



# EMERGING TRENDS AND INNOVATION IN HEALTH SCIENCES EDUCATION

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In the following report, Hanover Research presents the results of a best practices literature review emerging and innovative trends in health sciences education.



# TABLE OF CONTENTS

- 3** / Executive Summary
- 5** / Research Questions and Methodology
- 6** / Emerging and Innovative Health Science Trends
- 9** / Artificial Intelligence and Extended Reality
- 14** / Competency-Based Education
- 16** / Humanistic and Culturally Sensitive Education
- 18** / Interprofessional Education

## RECOMMENDATIONS

Based on a literature review of emerging trends and innovation in health sciences education, Hanover recommends that the institution:



### INCLUDE ARTIFICIAL INTELLIGENCE INSTRUCTION IN THE HEALTH SCIENCES CURRICULUM

As the use of artificial intelligence (AI) in healthcare practice is becoming standard, health science students should learn to effectively use AI systems to make quicker and more reliable diagnoses and treatment decisions. The institution should develop courses or programming that familiarize healthcare students with the principles behind AI, including knowledge of how big data is aggregated, analyzed, and personalized in the context of decision-making in the healthcare industry. In addition, it should teach students how to communicate with patients whose health decisions will be impacted by AI.



### INVEST IN EXTENDED REALITY TECHNOLOGY

Extended reality tools, such as simulated anatomy models and surgical training tools, allow students to learn firsthand in a controlled, repeatable environment, and research shows that simulation tools can improve student learning outcomes and offer interprofessional learning opportunities. As such, the institution should consider purchasing simulation tools so that healthcare students can have more learning experiences, such as learning anatomy by viewing 3D holograms of the body or practicing interacting with patients in real-world scenarios.



### IMPLEMENT INTERPROFESSIONAL HEALTH EDUCATION

Interprofessional health education (IPE) is supported by the World Health Organization as a recommended method that prepares medical students to work in healthcare teams, such as those they will encounter in their careers after graduating. The institution can implement interprofessional education in its health science center by establishing clear interprofessional educational goals and metrics and developing an IPE curriculum and faculty development plan. It should also host several annual events or projects for students from different disciplines to collaborate.



### CONSIDER DEVELOPING A COMPETENCY-BASED HEALTHCARE CURRICULUM

As competency-based education (CBE) gains traction in the healthcare field, the institution may consider piloting a CBE program that allows students to learn at their own pace and demonstrate competencies to meet program standards and requirements. In a CBE program, it could let students build competency-focused portfolios, allowing students to prioritize certain skills of interest to their career goals.



## KEY FINDINGS

- ❖ **As artificial intelligence (AI) becomes more common in healthcare practice, health science programs are similarly incorporating AI into courses.** AI is increasingly used in medical diagnosis and treatment, administrative roles, consumer assistance, and information management; as such, some health science education providers are beginning to offer courses that teach students to understand the concepts behind AI and how to work with AI. AI is also used in a variety of ways in education, including in assignment grading, tutoring, automated essay scoring, evaluation of skills, and attendance tracking.
- ❖ **Health sciences educators are increasingly using extended reality (XR) tools to prepare future medical professionals.** Health sciences educators are using XR tools like interactive 3D anatomy models and surgical training simulations to train future medical professionals, as these tools allow students to learn firsthand in a controlled, repeatable environment. The implementation of XR can improve student learning outcomes and increase collaborative learning, improve learner adaptability, and critical thinking skills. XR tools are also increasingly used in healthcare practice.
- ❖ **Many health sciences programs are shifting to a competency-based model of education.** Competency-based health science models allow students to achieve and demonstrate competencies at their own pace. In a competency-based model, learners are provided adequate time to achieve educational goals but are not required to spend time that is not needed to achieve these goals. Competency-based portfolios are also an innovative component of competency-based models that are gaining traction.
- ❖ **Education on the social determinants of health and the social and humanistic mission of the health professions is a growing trend in higher education.** Social determinants of health (i.e., the non-medical factors that influence health outcomes) are important in health science education because they are major contributors to health and because they are the principal causes of health disparities. In response to the need for greater education in social determinants of health, the National Academy of Medicine created “A Framework for Education Health Professionals to Address the Social Determinants of Health,” and several institutions (e.g., Stanford University, Johns Hopkins University) offer programming on social determinants of health.
- ❖ **Health science education providers implement interprofessional healthcare education (IPE) in programs by developing collaborative curricula and providing collaboration opportunities among students.** Best practices in implementing IPE include:
  1. College leadership must embrace IPE and prioritize it in the budget and organizational structure
  2. Intensive planning with clear educational goals and metrics must lay the groundwork for all IPE initiatives, and IPE experiences must be as rigorous as all other parts of the formal curriculum
  3. Interprofessional learners must be engaged through real, meaningful work that advances patient care and their own professional development
  4. Technology (e.g., simulation, online learning) can help overcome logistical barriers and complement face-to-face encounters
  5. Faculty development must be a priority

