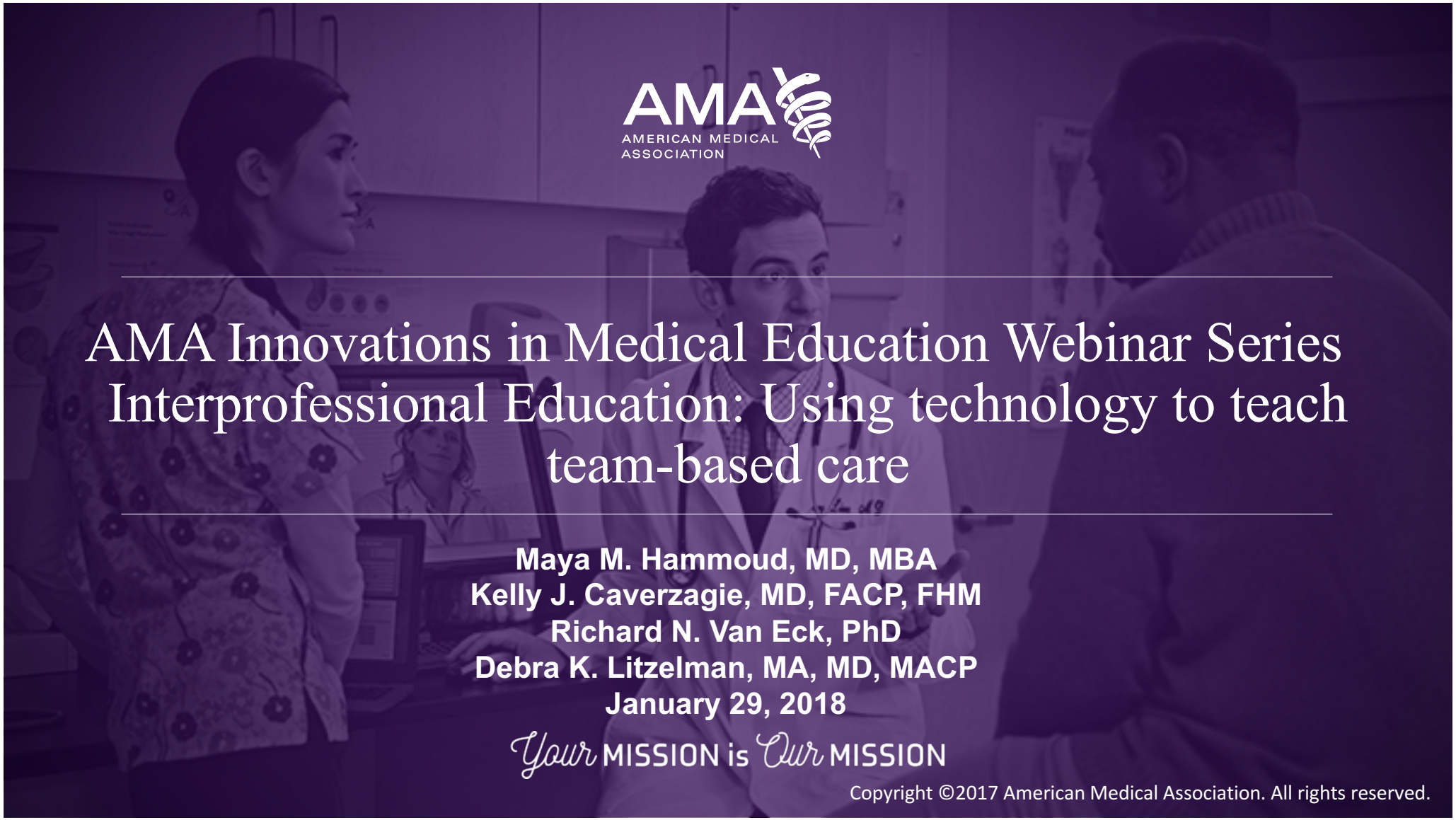


AMA Innovations in Medical Education Webinar Series
Interprofessional Education: Using technology to teach team-based care

Maya M. Hammoud, MD, MBA
Kelly J. Caverzagie, MD, FACP, FHM
Richard N. Van Eck, PhD
Debra K. Litzelman, MA, MD, MACP

January 29, 2018

Your MISSION is Our MISSION

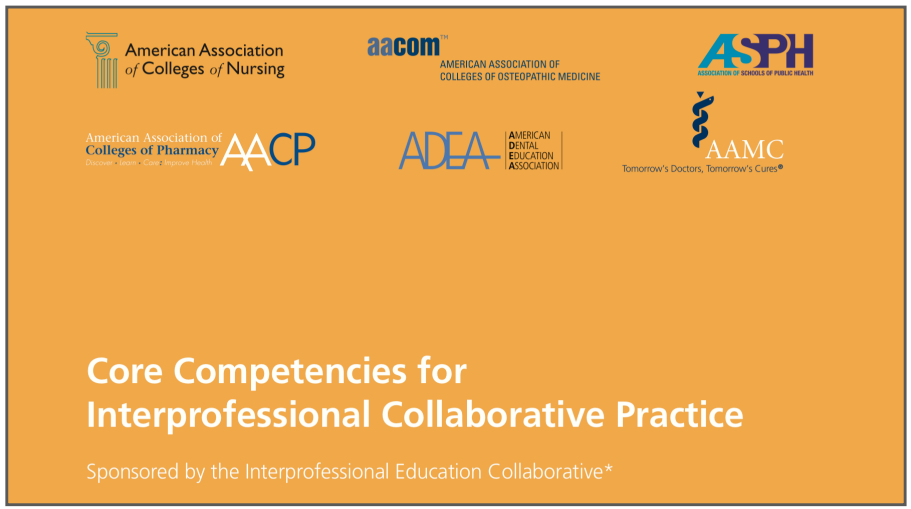
Today's Host

Maya M. Hammoud, MD, MBA

Director, Medical Education Innovation,
American Medical Association

Objectives

- Identify barriers institutions face in successfully implementing interprofessional education
- Learn about innovative technologies schools are using to overcome those barriers
- Discuss how specific technologies, such as EHRs and telemedicine can enhance interprofessional experiences for health professions students



IPEC®
Interprofessional Education Collaborative
Connecting health professions for better care

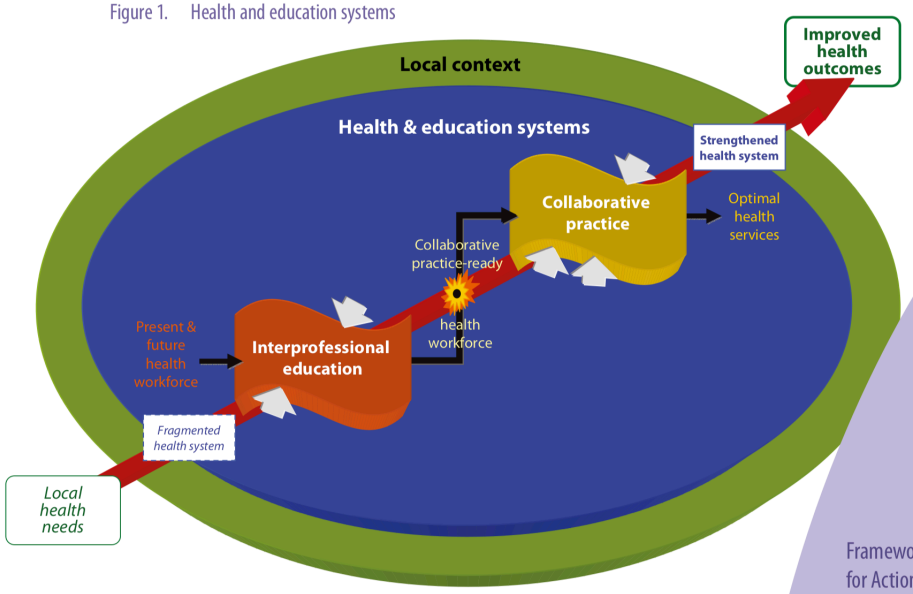
Core Competencies for Interprofessional Collaborative Practice:

2016 Update

Health Professions Networks
Nursing & Midwifery
Human Resources for Health

Framework for Action on Interprofessional Education & Collaborative Practice

Figure 1. Health and education systems



Framework for Action on Interprofessional Education and Collaborative Practice

Core Entrustable Professional Activities for Entering Residency

AAMC

EPA 9: Collaborate as a member of an interprofessional team

1. Description of the activity	Effective teamwork is necessary to achieve the Institute of Medicine competencies for care that is safe, timely, effective, efficient, and equitable. Introduction to the roles, responsibilities, and contributions of individual team members early in professional development is critical to fully embracing the value that teamwork adds to patient care outcomes. **Functions** • Identify team members' roles and the responsibilities associated with each role. • Establish and maintain a climate of mutual respect, dignity, integrity, and trust. • Communicate with respect for and appreciation of team members and include them in all relevant information exchange. • Use attentive listening skills when communicating with team members. • Adjust communication content and style to align with team-member communication needs. • Understand one's own roles and personal limits as an individual provider and seek help from the other members of the team to optimize health care delivery. • Help team members in need. • Prioritize team needs over personal needs in order to optimize delivery of care.

