MEDINFO23

8 – 12 JULY 2023 | SYDNEY, AUSTRALIA

Integration of Simulation and an Academic Electronic Health Record

@utaconhi

Jennifer Roye, MSN, RN, CHSE, CNE

Mari F. Tietze, PhD, RN-BC, FHIMSS, FAAN

Lynda Jarrell, DNP, APRN, FNP-BC, CNE

Kellie L. Kahveci, PhD, RN, AGPCNP-BC, GNP-BC, CNE

University of Texas at Arlington College of Nursing and Health Innovation

AIDH IMIA

Kellie L. Kahveci, PhD, RN, AGPCNP-BC, GNP-BC, CNE

Lynda Jarrell, DNP, APRN, FNP-BC, CNE

Objectives

Discuss the rationale and importance of integrating an electronic health record (EHR) using simulation into the graduate nursing program curriculum.

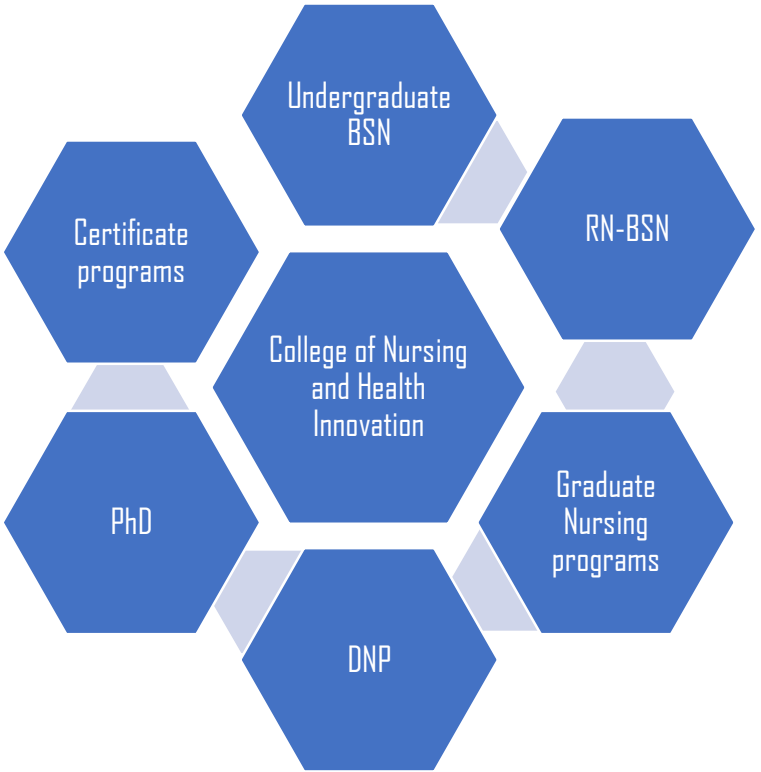
Identify specific strategies and approaches used to integrate the EHR into the curriculum, including didactic instruction, simulation activities, and clinical practicum experiences.

Describe how the EHR integration facilitates the development of critical informatics skills among graduate nursing students, such as documentation, data analysis, and evidence-based practice.

Demonstrate use of an academic EHR (aEHR) to guide student documentation

Summarize impact of aEHR on student confident and well-being in practice

UT Arlington College of Nursing and Health Innovation Programs



Why do we need an aEHR in our nursing education programs?

- Learner confidence[1]
- Learner understanding of the importance of accurate documentation[2]
- Promote realism in the simulation setting[3]

1.Chung, J., & Cho, I. (2017). The need for academic electronic health record systems in nurse education. Nurse Education Today, 54, 83-88. https://doi.org/10.1016/j.nedt.2017.04.0181.
2.McBride, S., Thomas, L., & Decker, S. (2020). Competency assessment in simulation of electronic health records tool development. Computers, Informatics, Nursing, 38(5), 232-239. https://doi.org/10.1097/CIN.0000000000000630
3.Feldthouse, D., Jacques, D., Fenelon, L., Robertiello, G., Pasklinsky, N., Fletcher, J., Groom, L., Doty, G., & Squires, A. (2022). Implementing an academic electronic health record in nursing education. Journal of Informatics Nursing, 7(2), 37-42. https://search.proquest.com/docview/2699768964

Educational Module

Students will complete the following:

- an educational module specific to informatics including ethical, medical, legal, workflow, and financial considerations.
- simulated patient encounters and record these in the EHR.