# RESEARCH QUESTIONS AND METHODOLOGY

## INTRODUCTION

The institution is in the process of building a new health sciences building to house existing and new health sciences programs as part of its strategic growth plan. It has asked Hanover to examine what are some recent trends and innovations in health sciences education that might inform the new infrastructure and programmatic planning for this expansion.

## METHODOLOGY

Hanover reviewed literature, secondary data, and other publicly available sources (e.g., institutional and organizational websites) to address the research questions. Additionally, Hanover spotlighted uniquely innovative case studies. The goal of this research is to develop recommendations on how to proceed strategically with structuring and planning the new health sciences curriculum to best serve students, based upon common themes and trends uncovered through the research.

## RESEARCH QUESTIONS



What are the emerging trends and innovations in health sciences education?

- What are emerging trends and best practices to improve instruction?
- How to best prepare students for the workforce of the future?



Best practices and trends in Interprofessional Health



What are some innovative examples that the institution might follow that will make its new programming distinctive and effective?

# EMERGING AND INNOVATIVE TRENDS IN HEALTH SCIENCES

## EMERGING AND INNOVATIVE TRENDS

Technological advances, educational innovations, worker shortages, and the continuing effects of the COVID-19 pandemic have created a quickly-changing health sciences landscape. In response to these problems and advances, innovative health science education providers are adapting by creating educational models and tools that better prepare students to enter the current and future healthcare workforce. This report contains a review of emerging innovations and trends present in health science programs and schools that the institution should consider as they build a new health sciences building. In addition, it should consider demographic and broader industry trends that may affect educational needs. Relevant trends that may affect healthcare education are included in the graphic to the right.

Emerging and innovative trends in health sciences (industry and education) are generally related to the following topics, addressed in further detail in this report:



Technology in healthcare and education



Competency-based education



Social and community-focused curriculum in education



Interprofessional health education

## TRENDS AFFECTING HEALTHCARE EDUCATION



By 2034, the population of people aged 65 and older will outnumber the population of children. People aged 65 and over are expected to number 77.0 million, while children under age 18 will number 76.5 million.



The increasing population of older adults will cause greater demands for healthcare, in-home caregiving and assisted living facilities. According to AARP, 87 percent of adults 65 and older want to stay in their current home and community as they age.



By 2025, U.S. providers will face a collective shortage of about 500,000 home health aides, 100,000 nursing assistants, and 29,000 nurse practitioners.



Behavioral health workforce projections forecast increasing workforce shortages in many mental health care provider practice areas through 2030. This comes as Americans experience dramatically increasing mental health concerns.



Healthcare education providers and healthcare organizations increasingly recognize the need for bilingual healthcare workers to serve the diverse U.S. population.

# TRENDS OVERVIEW

## EMERGING AND INNOVATIVE TRENDS OVERVIEW

Healthcare experts expect to see the several trends affecting health science education in the present and near future. An overview of health science education trends is below, and more in-depth descriptions and examples of commonly-cited trends are included in the following sections of the report.

### Standardization of Knowledge, Skill, and Competencies

As more health science students study abroad and serve in international locations, the need for standardized knowledge, vocabulary, and competencies has emerged. The standardization of skills and competencies should focus on students' abilities instead of assessments and prepare students to work globally.

### Emphasis on Competency-Based Learning

A growing number of institutions are implementing competency-based education models that allow students to progress through health science programs at their own pace, as they demonstrate competencies in educational standards required in their program of study.

