365 (graduate programs)
2. AAPM report 249 (residency programs)
3. CAMPEP standards (2024)

Motivation

Why a new training program?

- Accessibility and cost
  - Telemedicine training gap
- Unique pedagogy
- Variety of clinical cases
- Difficult patient encounters

1. Brown et al. JACMP 2018
2. Brown et al. Int J Radiat Oncol Biol Phys 2020
3. Padilla et al. JACMP 2022
4. Padilla et al. tipsRO 2022

Purpose

Develop novel training material

Investigate efficacy

Research questions:

1. Does the training program increase learner confidence?
2. Does the training program increase learner competency?

Training program elements

eLearning

- Effective strategy didactics
- Virtual simulations
- Formative and summ

Freely available to broad medical physics community

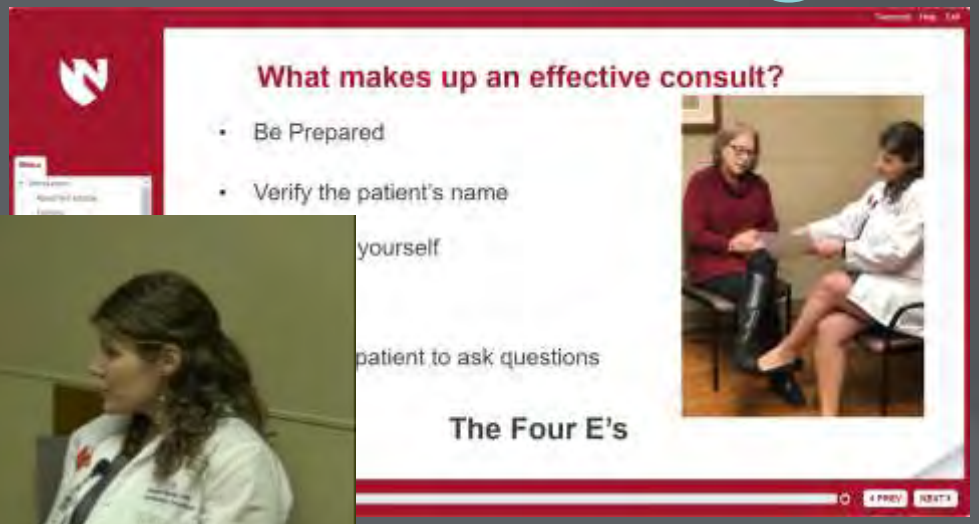
Simulation

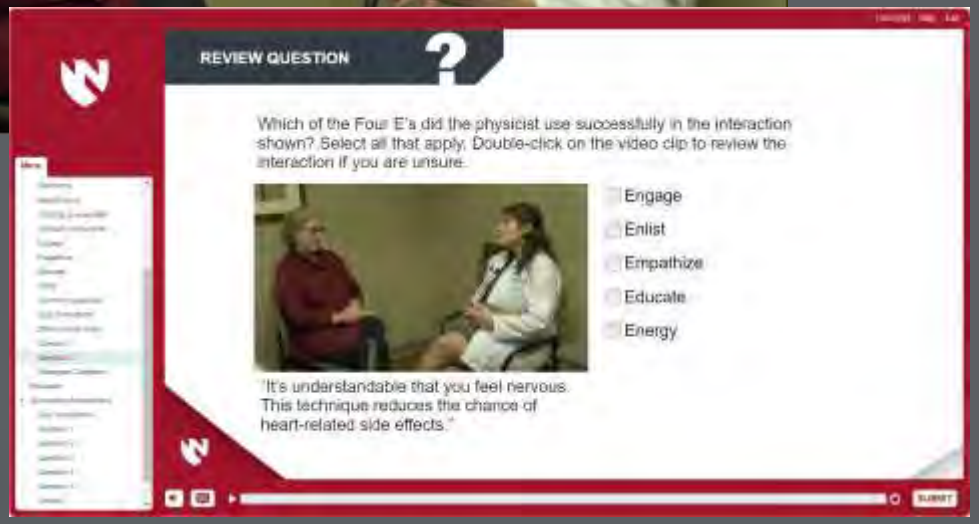
- Simulated patient interactions
- Discussion and assessment

