

# An Innovative, Longitudinal Approach to Teaching Telemedicine Competencies to Clinical Learners

---

Ryan Palmer, EdD, MFA<sup>1</sup>, Blake Lesselroth, MD, MBI<sup>2</sup>, Liz Kollaja<sup>2</sup>, MHR, Shannon Ijams, MPAS, PA-C<sup>2</sup>, Andrew Liew, MD<sup>2</sup>, Anna Wickham<sup>1</sup>, Kristin Rodriguez, MPH<sup>2</sup>

<sup>1</sup>Kennedy and Company, Washington DC

<sup>2</sup>University of Oklahoma-Tulsa, School of Community Medicine, Tulsa, OK

# Disclosures

- This project is funded by HRSA grant
- Ryan Palmer and Anna Wickham are consultants for Kennedy & Company Educational Strategies, LLC.



How many have implemented or are planning on implementing telemedicine training in your own programs?

# Audience Poll

# Session Objectives

- *Explain* how AAMC competencies can be used by educators to address gaps in medical education training to and meet growing clinical need.
- *Describe* the educational innovations this team used to address ten core AAMC competencies and evaluate teaching effectiveness and learner progress.
- *Integrate* at least one concept or method from today into your telemedicine curriculum at your institution.

# AAMC Competencies

AAMC Competency Domain	AAMC Telehealth Competencies (paraphrased for brevity)
<b>Patient safety and appropriate use of telehealth</b>	<ul style="list-style-type: none"> <li>• Explain the uses, benefits, and limitations of telehealth</li> <li>• Integrate telehealth technologies into care encounters</li> <li>• Explain the role and responsibilities of telehealth team members</li> <li>• Describe when and how to escalate a care encounter</li> </ul>
<b>Data collection and assessment via telehealth</b>	<ul style="list-style-type: none"> <li>• Obtain a history and exam during a real or simulated encounter</li> <li>• Explain the importance of patient generated data to telecare</li> </ul>
<b>Communication via telehealth</b>	<ul style="list-style-type: none"> <li>• Develop an effective rapport with a patient during a virtual encounter</li> <li>• Evaluate and optimize the virtual exam room</li> <li>• Explain how to integrate patient social supports into the care encounter</li> </ul>
<b>Ethical practices and legal requirements for telehealth</b>	<ul style="list-style-type: none"> <li>• Describe the legal, privacy, and regulatory issues governing telehealth</li> <li>• List the components of a telemedicine informed consent</li> <li>• Describe the professional requirements and ethical challenges</li> <li>• Describe the potential conflicts of interest that can arise with telehealth</li> </ul>
<b>Technology for telehealth</b>	<ul style="list-style-type: none"> <li>• Describe the equipment required for telemedicine and virtual visits</li> <li>• Describe the technical limitations and minimum infrastructure requirements</li> <li>• Describe the potential technology failures and mitigation strategies</li> </ul>
<b>Access and equity in telehealth</b>	<ul style="list-style-type: none"> <li>• Explain the implicit and explicit biases that can affect the quality of telehealth</li> <li>• Explain how telehealth can impact healthcare equity and describe ways to mitigate gaps in care</li> <li>• Assess patients' needs, capabilities, barriers, and culture when considering telehealth</li> </ul>