Measures of Competency

- Expected documentation includes the plan of care
- Diagnosis, three differential diagnoses, pertinent positives and negatives
- Diagnostic including testing, pharmacologic and non-pharmacologic management, education regarding self-care, applicable health prevention, interprofessional referrals as indicated for the patient scenario, appropriate coding and an indication of the next visit.

Measures of Competency (cont.)

- Encounter is graded by faculty who are provided with a detailed rubric.
- Students can repeat the encounter until competency is achieved.
- The assignments provided to the students on a specified schedule with a due date.
- The aEHR produces a pdf file which students will upload by the due date to the learning management system.

Example of Advanced Nurse Practitioner Case Study:
History of Present Illness

HPI Details

Basic Information

Date:	06/25/2023 02:55
Author:	Padma Amil, MD
Location:	Central Clinic

Title:	HPI
Note:	Patient G is an 83-year-old female living at home with her 88-year-old husband who is her primary care giver. She has a history of coronary artery disease (CAD) with prior placement of two stents, diabetes mellitus type 2, hypertension, hyperlipidemia, atrial fibrillation, stroke two years ago with residual weakness in right leg and hand, chronic lymphocytic leukemia, breast cancer, hypothyroidism, osteoarthritis, and fibromyalgia. She requires minimal assistance with ADLs since the stroke. Patient G has an aid to help with showering and dressing. She is ambulatory with a walker but has been having recurrent falls recently. Her past surgical history includes hysterectomy, cholecystectomy, bilateral mastectomies, colon resection for intestinal obstruction, hernia repair after the colon resection, right total knee replacement and left total hip replacement, and open reduction internal fixation of fracture left wrist. She was hospitalized with the flu about three months ago and amiodarone was increased at that time. Atrial fibrillation was well controlled prior to hospitalization and has since been well controlled. Amiodarone was never decreased.

Example of Advanced Nurse Practitioner Case Study:
Medication Profile

12 HR Diltiazem Hydrochloride 120 MG Extended Release Oral Capsule - Dose: 120 mg *Continued From Home	Active	DAILY (0800)
24 HR HCTZ 12.5 MG / metoprolol succinate 100 MG Extended Release Oral Tablet - Dose: 100 mg *Continued From Home	Active	DAILY (0800)
ACP Aspirin 81 MG Delayed Release Oral Tablet [Ecotrin] - Dose: 81 MG *Continued From Home	Active	DAILY (0800)
ACP Glipizide XL 2.5 MG 24 HR Extended Release Oral Tablet - Dose: 20 mg *Continued From Home	Active	DAILY (0800)
Aleve 220 MG (naproxen 200 MG) Oral Capsule - Dose: 500 mg *Continued From Home	Active	DAILY (0800)
Amiodarone 200 mg (Novo-Amiodarone) - Dose: 200 mg *Continued From Home	Active	BID (0900 - 1800)
Cyclobenzaprine 10 mg (Cyclobenzaprine) - Dose: 10 mg *Continued From Home	Active	Bedtime (2100)
Digoxin 0.125 MG Oral Tablet - Dose: 0.125 mg *Continued From Home	Active	Every Other Day (0900)
Levothyroxine 150 mcg (ELTROXIN) - Dose: 150 mcg *Continued From Home	Active	DAILY (0800)
Pradaxa 150 MG (dabigatran etexilate mesylate 172.95 MG) Oral Capsule - Dose: 150 mg *Continued From Home	Active	BID (0900 - 1800)