Available to broad medical physics community ($)

eLearning module design

eLearning module design





Simulation design

- Interprofessional Academy of Educators Education Research Grant
- Partnered with iEXCEL, a program that provides experiential learning like clinical simulation



https://www.unmc.edu/iexcel/

Simulation design

- 3 standardized patient (SP) cases
- Varying levels of difficulty
- Briefing/debriefing with faculty
- Pre-learning handouts
- Optional visual aids

https://www.unmc.edu/iexcel/

Simulation cases

TBI case

GYN HDR case

SRS case

Simulation materials

Case 1, TBI pre-treatment physics consultation

Patient information	Tom Stern (M), age 50 Diagnosis: Acute myeloid leukemia
	2 Gy x 6 fractions, twice a day
	Mr. Stern met with his physician, Dr. Lin, for a consult. He was given the option to meet with the physicist prior to his first treatment to learn more about his radiation treatments and what to expect.

Case 1 handout: Total Body Irradiation

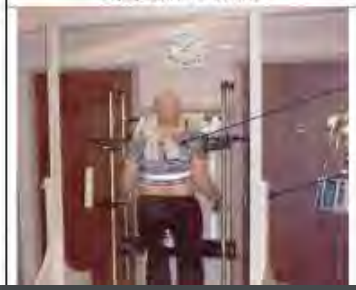
Introduction

Total Body Irradiation (TBI) is used to destroy bone marrow and tumor cells for the purpose of suppressing immune response. This helps avoid the rejection of donor bone marrow for patients with leukemia, lymphoma, multiple myeloma, or other diseases requiring a bone marrow transplant.

Prescription and dose details

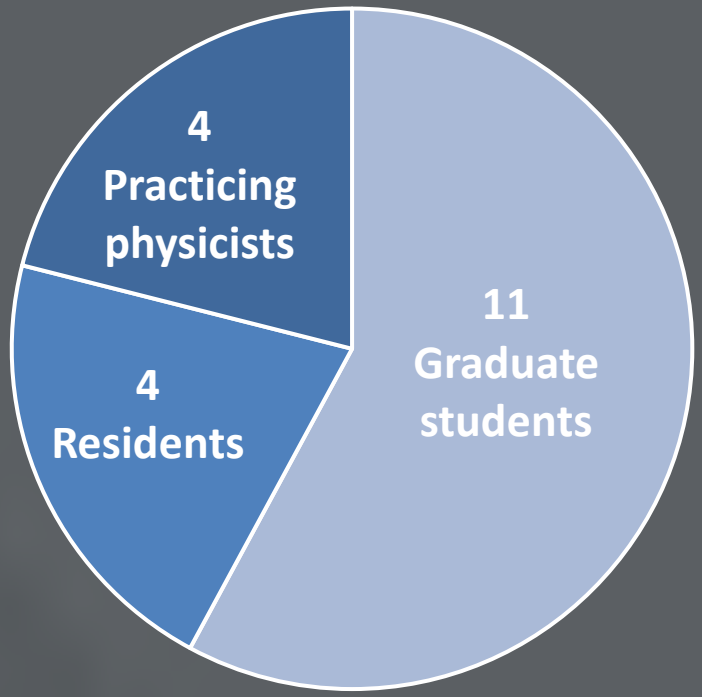
- Often 2 Gy fractions for 6 fractions total, BID (twice a day), prescribed at umbilicus
- Uniformity should be within about 10%
- Dose rate is kept lower than 10cGy/min to reduce GI and lung toxicity
- Lung dose is kept around 6-9 Gy through the use of lung blocks (AP/PA setup) or natural blocking from the arms (lateral setup)
- 6MV beams are almost always used