6 Domains, 20 competencies, 3 tiers

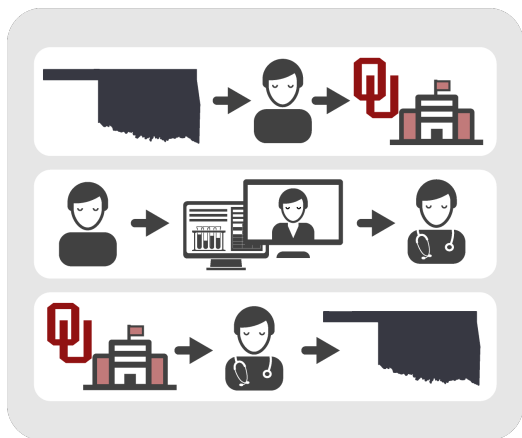
# Background: Course & Funding



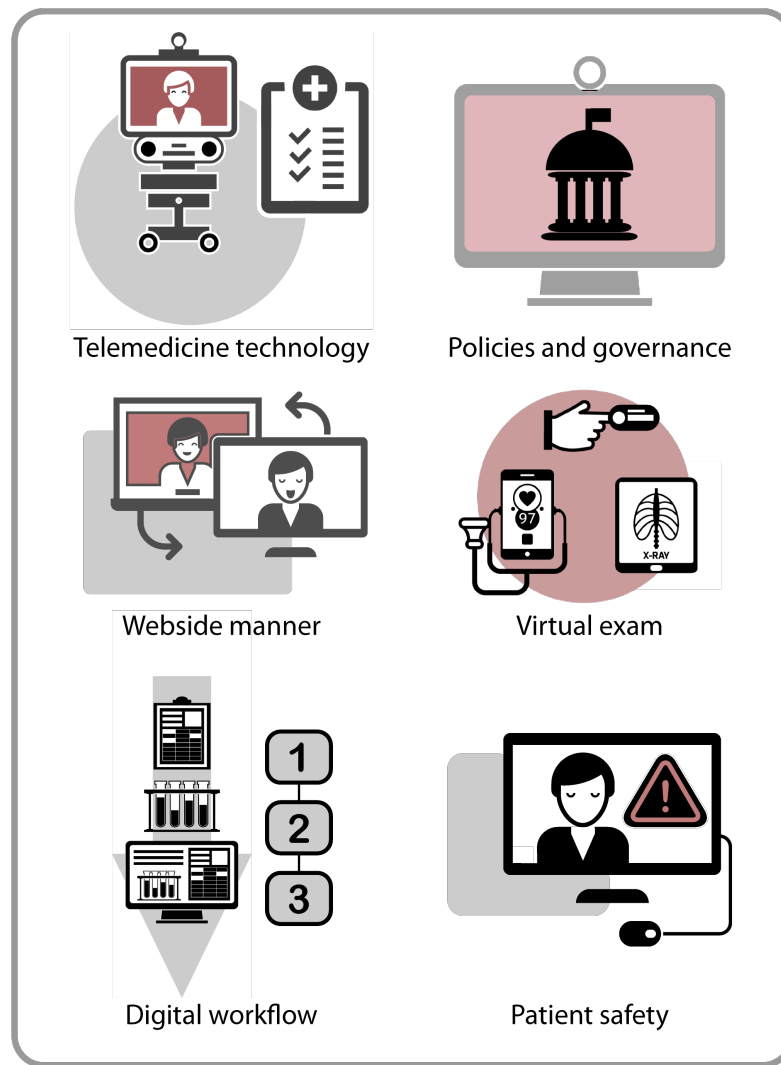
Health Systems Science in Practice  
(HSSP) Course for MS3 and PA2