Example of Advanced Nurse Practitioner Case Study: Labs

Lab Details

Details | Past Results | Graph of Past Results

Entry date: 06/25/2023 04:28

Complete Metabolic Panel

Lab Test	Value	Unit	Abnormal Flag	Reference Range
GFR :	74	mL/min		>59 mL/min

Lab Details

Details

Entry date: 06/25/2023 04:28

Other Labs

Lab Test	Value	Unit	Abnormal Flag
Hemoglobin A1c:	7.0		

Curricular Operationalization

- Integration into all didactic management courses in primary care
- Pre-brief, debriefing to include student feedback specific to integration of the simulated cases in an aEHR to include documentation and negotiation of the aEHR and student outcomes.
- Additional of unfolding cases for follow up appointments, this will integrate the faculty determined appropriate plan of care moved forward to the next case

Method for Health Informatics Students

- Health informatics students learned about the aEHR, reviewed a case study, and entered pre-defined clinical information on a customized case study.
- The *Spring 2023* first-time aEHR implementation allowed for an evaluation of:
  - Student experiences, for usability of the aEHR [System Usability scale][1]
  - Nurse educators, for the perceived degree to which they were preparing for their educator role [five question survey].

1. Brooke J. SUS: a retrospective. Journal of Usability Studies. 2013;8(2):29-40. doi:10.5555/2817912.28179

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Health Informatics Curriculum and EHR Go Content

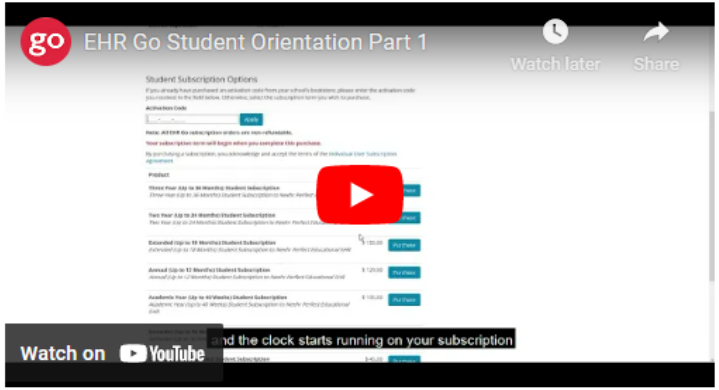
Getting Started

VIDEOS

EHR GO: Introductory information about Academic EHRs

Academic EHRs are created for the purpose of teaching students how to use an EHR. *EHR Go* is one of the top academic EHRs used in 2022. See "Student Orientation" for how to start you using *EHR Go*.

- Watch *EHRGO* Student Orientation Part One and Part Two for information about:
  - how to subscribe to EHR Go via your student account
  - what activities you see when you sign in for the first time (EHR Orientation and your Student Portfolio)
  - how you'll get the rest of your activities (from your instructor)
  - Steps 1-2-3 - and how to turn in your work
  - how to create a new item in a chart