### Increased Focus on Team-Based Diagnostic and Care Efforts

Interprofessional education in the health sciences brings together students in healthcare professions from across disciplinary divides to collaborate and create simulations of the real-life work environment of health professionals. This type of learning better prepares students for real-world positions than traditional compartmentalized programs.

### Emphasis on Life-Long Learning

Health science education provider should offer life-long learning opportunities in the health sciences, including education on personal wellness, as many healthcare professionals experience burnout.

### Integration of Extended Immersive Reality and AI

Educators already use tools such as interactive 3D anatomy, which allow students to learn firsthand in a controlled, repeatable environment; extended reality simulation tools will continue to grow as a viable tool for health science education. In addition, health science practitioners are increasingly working with artificial intelligence (AI) and must be prepared to have data proficiency and work with new technology.

### Longitudinal Integrated Clinical Education

Experts posit that the traditional clinical rotation model that focuses on hospital settings does not adequately prepare students for future professions. Longitudinal, year-long clinicals allow learners to “appreciate the full impact of illness on patients [and] form meaningful relations with patients, faculty, and staff.”

### Education of Social Determinants of Health

As the pandemic highlighted health inequities in society, healthcare experts recommend programs teach students about social determinants of health, as well as instill the humanistic and social goals of healthcare professions in learners.

# INNOVATIVE PROGRAMS (1/2)

## INNOVATIVE MAJORS AND HEALTH SCIENCE PROGRAMS

This slide highlights new and innovative majors and health science programs offered in the United States:

As national student **demand for master's degrees in Geriatric Nurse/Nursing** grew from 2016 to 2020 (conferrals increased at an average annual rate of 19.0 percent), the University of Southern California recently developed several geriatric-focused nursing programs to prepare students for healthcare professions in specific geriatric nursing contexts:



- [MA in Senior Living Hospitality](#)
- [Long-Term Care Administration](#)
- [Aging Services Management](#)
- [Medical Gerontology](#)

Several healthcare education institutions now offer programs that specifically prepare graduates to **meet the needs of rural communities**, such as the following:



- [Certificate in Rural Public Health](#) (Colorado School of Public Health)
- [A community medicine media degree track](#) will be launched at Ohio State University in 2024 that seeks to “boost the number of physicians practicing in mid-size and rural communities.” The program will incorporate interprofessional education.
- [MPH with concentration in place-based health](#) that “tackles rural health challenges” offered by the University of North Carolina
- [Master of Behavioral Science in Rural Community Health](#) offered by Western Colorado University

Some institutions now offer **health science programs that include concentrations or foci on social and health disparities**:



- Focusing on the “disparities between health care needs and resources,” Furman University established a [Master of Science in Community Engaged Medicine](#).
- Johns Hopkins University's [certificate in Health Disparities and Health Inequality](#) trains students to conduct research on health disparities and inequality, as well as how to identify the underlying causes of health inequalities.
- The University of Texas' [BS in Health Care Disparities, Diversity, and Advocacy](#) includes online courses and hybrid preceptorships.
- The University of Maryland offers an [MPH program in Health Equity](#), in which “students gain knowledge needed to become public health scientists and practitioners that focus practice, research and/or policy activities.”

In 2019, Marshall University launched a [Substance Use Disorder certificate](#) for professional healthcare students that **focuses on caring for opioid use disorder**. The program emphasizes interdisciplinary collaboration.



## INNOVATIVE MAJORS AND HEALTH SCIENCE PROGRAMS

This slide highlights new and innovative majors and health science programs offered in the United States:

Some institutions offer credentials for **language interpretation and healthcare-specific languages**

- [Healthcare Interpreter Certificate Program](#) (all spoken languages) offered by the University of Texas at Austin. The program is also offered through [Texas Medical Center](#).
- [Certificate in Spanish for Health Care](#) offered by The Catholic University of America
- [Spanish for Health Professions Graduate Certificate](#) offered by Temple University
- Harvard University's [Medical Language Program](#) offers courses with medical language training for several languages, including Mandarin, Portuguese, and Spanish

Some U.S. institutions, including [Wayne State University](#) and [Stony Brook University](#), now offer **three-year medical degrees**. Other medical schools like Duke University, Penn State, Ohio State University, University of California – Davis, the University of Wisconsin, New York University and Texas Tech University also offer three-year degrees.