Patient setup

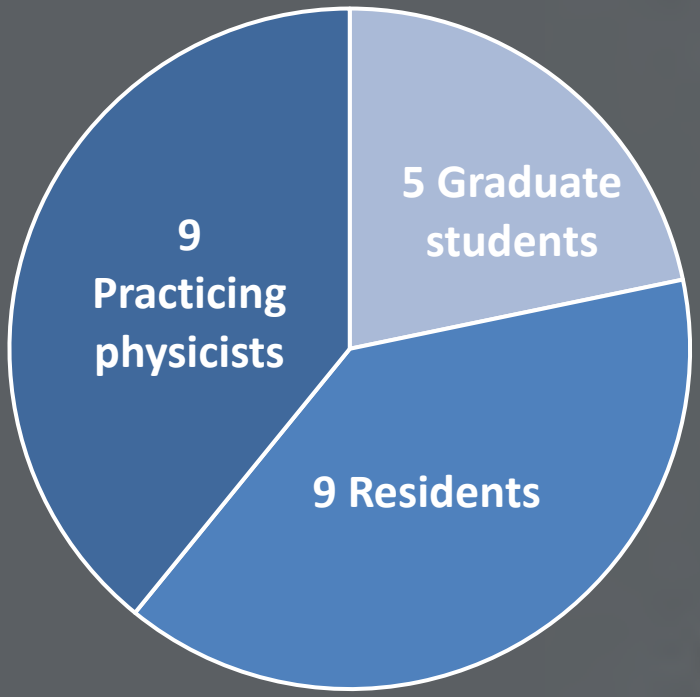
AP/PA	Lateral
Standing or resting on bicycle seat	Sitting/lying
Better uniformity	Worse uniformity
Less comfortable	More comfortable
	

Study design

eLearning pilot cohort:
19 learners



Full training program (eLearning+simulation) cohort: 23 learners



Study design

- Pre- and post-training surveys (confidence)
- Faculty and SP assessments (competency)

Surveys

I am confident in my ability to speak to patients about their treatments
I am confident that I can use empathy during patient interactions
I am confident that I can engage the patient during patient interactions
I am confident that I can enlist the patient during patient interactions
I am confident that I can educate the patient during patient interactions