Academic EHR Patient: George Jackson

PATIENT DESCRIPTION

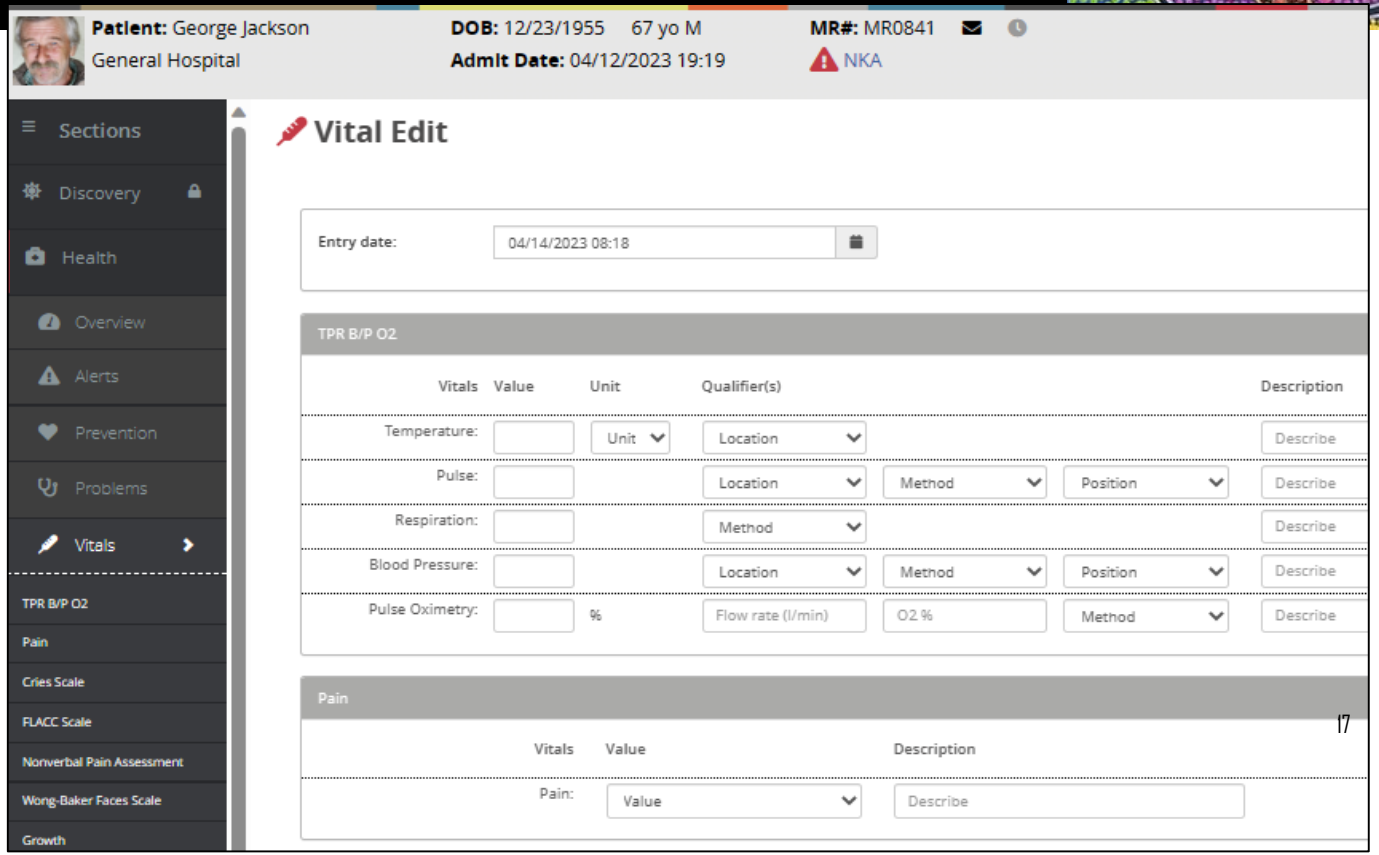
George is a 67-year-old man who has been admitted to the hospital for urinary retention and acute abdominal pain. He has a 10-year history of Type II Diabetes and has recently began experiencing complications as a result of not managing his diabetes over the years. He is concerned about his general health and the cause of his abdominal pain. George will need an assessment, vital signs taken, glucose monitoring, placement of an IV and FC. He has orders for IV fluids, insulin and IV medications. Patient and family education is needed, as well as care planning. Can you help George?