AMA Accelerating Change in Medical Education Goals:

- Create competency based assessment & flexible individualized learning plans
- Develop exemplary methods to achieve **patient safety, performance improvement and patient centered team care**
- Understand the health care system and health care financing
- Optimize the learning environment

Accelerating Change in Medical Education Initiative

- $13.5 million in grants to medical schools
  - 11 schools in 2013
  - 21 schools in 2016
  - 19,000 students ~ 33 million patient visits each year
- Consortium formed to jumpstart and speed dissemination of ideas
  - Venue for collaboration, innovation and scholarship


A.T. Still University
School of Osteopathic Medicine in Arizona
ATSU
Ohio University
Heritage College of Osteopathic Medicine
Sophie Davis School of Biomedical Education
The City College of New York
Morehouse School of Medicine
The University of Texas at Austin
Dell Medical School
Michigan State University
College of Osteopathic Medicine
UConn School of Medicine
University of Utah School of Medicine
Rutgers
Robert Wood Johnson Medical School
OHSU
School of Medicine
East Carolina University
Brody School of Medicine
UTRGV
School of Medicine
Brown
Alpert Medical School
School of Medicine
Vanderbilt University
NYU School of Medicine
NYU Langone Medical Center
Harvard Medical School
Mayo Clinic
AMA
American Medical Association
Medical School
University of Michigan
UW Medicine
School of Medicine
EVMS
UC Davis
School of Medicine
Penn State Hershey
College of Medicine
UCSF
School of Medicine
University of Nebraska Medical Center
School of Medicine
Indiana University
FIU
Herbert Wertheim College of Medicine
Florida International University
UNC
School of Medicine
UND
School of Medicine & Health Sciences
University of North Dakota
School of Medicine
Case Western Reserve University
Sidney Kimmel Medical College
at Thomas Jefferson University
Emory University School of Medicine
The University of Chicago
Pritzker School of Medicine

AMA Accelerating Change in Medical Education Consortium Innovation Themes

- Integration of medical education and health care systems
- Technology in support of learning and assessment
- Competency-based programming
- Workforce solutions to improve population-based care
- Metrics to support CQI of educational programs
- Faculty development: Coaching and quality improvement
- Envisioning the learner of the future

AMA Accelerating Change in Medical Education Consortium Innovation Themes

Using technology to teach team-based care in Interprofessional Education

Presenter

Kelly J. Caverzagie, MD, FACP, FHM

Associate Dean for Educational Strategy, Vice-President for Education, University of Nebraska College of Medicine

Presenter

Richard Van Eck, PhD

Associate Dean for Teaching and Learning,
University of North Dakota School of Medicine
and Health Sciences

Presenter

Debra K. Litzelman, MA, MD, MACP

D. Craig Brater Professor of Global Health Education, Indiana University School of Medicine

University of Nebraska Medical Center
IPE Innovations

Kelly J. Caverzagie, MD, FACP, FHM
Associate Dean for Educational Strategy
Vice-President for Education, Nebraska Medicine
University of Nebraska College of Medicine
University of Nebraska Medical Center

Your MISSION is Our MISSION

University of Nebraska Medical Center (UNMC)

Omaha, Nebraska - Satellite campuses throughout Nebraska

Only public health professions campus with 7 Colleges and 2 institutes dedicated to training health professionals

UNMC

Nebraska Medicine

Nebraska Medicine℠

SERIOUS MEDICINE. EXTRAORDINARY CARE.®

Clinically integrated Academic Health Science Center

Common mission, vision and values

UNMC

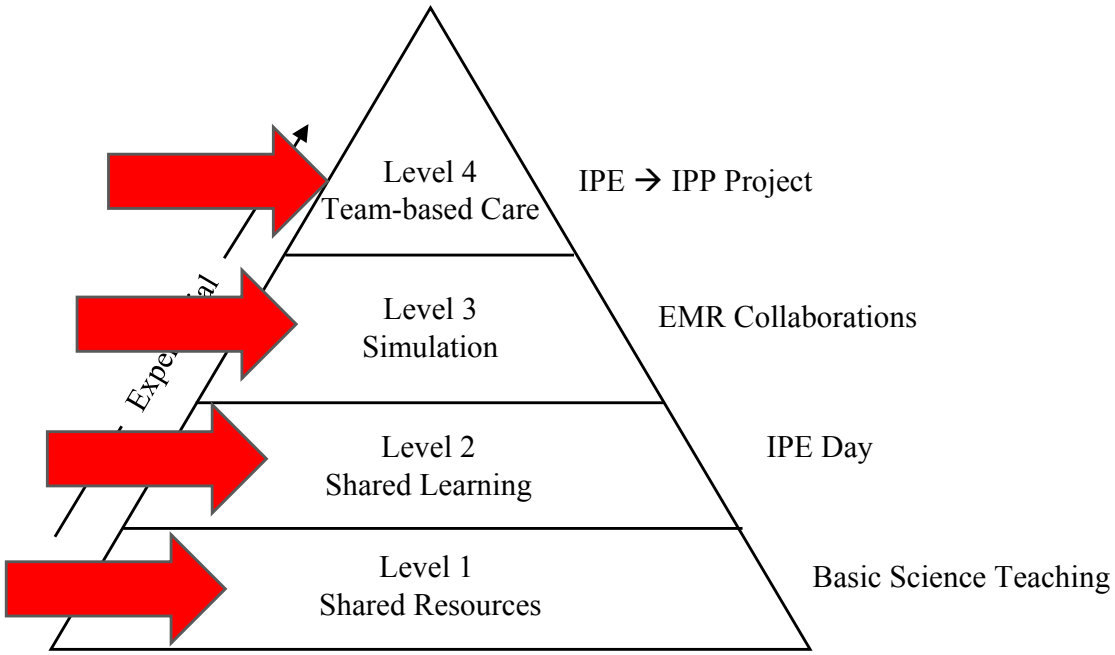
UNMC IPE Activities

- IPE Days – all professions gather once per semester for pre-clinical years to learn about and from each other, work together in teams to accomplish straightforward goals
- Many formal (i.e. curricular) and informal (i.e. non-curricular) experiences for students to work together and learn
- Experiences are clinical and non-clinical in nature - students often learn from "non-students" (i.e. practicing professionals) as well
- Journal of Interprofessional Education & Practice

UNMC

Campus Initiatives and Advancements

Four Levels of IPE at UNMC



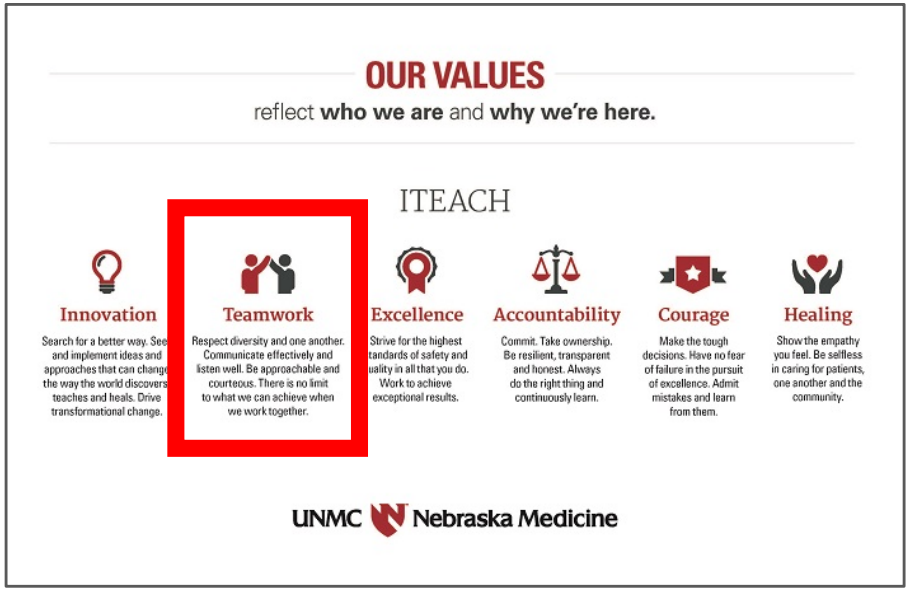
UNMC Campus-wide EPA's regarding IPE

- Receptivity to Teammates
- Self-Efficacy as Team Member
- Team Approach to Health Care