Assessments

Simulation Training Assessment Rubric - Faculty

Unsatisfactory		Satisfactory			Good			Excellent	
1	2	3	4	5	6	7	8	9	10

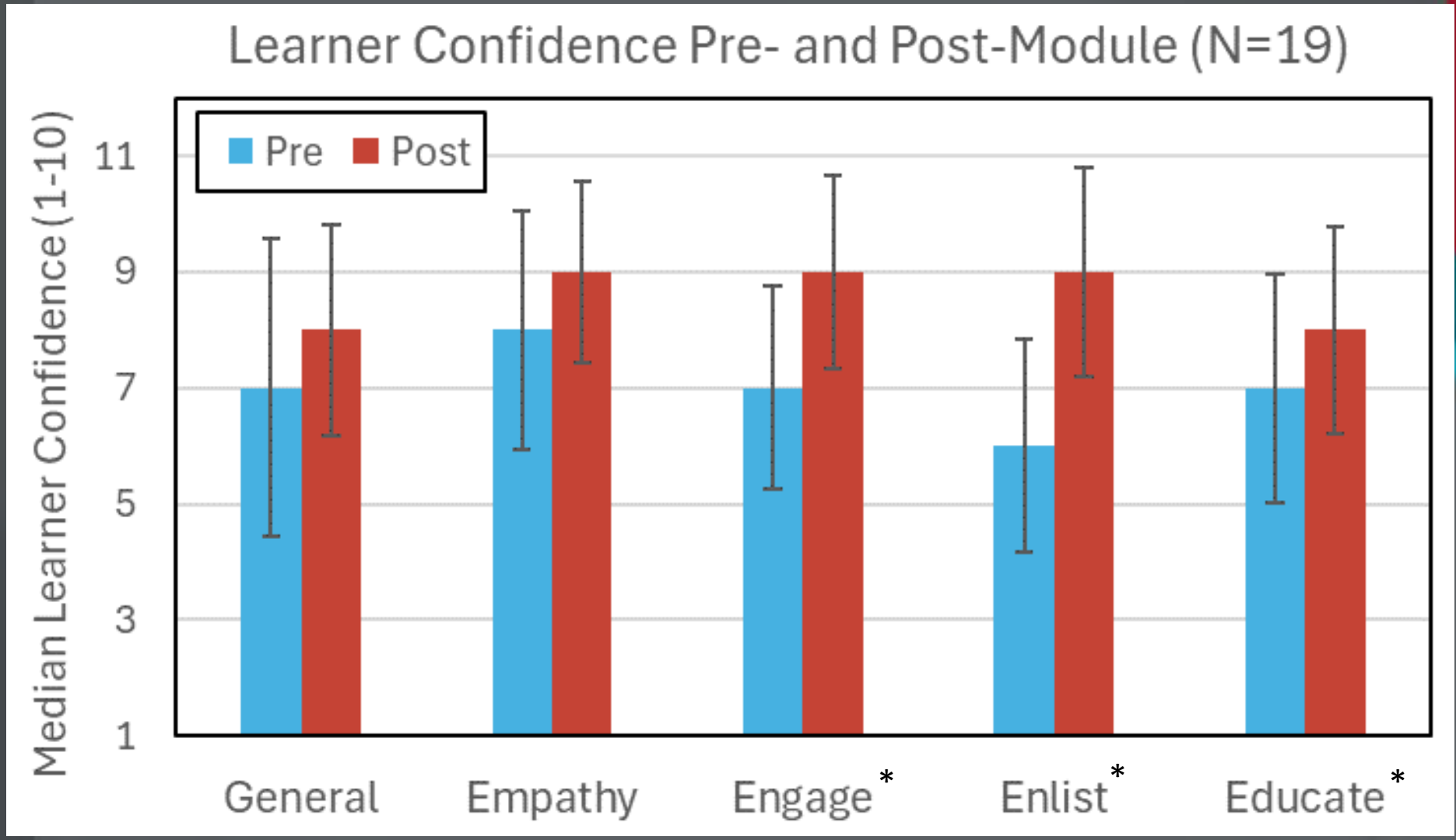
Please reserve the score of 1 for cases where the trainee **did not attempt** to do the listed item. Please reserve the score of 10 for cases where the trainee did so well, you cannot think of any way they could improve their attempt at the listed item.

1. **How well did the trainee introduce the**
   1 = Did not attempt
   2 = Unsatisfactory, e.g., attempt
   so much jargon that the explana
   3-5 = Satisfactory, e.g., attempte
   jargon that impacted the explan
   6-8 = Good, e.g., attempted, an
   jargon
   9-10 = Excellent, e.g., they gave
   physicist does in radiation oncol
2. **How well did the trainee provide a basi**
   10)
   1 = Did not attempt
   2 = Unsatisfactory, e.g., attempt
   so much jargon that the explana
   3-5 = Satisfactory, e.g., attempte