Icahn School of Medicine at Mount Sinai recently established a [Department of Artificial Intelligence and Human Health](#) “dedicated to advancing **artificial intelligence** (AI) to transform health care, further positioning the Mount Sinai Health System as a leader in providing patient care through pioneering innovations and technologies.”

**Informatics and data science programs are increasingly offering healthcare analytics foci:**

- Millersville University launched a new [bachelor's degree in Information Technology with a focus on healthcare analytics](#). The degree is “designed to prepare both traditional and transfer students as well as adult learners for careers in information technology within the healthcare sector.”
- In 2019, Georgetown University launched a master's program in [Health Informatics and Data Science](#). The program “is aimed at recent graduates and early-mid career professionals who want to advance their careers as clinical and health informaticians.”

A unique degree began in summer 2020 at University of Texas at Austin: a [Master of Arts in Design Health](#), focused on “**the application of human-centered design in health**,” including “research methods to better understand the needs of people who are seeking health, receiving care and delivering care.”

Duke University's School of Nursing similarly developed a [Design Health Program](#), which is “a patient-focused program that discovers the pressing needs in healthcare and assembles teams from across engineering, business, medicine and other disciplines to create solutions.”

# ARTIFICIAL INTELLIGENCE AND EXTENDED REALITY

## ARTIFICIAL INTELLIGENCE

Artificial intelligence (AI) tools are changing the healthcare industry. A 2019 publication of the [National Academy of Medicine](#) proclaims that “The emergence of artificial intelligence as a tool for better health care offers unprecedented opportunities to improve patient and clinical team outcomes, reduce costs, and impact population health.” In the healthcare industry, AI is increasingly used in [medical diagnosis and treatment](#), [administrative roles](#) (e.g., scheduling), [consumer assistance](#), and [information management](#). While AI can help physicians make informed diagnoses and treatment decisions, [AI-based systems are extremely unlikely to replace physicians](#). Instead, healthcare workers should learn to effectively use AI systems to make quicker and more reliable diagnoses and treatment decisions. [AI is expected to be standard](#) in future medical practice.

As AI becomes common in healthcare practice, health science students should learn to use AI. Specifically, [medical students need to have a solid understanding](#) of the “4 Vs of big data (volume, variety, velocity, and veracity)” as well as knowledge of how big data is aggregated, analyzed, and personalized in the context of decision-making in the healthcare industry. Medical students should also be familiarized with the principles behind AI and specific AI tools; in addition, health science programs should teach students to use AI to communicate with patients whose health decisions will be impacted by AI and the benefits and biases of AI applications.

U.S. AI in healthcare market size (USD millions)

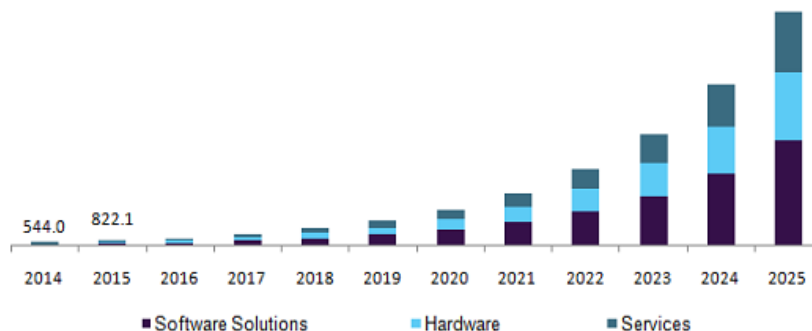


Chart source: [Million Insights](#)  
HIGHER EDUCATION

## SPOTLIGHT: STANFORD AIMI

[Stanford's Center for Artificial Intelligence in Medicine & Imaging \(AIMI\)](#) was established to “develop, evaluate, and disseminate artificial intelligence systems to benefit patients.” AIMI offers clinical AI courses to Stanford students and the general public through [Coursera](#).