IPE → IPP Project (IPP = Interprofessional Practice)

- Objective: Work with leaders/providers at Nebraska Medicine and leaders/educators at UNMC to implement an integrated, experiential, competency-based curriculum for and all health professions learners

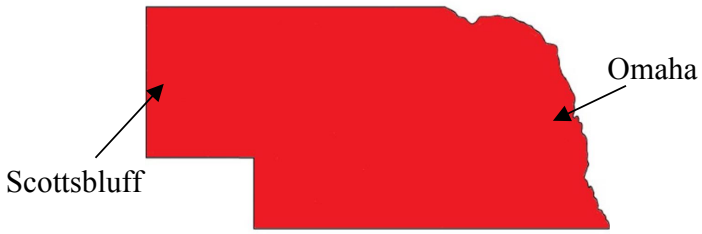
- Goal: Extend IPE curricula into clinical learning environment, advance assessment of IPE competence, improve teaching and learning strategies related to IPE and IPP



UNMC

IPE → IPP Project Progress

- TeamSTEPPS and pre-clinical curricula – currently in Nursing & Allied Health; plans for Medicine
- TeamSTEPPS and PCMH Certification for ambulatory clinics – assessment of efficacy
- Organizational focus on high-reliability – barrier or detour?
- Challenges transitioning from pre-clinical to clinical environment:
  - Alignment of principles and language
  - "Co-curricular" development
  - Size of class; Location of students



UNMC

Interprofessional Experiential Center for Enduring Learning (iEXCEL)

UNMC

Technology: Overcome Distance Barrier

- Cooperative learning via interaction from remote locations
- Goal: Advanced simulation using virtual reality applied to interprofessional teams

UNMC

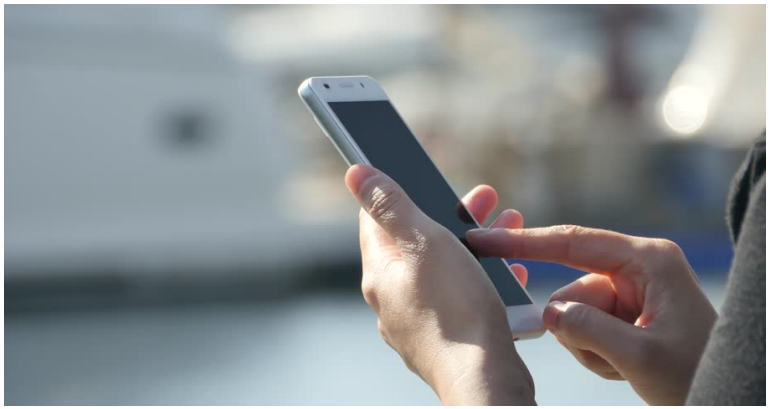
Technology: Utilizing the EMR

- Using our commercial EMR as a learning modality (Level 3)
- Integrated into system-based blocks of learning where other professions' work is simulated
- Goal: Longitudinal case that evolves over time in which interprofessional learners interact virtually via the EMR

UNMC

Technology: Future Applications

- Organizational infrastructure for tracking, monitoring and assessing interprofessional learning and work activities
- Utilize EPA assessments between professions and roles; academic and health systems environments (community practice partners?)
- Repository for curricular materials and experiences



Key Point: Technology should be applied to make education more *efficient* and not necessarily more *effective*

UNMC

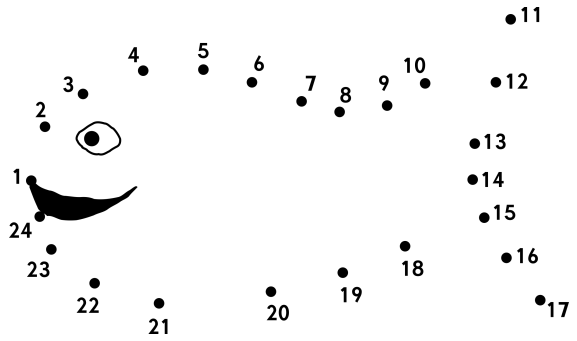
Facilitators

- Supportive culture of IPE and IPP throughout the institution (i.e. institutional value)
- Curricular redesign as impetus to promote change vs. inertia preventing change
- Collaboration is present and organic with current programs
- Linking needs of learners with needs of the health system (i.e. connect the dots!)

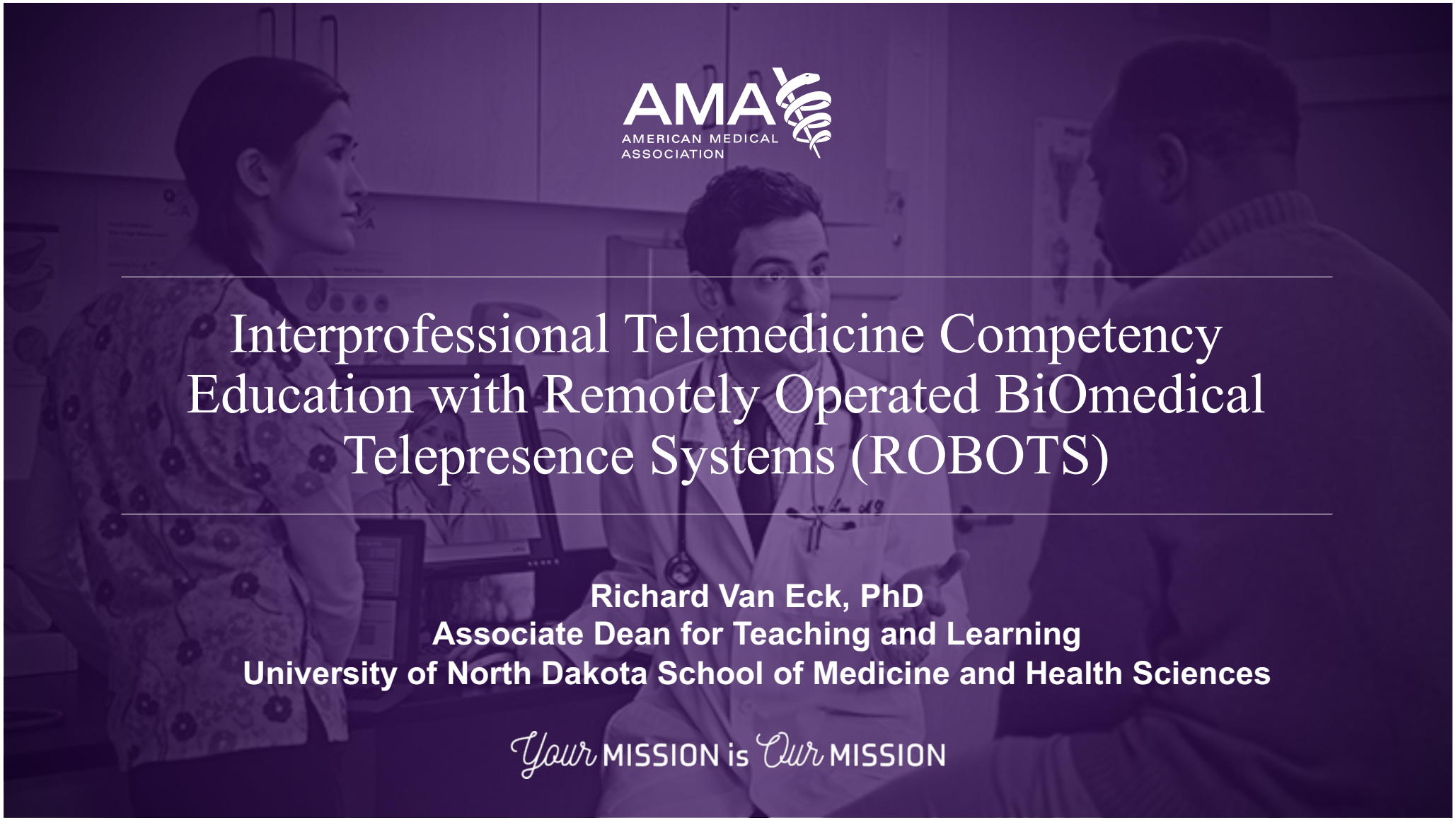
Contact Information:

Kelly Caverzagie, MD

kelly.caverzagie@unmc.edu



UNMC



Interprofessional Telemedicine Competency Education with Remotely Operated BiOmedical Telepresence Systems (ROBOTS)

Richard Van Eck, PhD
Associate Dean for Teaching and Learning
University of North Dakota School of Medicine and Health Sciences

Your MISSION is Our MISSION

Acknowledgments

- Collaborators
  - Gwen W. Halaas, MD, MBA (Original PI)
  - Jon Allen, MD (CoPI)
  - Eric Johnson, MD (IPE Leader)

Question

- What are the biggest barriers to IPE at your institution?
  - Scheduling
  - Access to professions
  - Buy-in from faculty
  - Buy-in from students
  - Time/resources for implementation
  - It's nobody's job to coordinate

Statement of the Problem

- Need for Interprofessional (IP) Healthcare Communication and Teamwork
  - Improves health outcomes and patient safety[4]
  - Major initiative for healthcare education[5]

[4] Tricco AC, Antony J, Ivers NM, et al. Effectiveness of quality improvement strategies for coordination of care to reduce use of health care services: A systematic review and meta-analysis. *CMAJ*. 2014; 186: E568-E578.
[5] Interprofessional Education Collaborative Expert Panel. (2011). Core competencies for interprofessional collaborative practice: Report of an expert panel. Washington, D.C.: Interprofessional Education Collaborative.

Interprofessional Healthcare Course Today

- 3,400 Students Since 2006
- Nine Health Professions
- Weeks 1–3
  - Large group and breakouts
- Weeks 4 and 5
  - Small groups
- Baseline Experience for Future IPE
- New Building and IP Learning Communities

Interprofessional Student Clinical Learning Experience (ISCLE)

- Clinical IPE (Third Year)
- 2-2-2 Rule (Suggested Minimum)
  - Two students, two disciplines, two weeks
- Transition of Care Activity (example)
  - Identify one patient per week
  - Team plans group assessment using disciplinary tools
  - Meet to prepare discharge or transition plan
  - Present finding to individual preceptors for feedback

What Happens In-Between?

- Currently Building out Formal and Informal IPE Experiences
  - IPC Checklists
  - Learning communities
  - PCL IP extension question
- AMA ROBOTS project

Rural Healthcare's Unique Challenges

- Distance
  - Need for transportation is in top five barriers[1]
  - Results in poorer health outcomes[2]
- Access
  - Distance and healthcare provider shortage—primary care and specialty
  - Patient-to-primary care physician ratio (39.8 physicians vs. 53.3 per 100,000 people in urban)[3]

[1] Goins RT, Williams KA, Carter MW, Spencer M, Solovieva T. *J Rural Health*. Perceived barriers to health care access among rural older adults: A qualitative study. 2005 Summer; 21(3):206-13.
[2] Kelly C, Hulme C, Farragher T, Clarke G. Are differences in travel time or distance to healthcare for adults in global north countries associated with an impact on health outcomes? A systematic review. *BMJ Open*. 2016; 6(11): e013059. doi: 10.1136/bmjopen-2016-013059.
[3] National Rural Health Association: https://www.ruralhealthweb.org/about-nrha/about-rural-health-care.

Interprofessional Care (IPC)
Rural vs. Urban Settings

- Urban
  - Collocated specialties and professionals in a single facility
  - Easier access, including IP team rounds
- Rural
  - Fewer personnel and specialties on-site
  - Complexity of communication among professionals in different locations, including transport of patient to a higher level of care
- Telemedicine
  - Can solve distance problem
  - Additional challenge/required skillset for IPC (and IPE by extension)

Solution: Project ROBOTS

- Remotely Operated BiOmedical Telepresence Systems
- American Medical Association's Accelerating Change in Medical Education
  - Consortium of 32 schools
  - Joined in 2015
  - Longitudinal rural IP healthcare simulation—incorporates 5 healthcare professions
- Three-Part IPE Scenario
  - 5 professions
  - 3 scenarios
  - Longitudinal continuity of care for MI patient over time

Scenario One

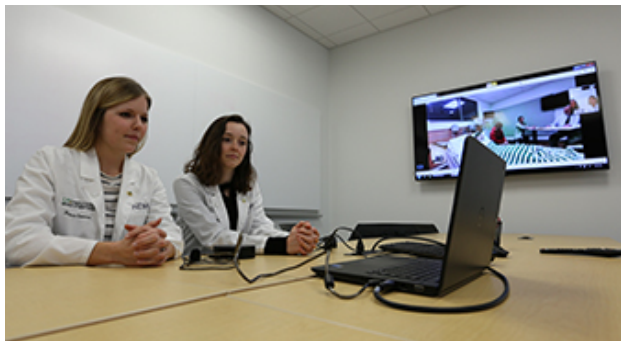
- Emergency Room
  - Chest pain/pressure (center) radiating into left axilla
  - Short of breath with activity for 2 days
  - Eventually diagnosed with MI
- IP Team
  - Nurse (13), physician (74), cardiologist (telemedicine)
- Treatment
  - Transport to regional health center with “cath” lab
  - Coronary stent placed
  - Discharge to home town with no cardiac rehabilitation

Scenario Two

- Home Health Assessment
  - Physician via telemedicine (74)
  - Home health nurse (facilitator)
  - Occupational therapist (6)
  - Physical therapist (53)
  - Social worker (13)
- Recommendation
  - Admission to long-term care

Scenario Three

- Deteriorization in status
  - Patient cannot participate in own care
- Team
  - Physician via telemedicine (74)
  - Social work (13)
  - Nursing (15)
- Recommendation
  - Discuss advanced care directive
  - Recommend palliative care



Implementation

- Scenario Delivery
  - November 15, November 29, December 6
  - 20-min group debriefing after each run
  - 4 to 6 rooms per run, 4 runs per scenario/day
- Data Collection
  - B-line video recordings
  - Modified Communication and Teamwork Skills (CATS) instrument
  - Qualitative analysis of group debriefing and individual interviews

Results

- 273 Students, 5 Professional Disciplines
  - Social work, occupational therapy, physical therapy, nursing, medicine
- Learning Outcomes/Quantitative Data
  - 65+ recorded video sessions will be analyzed using modified CATS.
  - We discovered a process and opportunity to incorporate telemedicine into virtually any of our 32 simulations in MD Years 1 and 2.
  - Preliminary thematic analysis suggests overwhelmingly positive impact.

Thematic Analysis

- Data Sources
  - Group debriefs (n=12), interviews (n=5), written reflection paper (n=1)
- Transcriptions Coded, Organized under Thematic Headings
- Headings Developed into Themes and Subthemes
- 4 Major Themes
  - Telemedicine simulation and scenario experience
  - Telemedicine simulation roles and relationships
  - Technology
  - Simulation value

Theme One: Telemedicine Simulation and Scenario Experience

- Entry Experience and Levels of Confidence:
  - Most had no experience and little confidence.
- Rehearsal and Practice:
  - Experience reduced anxiety and boosted confidence.
- Telemedicine Protocols:
  - Students realized that telemedicine requires different skills and training.
- Simulation Design:
  - Students felt longitudinal design and telemedicine prepared them for the real world and showed them things they would not otherwise get during education.

Theme Two: Telemedicine Simulation Roles and Relationships

- Perceptions of Others' Roles
  - Students had gaps in knowledge, misconceptions about roles of other professions.
  - Simulation experience remediated and changed student perceptions.
- Perceptions of One's Own Role
  - Students saw their own roles differently as result of working with others.
- Collegial Relationships and Teamwork
  - Seeing others' expertise in action created respect and appreciation.

Theme Three: Technology

- Issues with Aural/Visual Communication
    - Technology problems, knowing where to look, making eye contact, were challenges.
- Spatial Arrangement and Placement
    - Students realized that camera angles, number of people, positioning of personnel, were all important considerations for future telemedicine.

Theme Four: Simulation Value

- Benefits
  - Students reported unanimous appreciation of the benefits of the simulation in their educational experience.