+

=

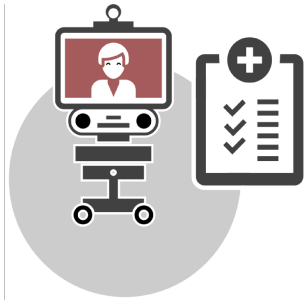


Tribal Rural Underserved Oklahomans  
(TRU-OK) grant from HRSA

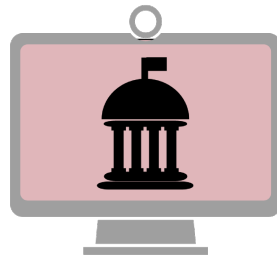


Telemedicine Training Program

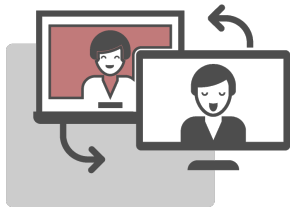
# Telemedicine Training Program



Telemedicine technology



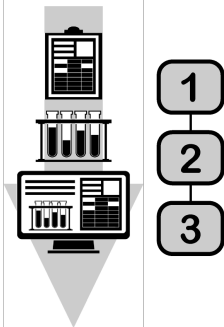
Policies and governance



Webside manner



Virtual exam



Digital workflow



Patient safety



# Telehealth Curriculum

- Telehealth sessions based on TeleOSCE simulation with standardized patients
  - 3 TeleOSCE cross-walking medicine and telemedicine topics
    - Hypertension + webside manner + technology failures
    - Mental health + workflow + patient safety
    - Medication reconciliation + team care + social determinants
  - 3 Teleskills stations teaching exam techniques
    - Vital signs and ear-nose-throat exam
    - Skin exam and store-and-forward technology
    - Musculoskeletal exam and concussion assessment
- 10 AAMC competencies repeated over simulations
  - Selected based on relevance to learner and course objectives
  - Competencies available in appendix



# TeleOSCE case: Format & Scenario

- Mental health and patient safety