### COURSES OFFERED:

**Introduction to Clinical Data.** “This course introduces you to a framework for successful and ethical medical data mining. We will explore the variety of clinical data collected during the delivery of healthcare. You will learn to construct analysis-ready datasets and apply computational procedures to answer clinical questions. We will also explore issues of fairness and bias that may arise when we leverage healthcare data to make decisions about patient care.”

**Fundamentals of Machine Learning for Healthcare.** “This course will introduce the fundamental concepts and principles of machine learning as it applies to medicine and healthcare. We will explore machine learning approaches, medical use cases, metrics unique to healthcare, as well as best practices for designing, building, and evaluating machine learning applications in healthcare.”

**Evaluations of AI Applications in Healthcare.** “This course explores the principles of AI deployment in healthcare and the framework used to evaluate downstream effects of AI healthcare solutions.”

Course descriptions from [Coursera](#).

## ARTIFICIAL INTELLIGENCE IN EDUCATION

In addition to AI's impact on the healthcare industry, innovative higher education institutions use AI tools. Within healthcare education, AI is used in a variety of ways, including in the assessment of learners like in assignment grading, tutoring, automated essay scoring using clinical decision-making questions, evaluation of basic laparoscopic skills, grading of student case summaries, and attendance tracking. AI can also be used to develop and review curriculum in medical education, taking into account the effectiveness of the curriculum and students' satisfaction with the program.

In higher education, AI can help provide:

Individualized learning based on student's needs and performance

Improved accessibility to students with learning impediments or disabilities

Reduced costs on instruction and instructional facilities

Improved learning outcomes and engagement thanks to the adaptive nature of AI learning tools

Learning and emotional support such as in the case of humanoid robots

## SPOTLIGHTS: AI IN EDUCATION

- ❖ Pennsylvania State University and the University of California Davis use an AI tool called Examity to monitor academic integrity for online examinations.
- ❖ The Georgia Institute of Technology introduced a virtual teaching assistant, Jill Watson, to offer individual attention to scholars to keep them from quitting school. It's a bot that responds to different predictable queries such as how to format a paper.
- ❖ Researchers at the University of Montreal are partnering with Classcraft to explore artificial intelligence to measure student engagement. Classcraft's Engagement Management System (EMS) reframes student's progress in school as a game they play together throughout the year
- ❖ SoftBank Robotics, a Tokyo-based company, is developing robots to assist in learning. These are used for emotional support and teaching assistance, but can also serve in more advanced situations, such as learning and testing AI and experiential learning of coding.



Humanoid robot by SoftBank Robotics.  
Source: [SoftBank Robotics](#)

# EXTENDED REALITY

## EXTENDED REALITY IN HEALTH SCIENCES EDUCATION

*Extended Reality (XR) encompasses Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR). VR is the most comprehensive of the extended reality modalities. It usually involves the wearing of a headset device that sends the user into an immersive experience in an entirely different reality. AR uses a device, like a mobile phone or a specialized head set to augment reality with additional digital features. MR combines the worlds of virtual reality-- a digital world-- and AR-- a real world embedded with digital features.*

### Extended Reality (XR)

Encompasses the range of Virtual Reality (VR), Augmented Reality (AR), and Mixed Reality (MR)

### Virtual Reality (VR)

Fully-immersive experience in an entirely different reality

### Augmented reality (AR)

Uses a device to augment reality with digital features

### Mixed Reality (MR)

Combines features of VR and AR

Extended Reality (XR) tools are quickly changing health sciences education. Health sciences educators are increasingly using XR tools like [interactive 3D anatomy models](#) and [surgical training](#) to prepare future medical professionals; these simulation tools allow students to learn firsthand in a controlled, repeatable environment. Research shows that the implementation of XR tools such as these can [improve student learning](#) outcomes when compared to traditional methods. Further, the use of XR in health sciences education can [increase collaborative learning, improve learner adaptability, and critical thinking skills](#), as students can interact with each other in XR environments.

XR tools are also increasingly used in healthcare practice. XR tools, such as VR headsets, have been used to [calm patients before and during operations](#), with high rates of patient satisfaction. VR is also being used to help patients [get through labor pains](#) and [deal with other types of pain](#). In addition, health organizations are using XR tools to speed up recovery in [physical therapy](#). For example, VR therapy approaches have been successful among [children with cerebral palsy](#), and other patients report [high rates of satisfaction in using VR in physical therapy](#).