Representative Quotes

- **Occupational Therapy:** "[The medical students] were great! They said 'yeah, [ordering a swallow study] is something we will do then. We will get a referral to speech.' I literally felt like a team member!"
- **Social Work:** "[The medical student] kind of referred to social work quite a bit, and I felt appreciated…"
- **Nursing:** Regarding her role in telemedicine during home health: "…because you…spend more time with that patient than a lot of the other professions…it's really, really [important to] advocate for them…"
- **Medicine:** "I feel like on previous situations [we treated nurses as] just a person…who read the vitals. I don't think we did a good enough job treating them as a real human nurse team member…"

Final Quote

"These are huge. They should be implemented into every medical program there is—because I came away from it, and I even told classmates, this was literally the most valuable learning experience I had this semester, and I am not kidding when I say that. In our 3rd year in our program, we don't have a lot of hands-on and that was really a great opportunity to have that chance to meet with a patient and other professionals. So, yeah, it was incredible!"

Next Steps and Lessons Learned

- Scoring Performance with CATS, Validating Instrument
- Revising Scenarios for Next Year
  - Telemedicine training
  - Driving the ROBOTS
  - More background material
- Incorporating Telemedicine and IP into Existing Scenarios
  - Facilitators with appropriate scripts can be telemedicine consultants for any current scenario.
  - Students and faculty were overwhelmingly enthusiastic—interest in future collaborations is high.

Using the Regenstrief EHR Clinical Learning Platform for Interprofessional Education and Learning

Debra Litzelman MA, MD
D. Craig Brater Professor of Medicine
Indiana University School of Medicine
Director of Education and Workforce Development
IU Center for Global Health

Your MISSION is Our MISSION

Use of the Virtual EHR in the Geriatrics Workforce Enhancement Program

Objective

Determine if the Virtual EHR tool could be used to deliver and evaluate the learners' ability to create a comprehensive care plan for geriatric patients established collectively by inter-professional learners.

Indiana Geriatrics Education and Training Center (IGETC) Partners

- IU School of Medicine
  - Medical Students
  - Internal Medicine Residents
  - Med Peds Residents
  - Family Medicine Residents
- IU School of Nursing-Advanced Practice Nurse students
- IU School of Social Work-Master of Social Work students
- IU Inter-professional Practice and Education Center
- Eskenazi Health
- IU Health
- Richard L. Roudebush VA Medical Center
- CICOA Aging & In-Home Solutions
- Alzheimer's Association

INDIANA GETC Geriatrics Education and Training Center

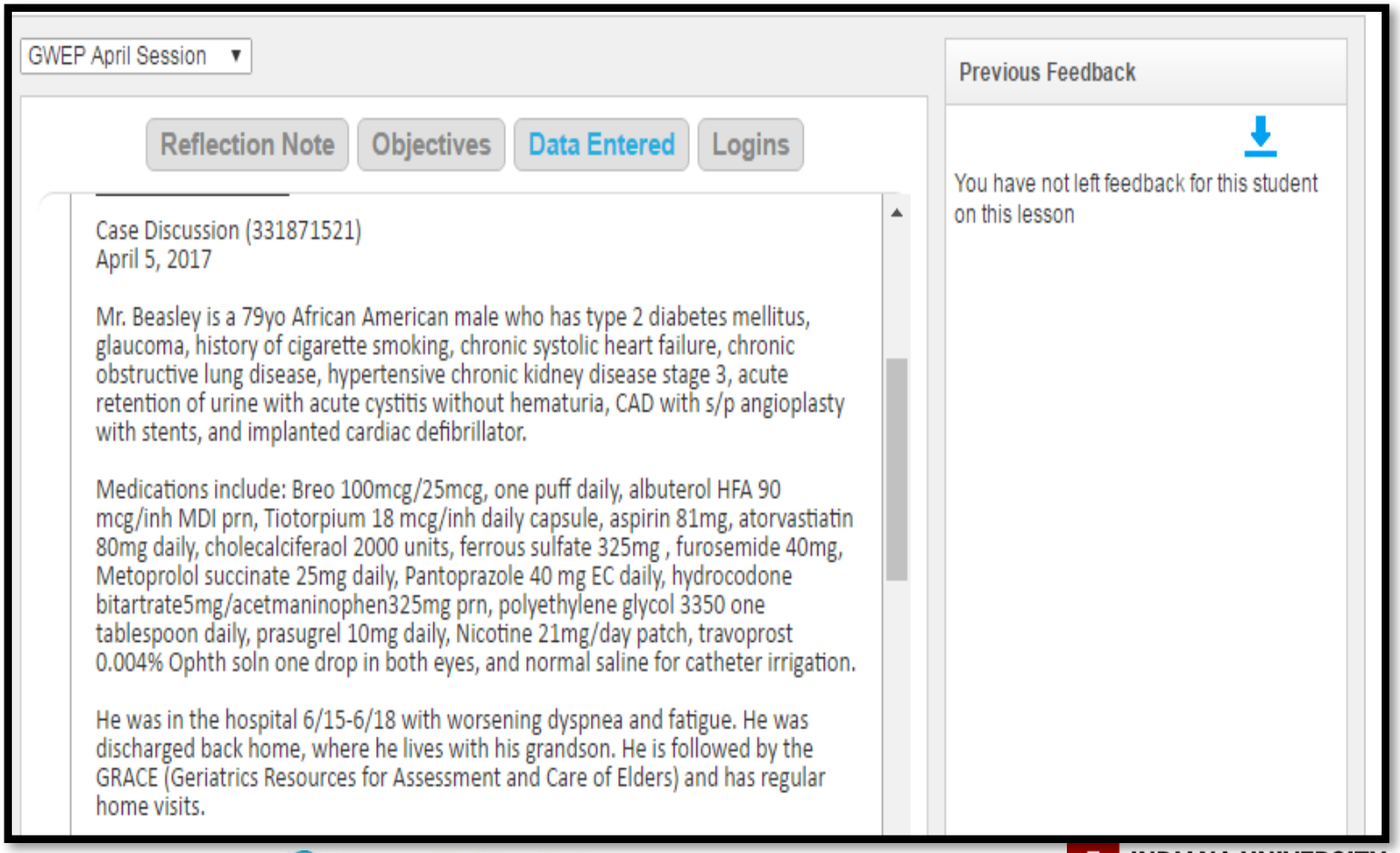
Regenstrief Institute

INDIANA UNIVERSITY SCHOOL OF MEDICINE

Interprofessional Geriatrics Clinical Care Conferences with Medical Residents, APN Students, and MSW Students

Each month the GWEP Fellows (5 ANP students and 5 MSW students) with the residents on the Geriatric Medicine rotation are sent an email with a geriatric case to review and prepare to discuss during the Face-to-Face session.