- Standardized patient
- Assessment of depression and suicidal ideation
  - Interpret data
    - Review past PHQ-9
    - Administer C-SSR
  - Make a diagnosis
  - Recommend treatment
- Webside manner
  - Camera adjustments
  - Empathy



# Project and Evaluation

Research Question: Is formative telehealth simulation an effective method to improve telehealth competence for medical/PA students?

H1: Most learners (over 60%) will improve their competence in the 10 identified core AAMC competencies over the year by participating in the TeleOSCE and TeleSkills lab activities

- Entrustment scales on each assessment
  - 3-point scale, modeled on CEPAER (2 point scale) and OHSU (3 point scale)
  - Not yet entrustable, approaching entrustment, entrustable
- Competencies repeated over each simulation to track progress
  - TeleOSCE- 8 unique competencies
  - TeleSkills -2 unique competencies
  - Two crossover competencies for both

# Project and Evaluation

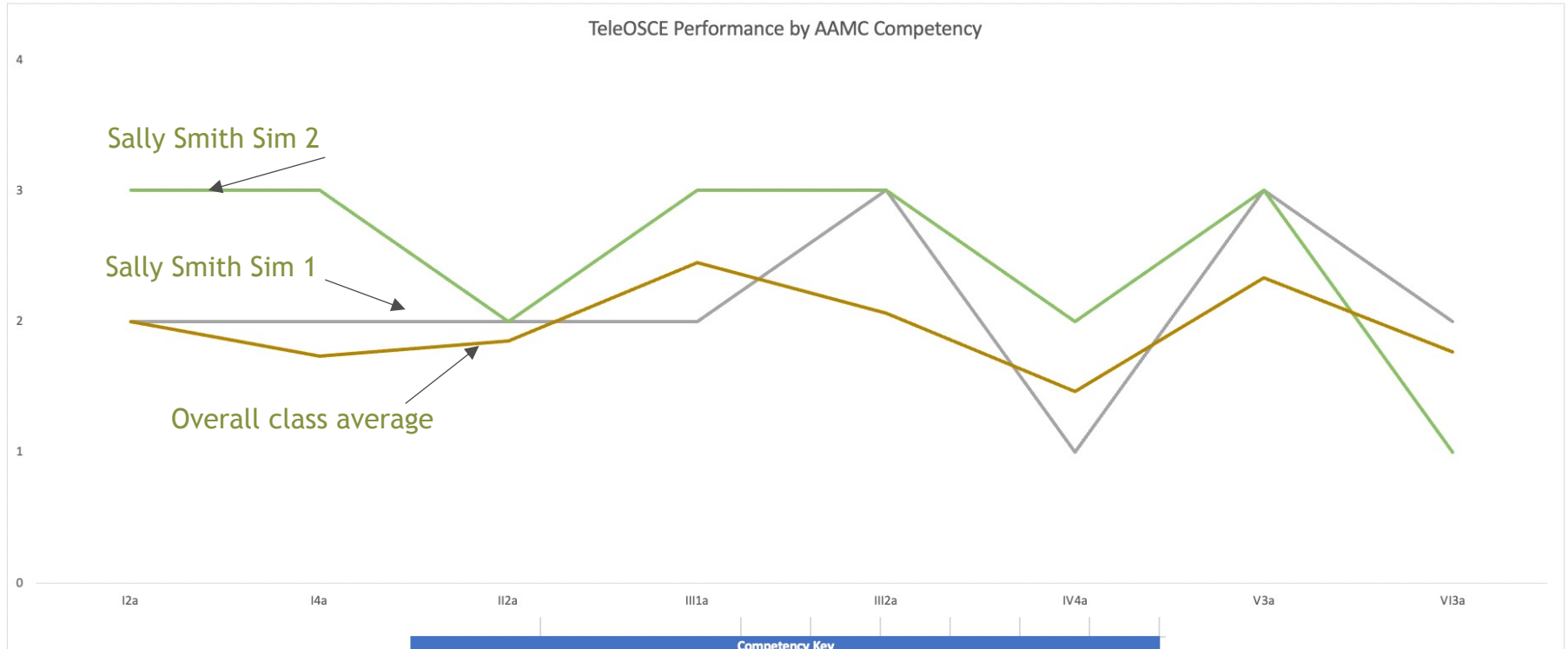
H2: Most learners (over 60%) will find the TeleOSCE and TeleSkills a satisfactory method for learning telehealth competencies.