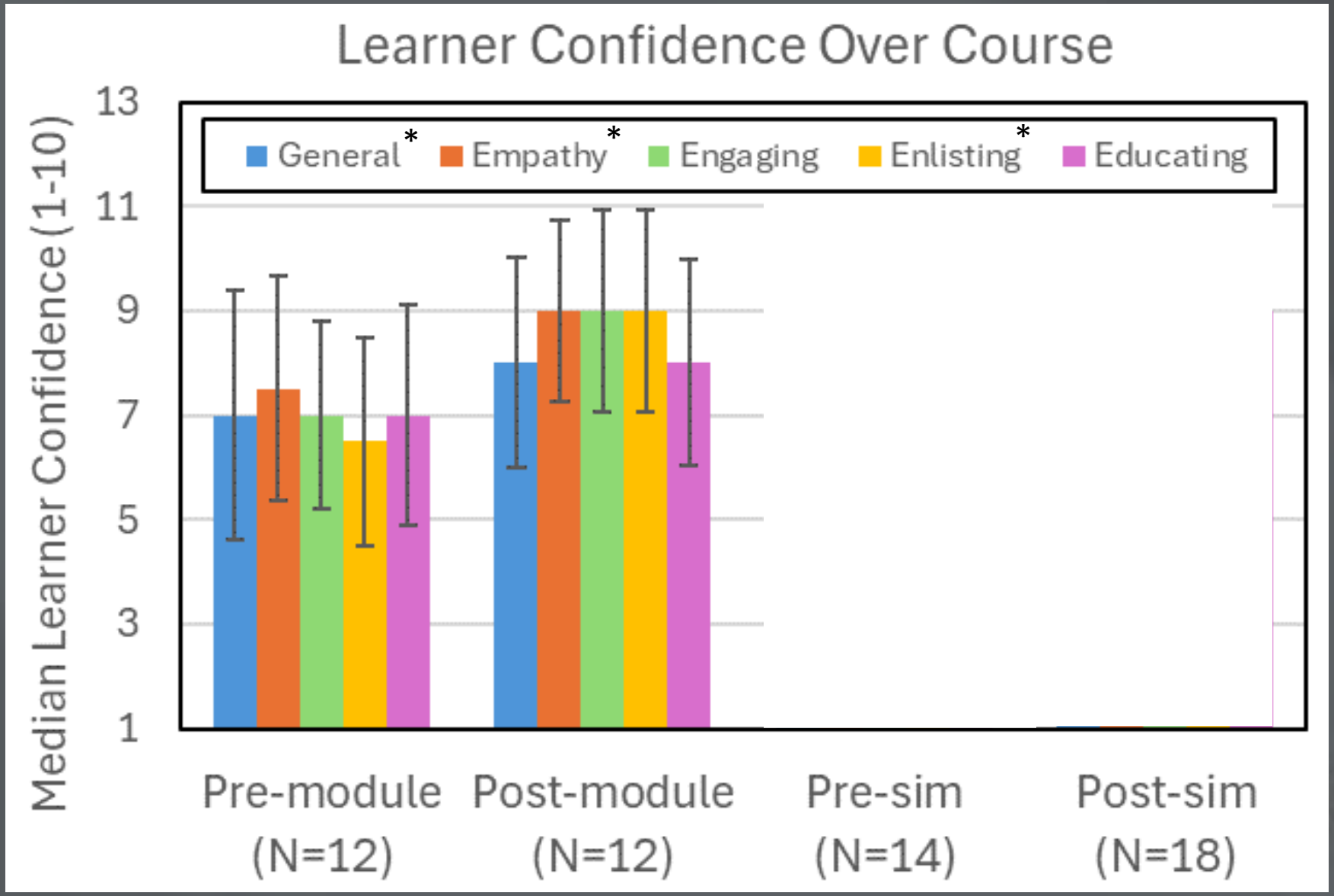
Simulation Training SP Evaluation Checklist

1. Did you feel comfortable with the physicist? Y/N
2. Would you recommend this provider to other patients? Y/N
3. Did the physicist introduce themselves and describe their role in the clinic? Y/N
4. Did the physicist provide an understandable overview of the radiation therapy process? Y/N
5. Did the physicist provide an understandable description of the treatment delivery process for your specific treatment, including how the machine delivers the treatment? Y/N
6. Did you feel the physicist expressed empathy? Y/N
7. Did you feel the physicist engaged with you on a personal level? Y/N
8. Did you feel the physicist enlisted you to be a part of your own care? Y/N
9. Did the physicist give clear and satisfactory answers to your questions?
10. What is one thing the physicist did well? (free text)
11. What is one thing the physicist could have improved? (free text)
12. If you wish, please add any explanations to your Y/N answers above (free text)