Geriatric Case Summary



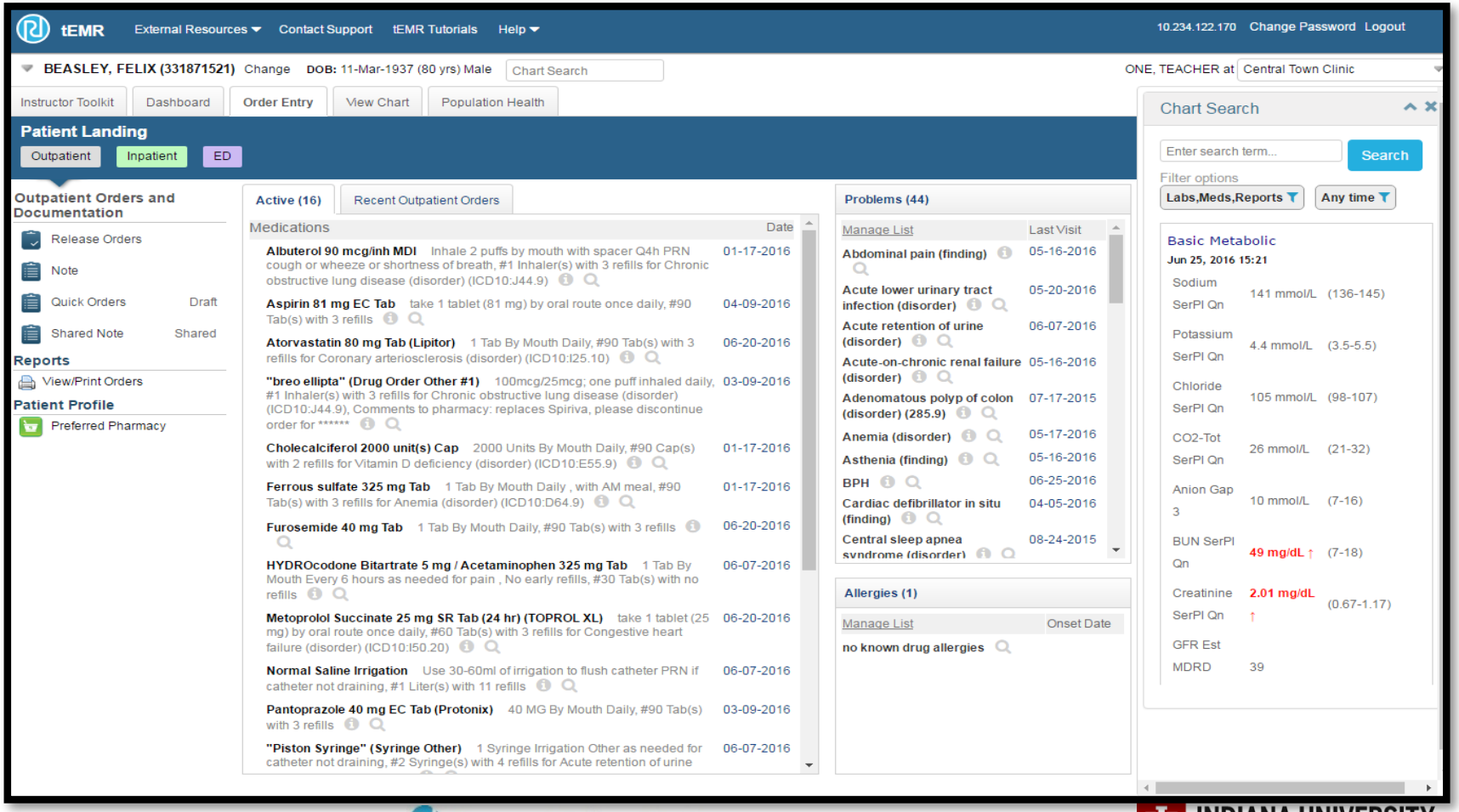
INDIANA GETC Geriatrics Education and Training Center

Regenstrief Institute

INDIANA UNIVERSITY SCHOOL OF MEDICINE

Your MISSION is Our MISSION | AMA

Patient File



INDIANA GETC Geriatrics Education and Training Center

Regenstrief Institute

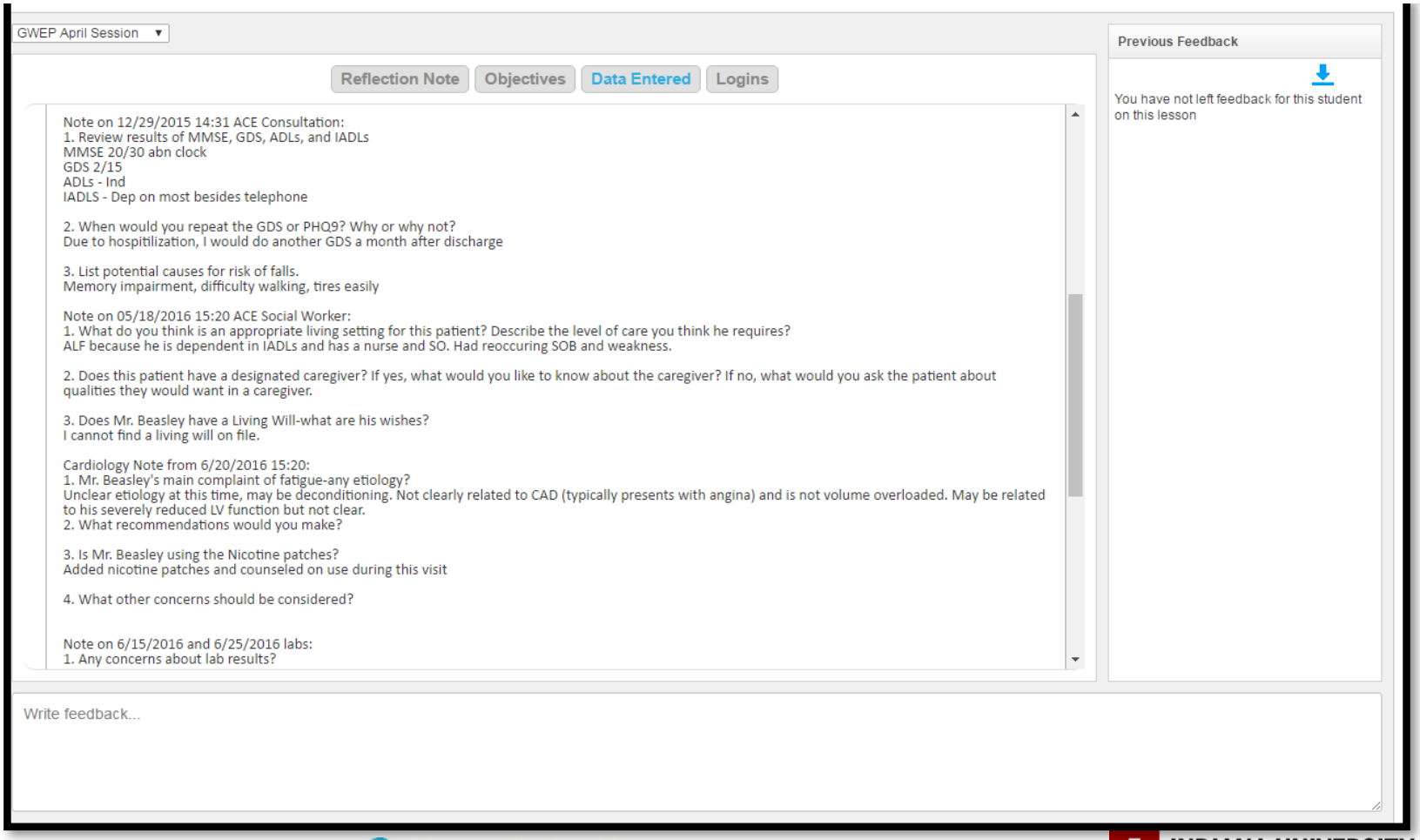
INDIANA UNIVERSITY SCHOOL OF MEDICINE

Your MISSION is Our MISSION | AMA

Interprofessional Geriatrics Clinical Care Conferences with Medical Residents, APN Students, and MSW Students

- Each geriatric case has a template with a list of questions and directions to review specific notes in the patient file
- Each student is responsible to complete a note in the EHR guided by the template in advance of the Face-to-Face session