- Tool: Learner satisfaction survey at end of each simulation

H3: Learner's knowledge of, attitude towards, and confidence in telemedicine will significantly improve over the year.

- Tool: "OHSU" survey
  - Published survey administered (1) before; (2) during; (3) after curriculum.
  - Matched learners longitudinally

# Evaluation Dashboard: Competency Progression

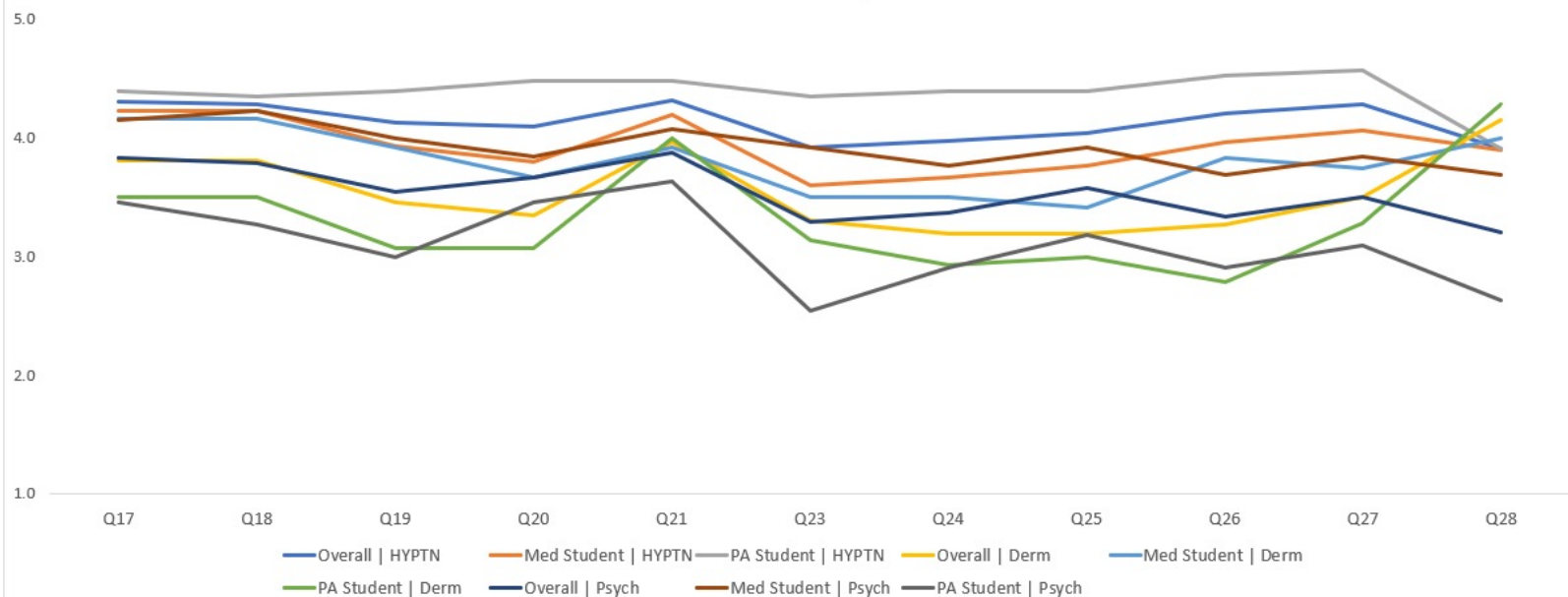


Note: “Sally Smith” is a pseudonym

Competency Key		
I 2a	Works with diverse patients and caregivers to determine access to technology...	
I 4a	Describes when patient safety is at risk, including when and how to escalate care...	
II 2a	Defines how telehealth can affect health equity and mitigate or amplify gaps-in-access...	
III 1a	Develops an effective rapport with patients via real or simulated video visits...	
III 2a	Assesses the environment during real or simulated video visits...	
IV 4a	Obtains history (from patient, family, and/or caregiver)...	
V 3a	Explains the risk of technology failures and the need to respond to them...	
VI 3a	Demonstrates knowledge of ethical challenges and professional requirements...	
Date	Sim Topic	
16-Jul-22	Hypertension/Tech Failure	
21-Jan-22	Suicidality/Patient Safety	
10-Jun-22	Med Rec	