AUTHOR

Mari Tietze / University of Texas at Arlington

Nursing | Provider | GI/GU | Endocrine | Therapy | Inpatient | Older Adult | Health Maintenance

Document Pre-defined Vital Signs



Progress Report Overview Submitted by Student

George Jackson Documentation

Student: Michaela Giesey
Activity Start: 03/01/2023 23:19:10
Activity Completion: 03/01/2023 23:44:25
Activity Completion: 00:25:14

Patient Data

Patient: George Jackson
Age/Sex: 67 yo M
Location: General Hospital
DOB: 12/23/1955
MR#: MR0841
Admit Date: 02/28/2023

Vitals

Vital at 02/26/2023 12:00

TPR B/P O2

VITALS	VALUE	UNIT	QUALIFIERS		DESCRIPTION
Temperature:	99.8	F	Oral		
Pulse:	104				
Respiration:	24				
Blood Pressure:	170/94		L Arm	Cuff	Sitting

Pain

VITALS	VALUE	DESCRIPTION
Pain:	4	

Glucose

VITALS	VALUE	UNIT	DESCRIPTION
Capillary blood glucose reading:	188	mg/dL	

Vital at 02/26/2023 12:15

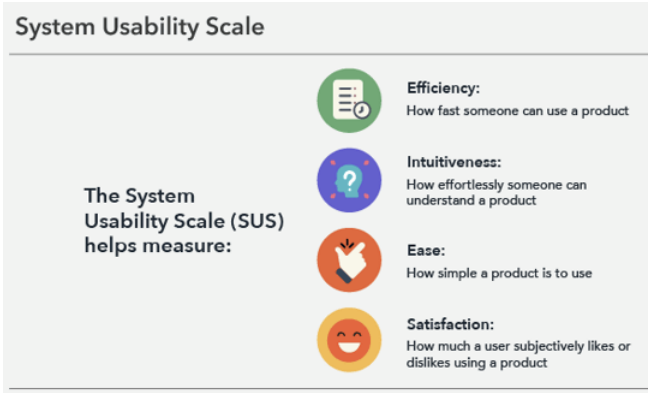
TPR B/P O2

Measurement of Usability

System Usability Scale

Instructions: For each of the following statements, mark one box that best describes your reactions to the website *today*.

		Strongly Disagree				Strongly Agree
1.	I think that I would like to use this website frequently.	☐	☐	☐	☐	☐
2.	I found this website unnecessarily complex.	☐	☐	☐	☐	☐
3.	I thought this website was easy to use.	☐	☐	☐	☐	☐
4.	I think that I would need assistance to be able to use this website.	☐	☐	☐	☐	☐
5.	I found the various functions in this website were well integrated.	☐	☐	☐	☐	☐
6.	I thought there was too much inconsistency in this website.	☐	☐	☐	☐	☐
7.	I would imagine that most people would learn to use this website very quickly.	☐	☐	☐	☐	☐
8.	I found this website very cumbersome/awkward to use.	☐	☐	☐	☐	☐
9.	I felt very confident using this website.	☐	☐	☐	☐	☐
10.	I needed to learn a lot of things before I could get going with this website.	☐	☐	☐	☐	☐



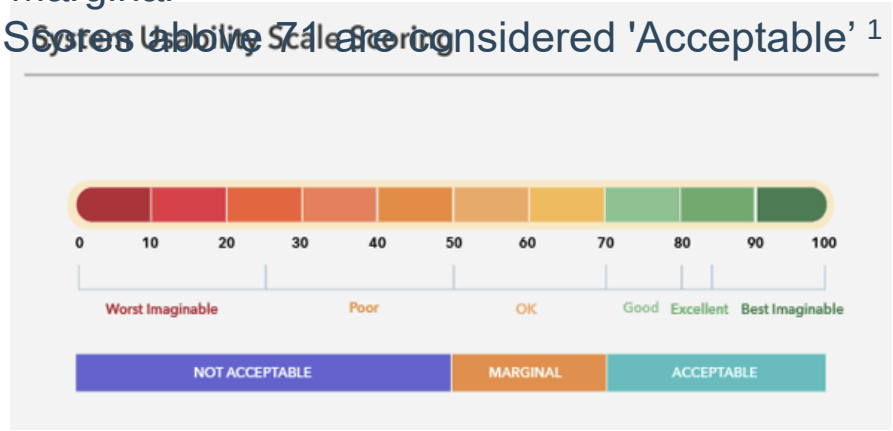
Metrics

SUS Scale

Scores below 50 are considered 'Not Acceptable'