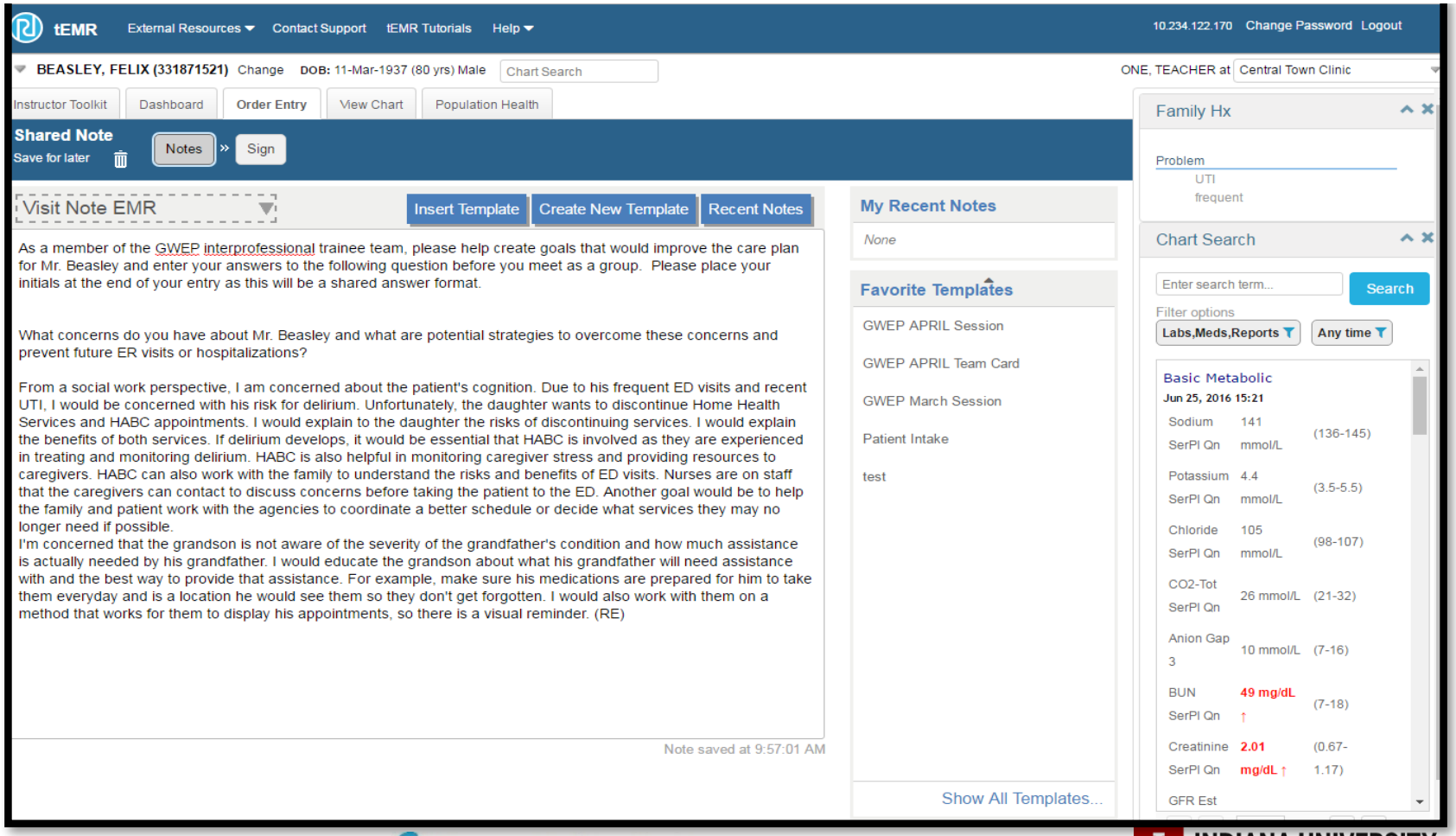
Case question template



Development of a IPE activity in the teaching Virtual EHR: "Team Card template"

- Created a second template called the shared "team card"
- Each trainee submits their answers in the same note and places their initials at the end.
- All the trainees can see the answers from the other trainees
- Discuss questions and answers during the Face-to-Face session

Team Card template



INDIANA GETC Geriatrics Education and Training Center

Regenstrief Institute

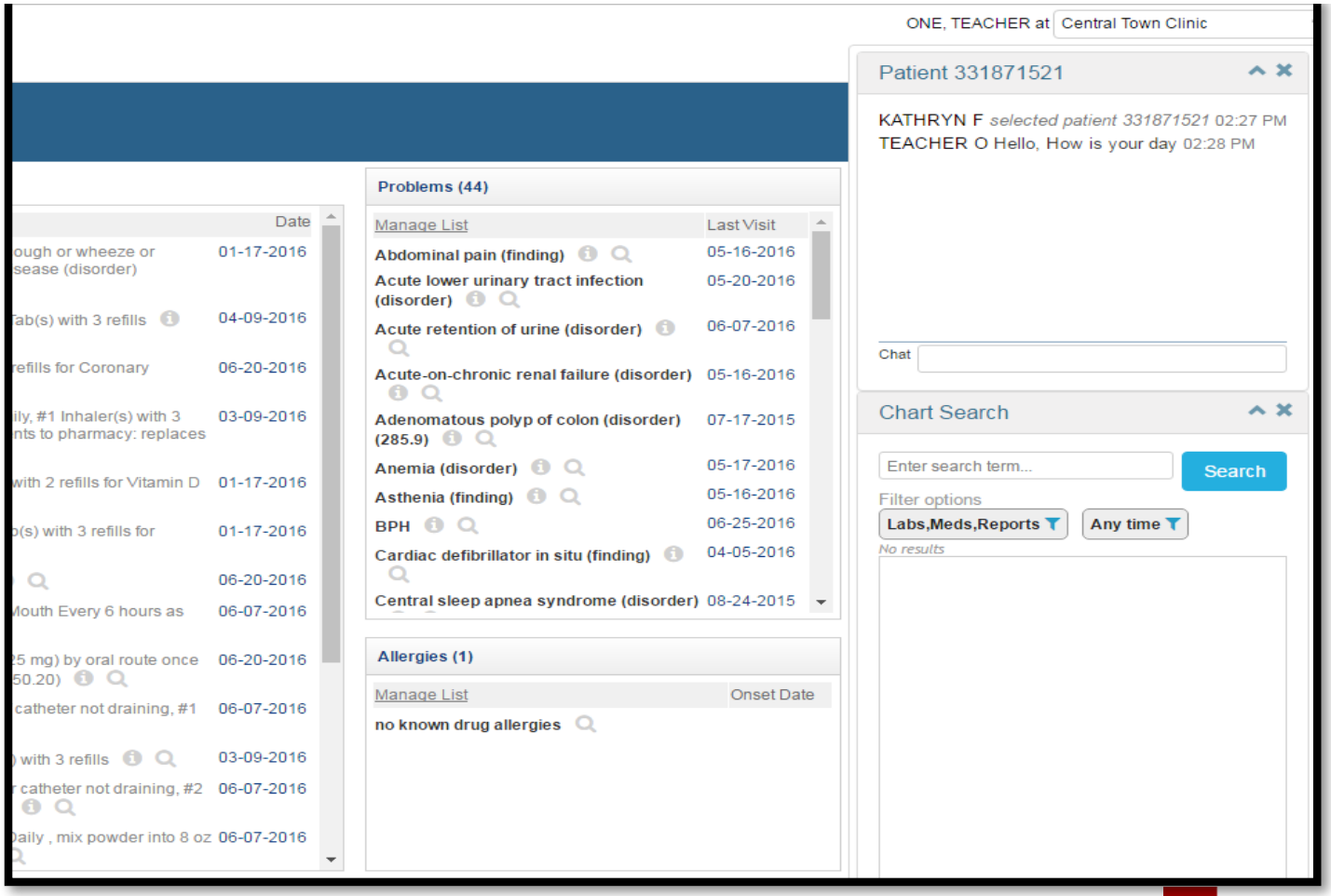
INDIANA UNIVERSITY SCHOOL OF MEDICINE

Your MISSION is Our MISSION | AMA

Goals of the Team Card

- learn about the different profession's roles/responsibilities by reviewing each other's entries
- experience the development of a comprehensive plan of care for the older adult created by an interprofessional team
- practice communicating with the other professions via a chat box in the virtual EHR