# Evaluation Dashboard: Learner Satisfaction

TeleSim Satisfaction by Question



Session

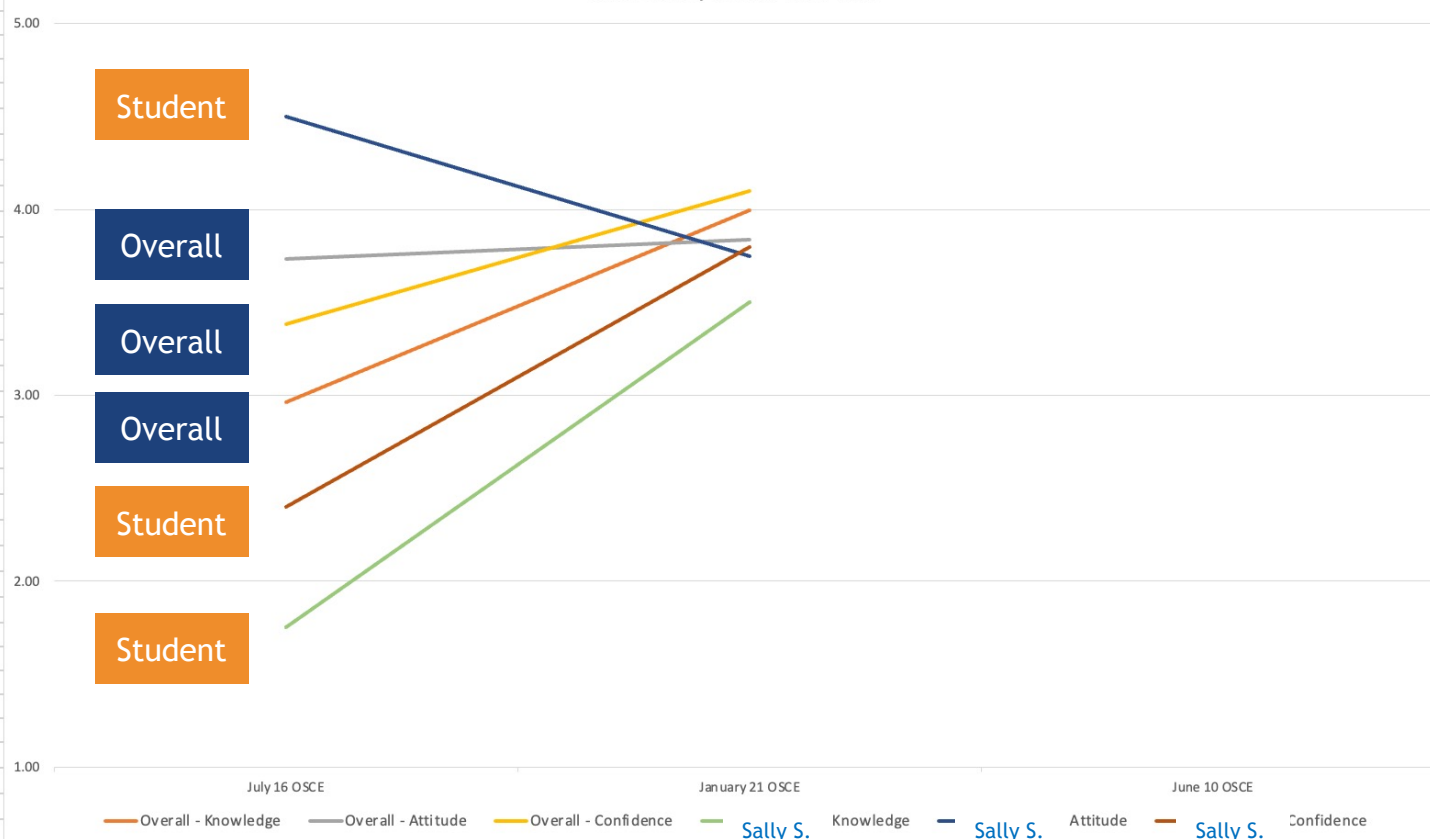
- Med Student | Derm
- Med Student | HYPTN
- Med Student | Psych
- Overall | Derm
- Overall | HYPTN
- Overall | Psych
- PA Student | Derm
- PA Student | HYPTN
- PA Student | Psych

Number	Question
Q17	I understood
Q18	The simulat
Q19	The teaching
Q20	The teaching
Q21	The feedback
Q23	The simulat
Q24	The simulat
Q25	The simulat
Q26	The simulat
Q27	The simulat
Q28	I was able to

Session	Q17	Q18	Q19	Q20	Q21	Q23	Q24	Q25	Q26	Q27	Q28
Overall   HYPTN	4.3	4.3	4.1	4.1	4.3	3.9	4.0	4.2	4.3	3.9	3.9
Med Student   HYPTN	4.2	4.2	3.9	3.8	4.2	3.6	3.7	3.8	4.0	4.1	3.9
PA Student   HYPTN	4.4	4.3	4.4	4.5	4.5	4.3	4.4	4.4	4.5	4.6	3.9
Overall   Derm	3.8	3.8	3.5	3.3	4.0	3.3	3.2	3.2	3.3	3.5	4.2
Med Student   Derm	4.2	4.2	3.9	3.7	3.9	3.5	3.5	3.4	3.8	3.8	4.0
PA Student   Derm	3.5	3.5	3.1	3.1	4.0	3.1	2.9	3.0	2.8	3.3	4.3
Overall   Psych	3.8	3.8	3.5	3.7	3.9	3.3	3.4	3.6	3.3	3.5	3.2
Med Student   Psych	4.2	4.2	4.0	3.8	4.1	3.9	3.8	3.9	3.7	3.8	3.7
PA Student   Psych	3.5	3.3	3.0	3.5	3.6	2.5	2.9	3.2	2.9	3.1	2.6