Scores between 51-70 are considered 'Marginal'

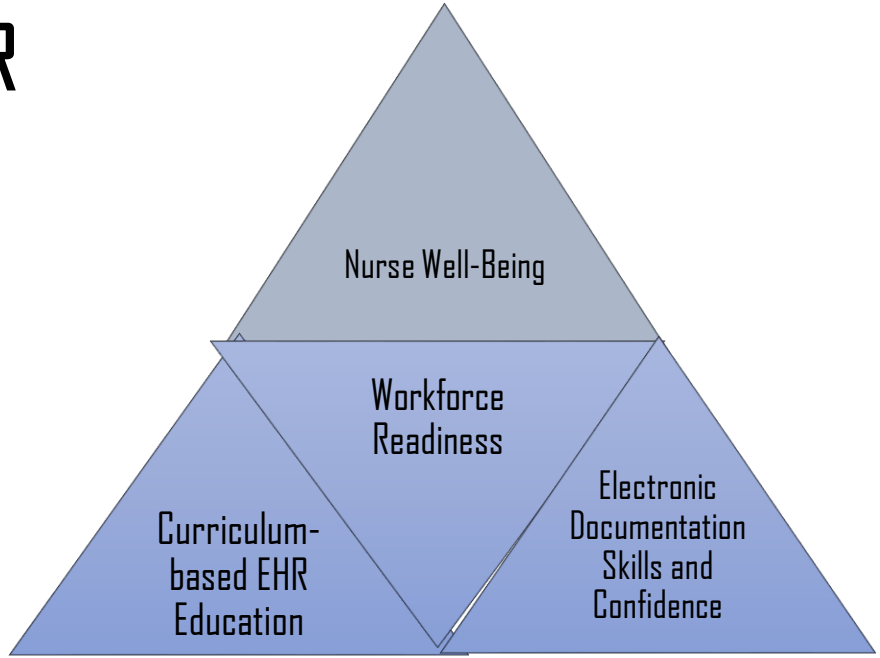
Scores above 71 are considered 'Acceptable' [1]