Chat box



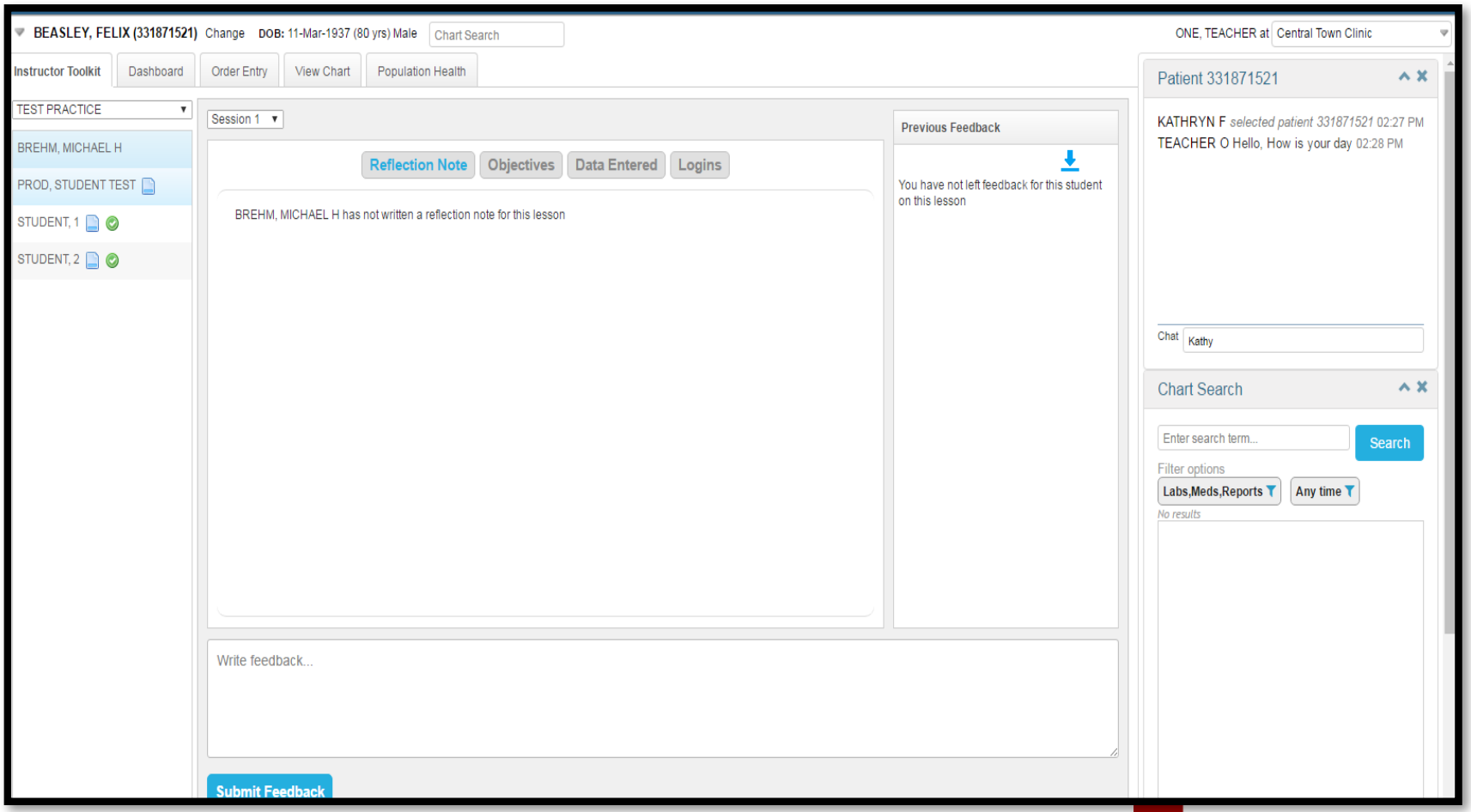
Question: Do you think your health professional learners in an IPE course would take time to use the chat box function?

- Yes
- No
- Maybe

Instructor Toolkit

- Review each trainees completed answers for the individual case template
- Review the trainees answers in the Team Card
- Review comments in the chat box
- Know which students completed their work prior to the Face-to-Face session

Instructor Toolkit



INDIANA GETC Geriatrics Education and Training Center

Regenstrief Institute

INDIANA UNIVERSITY SCHOOL OF MEDICINE

Your MISSION is Our MISSION | AMA

Evaluation from Students

Survey Item	SA/A
• It was easy to navigate through the virtual EMR	50%
• The directions received were helpful to complete the cases in the virtual EMR	86%
• You were provided enough information to work through the cases	72%
• Overall, the virtual EMR cases were useful to your education about geriatrics	100%

Student comments

- Great opportunity to review case and learn what providers documented and ordered
- Great opportunity to work with other professions and get a more rounded perspective
- The interprofessional conversation was awesome & really helped to show how different services can come together to address the patient's issues
- Learning about profession's points of view
- Having clinicians from each professions present that are already working with geriatric patients

Next Step

- Sustainability after GWEP funding ends
  - formal IPE course being established (Schools of Medicine, Social Work, Nursing)
  - work with Internal Medicine course director to make geriatric virtual EMR modules part of core ambulatory block rotation requirement
- Creating a bank of virtual EMR cases that can be used for self-study to complement existing clinical experiences for medical, nursing, social work students

Question: Which group of learners do you think would find the virtual EHR to be a helpful learning tool? (check all that apply)

- Pre-med students
- Nursing student
- Masters level social work students
- Medical students
- Advance practice nursing students
- Residents
- Practicing physicians

GWEP tEMR Team

Blaine Takesue – Faculty

Debra Litzelman – GWEP PI

Cindi Hart – Training

Glenda Westmoreland-GWEP MD-Trainee C

Shahid Khokar – Lead engineer

Kathy Frank – GWEP RN –Trainee Core

Rachel Gruber – Project manager

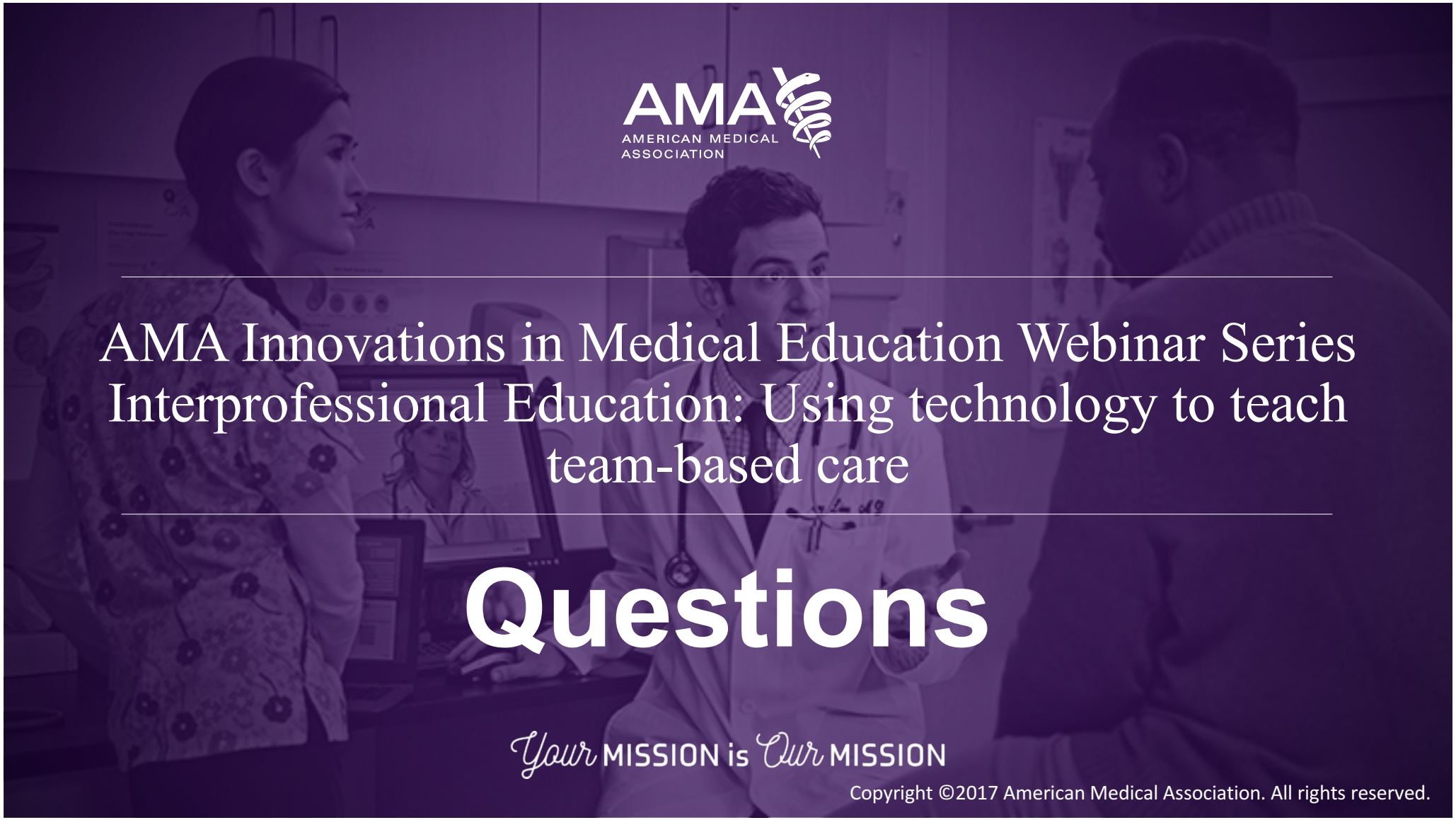
Jean Mensz-GWEP MD-Trainee Core

Jeff Warvel - Business analyst

Brian Stout – Sr product manager

Josh Jones – Engineer

Haritha Mannam – Engineer



AMA Innovations in Medical Education Webinar Series
Interprofessional Education: Using technology to teach team-based care

Questions

Your MISSION is Our MISSION

Future Events

Continue the discussion	Future webinars
Please join us to ask questions of our panelists at: https://ama-assn.org/communities/accelerating-change-in-medical-education • Successfully implementation of interprofessional education programs • Innovative technologies used in interprofessional education such as EHRs and telemedicine	March 2018 **Student Wellness**