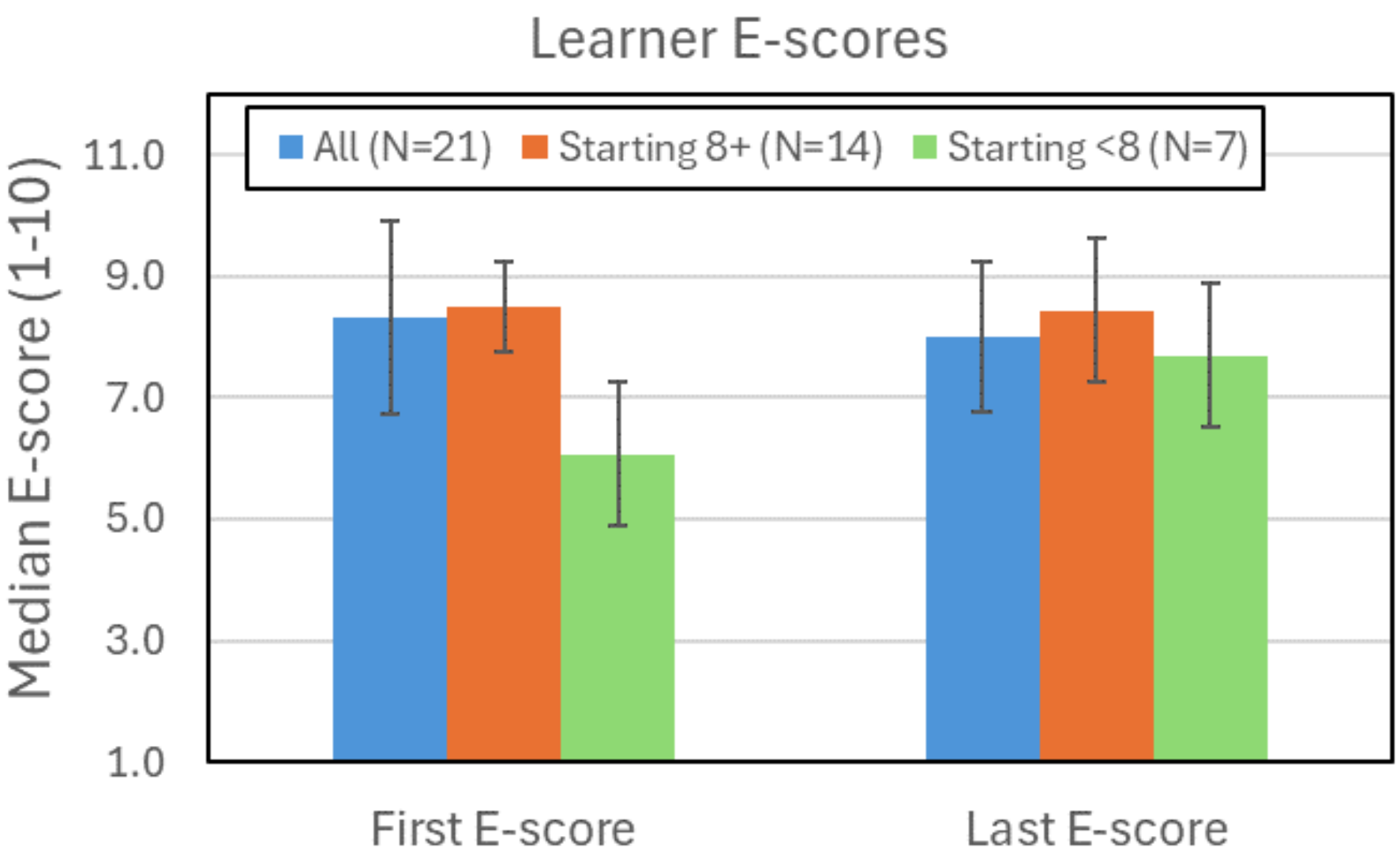
Results: eLearning pilot



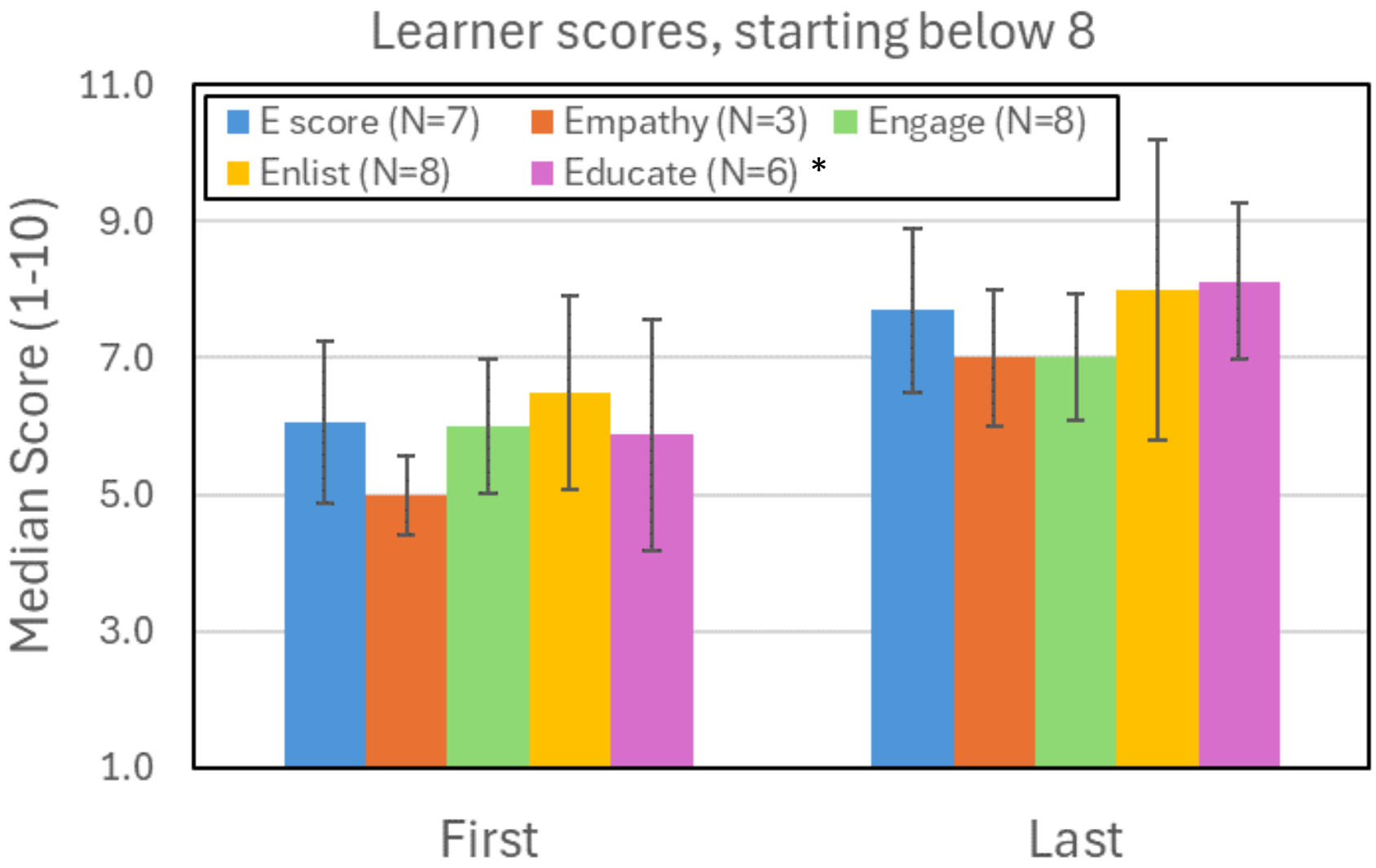
Results: confidence



Results: competency



Results: competency



Conclusions

Our novel training program for physicist-patient communication in radiation therapy

- Addresses gaps in existing training options
- Incorporates unique active and practice-based learning
- Increases learner confidence and competency at multiple learning levels
- Can be made available worldwide

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