1. What's the System Usability Scale (SUS) & How Can You Use It? (hubspot.com)

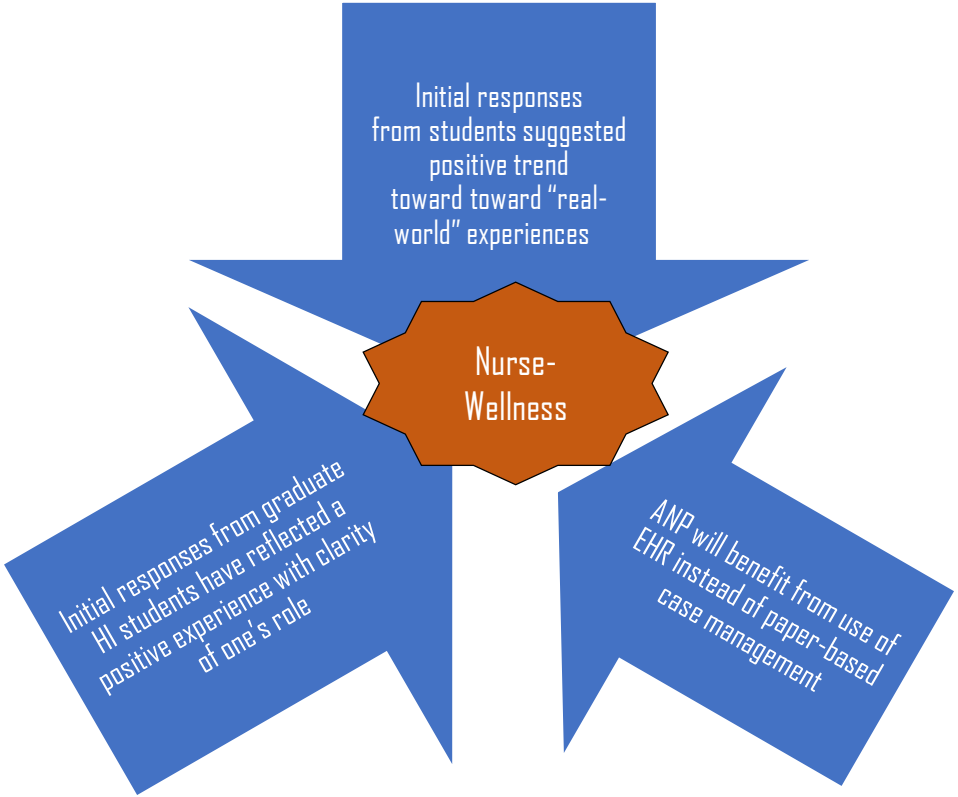
Value Equation of the Academic EHR

- Curriculum-based EHR Education +
- Electronic Documentation Skills and Confidence +
- Workforce Readiness1 =
- Nurse Well-Being[1,2]



1.Pfaffinger, K. F., Reif, J. A. M., & Spied, E. (2022). When and why telepressure and technostress creators impair employee well-being. International Journal of Occupational Safety and Ergonomics, 28(2), 958-973. https://doi.org/10.1080/10803548.2020.1846376
2.Murthy, V. (2022). Addressing health worker burnout: The U.S. surgeon general's advisory on building a thriving health workforce. (Report No. 2022May). Washington, DC: U.S. Department of Health and Human Services. https://www.hhs.gov/surgeongeneral/priorities/health-worker-burnout/index.html

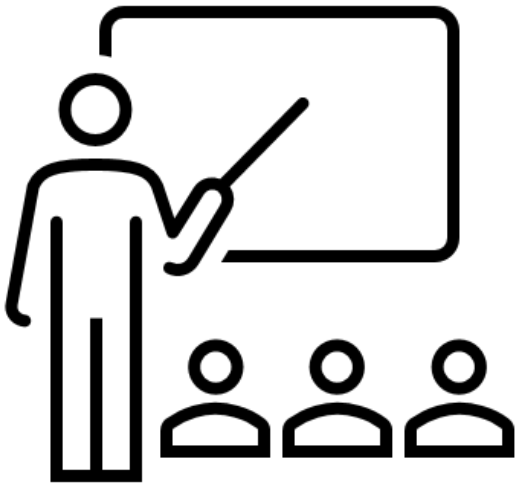
Results


Initial responses from students suggested positive trend toward toward "real-world" experiences
Nurse-Wellness
Initial responses from graduate HI students have reflected a positive experience with clarity of one s role
ANP will benefit from use of EHR instead of paper-based case management

Conclusion

This aEHR focus will:

- Optimally prepare graduate advance nurse practitioner students in use of the E H R using simulation case studies integrated into the curriculum[1]
- Inform health informatics students in "real world" use of an EHR and associated data outputs
- Facilitate addressing key aspects of student self-confidence by decreasing technology-based burnout and lack of well-being[2]



1Pfaffinger, K. F., Reif, J. A. M., & Spied, E. (2022). When and why telepressure and technostress creators impair employee well-being. International Journal of Occupational Safety and Ergonomics, 28(2), 958-973. https://doi.org/10.1080/10803548.2020.1846376
2.Chung, J., & Cho, I. (2017a). The need for academic electronic health record systems in nurse education. *Nurse Education Today, 54*, 83-88. https://doi.org/10.1016/j.nedt.2017.04.018

Questions/Discussion?

Contact:
Jennifer Roye, MSN, RN, CHSE, CNE
roye@uta.edu
Dr. Mari Tietze, PhD, RN-BC, FHIMSS, FAAN
mari.tietze@uta.edu
University of Texas at Arlington
College of Nursing and Health Innovation