# Evaluation Dashboard: Student Perceptions around Telehealth

OHSU Survey Results Over Time



Date	Sim Topic
16-Jul-22	Hypertension/Tech Failure
21-Jan-22	Suicidality/Patient Safety
10-Jun-22	Med Rec

Category	Question
Knowledge of	I have a good general understandi
Knowledge of	I have a good understanding of ap
Knowledge of	I am familiar with the types of exa
Confidence in	I feel comfortable speaking in fro
Confidence in	I feel equally prepared to present
Confidence in	I would be able to establish rappc
Attitude of	I think telemedicine is a good alte
Attitude of	I think telemedicine will help decr
Attitude of	I think telemedicine will help decr
Attitude of	I will likely use telemedicine in m
Confidence in	At the start of the visit, explain to
Confidence in	Take a patient history via telemed
Confidence in	Conduct all or some components i
Confidence in	Adjust a telemedicine camera to n
Confidence in	Provide counseling to the patient
Confidence in	Troubleshoot poor performance v
Confidence in	Determine what scope of care is a

Rating Scale
5 Strongly Agree/Very Confident
4 Agree/Somewhat Confident
3 Unsure/Neutral
2 Disagree/Not Very Confident
1 Strongly Disagree/Extremely Unco





# Next Steps and Parting Thoughts

- Dashboard just up and running, preliminary outcomes encouraging
- 1 more TeleOSCE this academic year
  - Medication safety + social determinants of health
- 1 summative TeleOSCE testing station end of year
- 1 additional TeleOSCE in development
  - Virtual teams + domestic violence
- 2 additional TeleSkills in development
  - Cardiopulmonary exam
  - Abdominal exam
- Multi-institutional collaboration for AY 22-23



# Thank You

- Ryan Palmer, EdD, MFA  
[ryan@mkpcreative.com](mailto:ryan@mkpcreative.com)
- Anna Wickham  
[awickham@kennedyandcompany.com](mailto:awickham@kennedyandcompany.com)
- Blake Lesselroth, MD, MBI  
[Blake-Lesselroth@ouhsc.edu](mailto:Blake-Lesselroth@ouhsc.edu)
- Andrew Liew, MD  
[Andrew-Liew@ouhsc.edu](mailto:Andrew-Liew@ouhsc.edu)
- Shannon Ijams, MPAS, PA-C  
[Shannon-Ijams@ouhsc.edu](mailto:Shannon-Ijams@ouhsc.edu)



# Competencies Used in Curriculum

## AAMC Competency

Works with diverse patients and caregivers to determine access to technology to incorporate telehealth into patient care during real or simulated encounters.

Describes when patient safety is at risk, including when and how to escalate care during a telehealth encounter.

Defines how telehealth can affect health equity and mitigate or amplify gaps in access to care

Develops an effective rapport with patients via real or simulated video visits, attending to eye contact, tone, body language, and non-verbal cues.

Assesses the environment during real or simulated video visits, such as attending to disruptions related to privacy, lighting, sound, and attire.

Obtains history (from patient, family, and/or caregiver) during a real or simulated telehealth encounter.

Conducts appropriate physical examination or collects relevant data on clinical status during a real or simulated telehealth encounter, including guiding the patient and/or tele-presenter.

Explains equipment required for conducting care via telehealth at both originating and distant sites.

Explains the risk of technology failures and the need to respond to them.

Demonstrates knowledge of ethical challenges and professional requirements in telehealth

# References

- Telehealth Competencies Across the Learning Continuum
- Core Entrustable Professional Activities for Entering Residency
  - For example of competency scale
- Palmer RT, Rdesinski RE, Galper A, Cantone RE, Shaver J, et al. (2017) Assessing the Impact of a Telemedicine Simulation on Clinical Learners. J Family Med Community Health 4(5): 1120.
  - Access to “OHSU Survey” and information on TeleOSCE approach