## XR CASE STUDY

A 2020 [study](#) evaluating vaccination training to BPharm and MPharm students at the University of Canberra, Australia found that "Using MR enabled students to peel away the body to see these important anatomical markers, contextualizing and providing insight as to why the content was taught and the potential outcomes of incorrect vaccine administration. Students using the mixed reality anatomical software could visually see, using the 3D animation, that vaccines that are administered too low can be injected into the radial nerve, while vaccines that are given too far to the side can cause damage to the axillary nerve. This highlights the importance of administering the vaccination into the correct area."

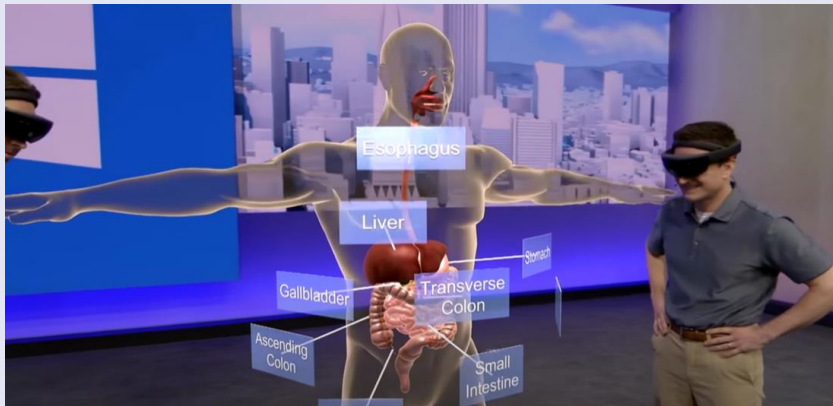


# EXTENDED REALITY

## SPOTLIGHTS: EXTENDED REALITY IN HEALTH SCIENCES EDUCATION

### Case Western Reserve University

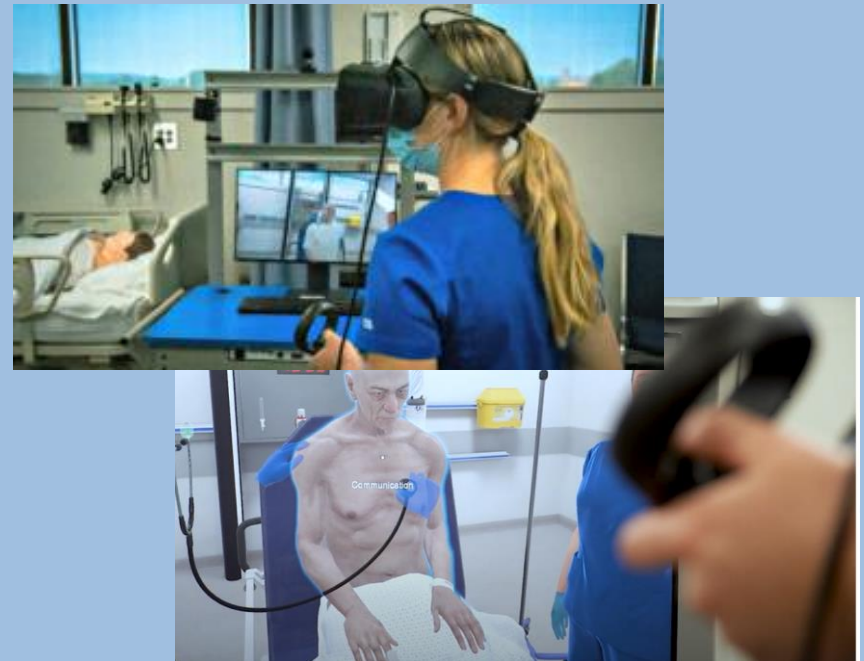
Case Western University's Health Education Campus, created in partnership with Cleveland Clinic, uses XR tools in place of cadavers. In the Health Education Campus, dental, medical, and nursing students learn anatomy in realistic and transferable ways, through virtual and mixed reality devices. The curriculum at the Campus uses [Microsoft HoloLens and Case Western Reserve University-developed curriculum](#); medical students learn anatomy by viewing 3D holograms of the entire body, including its different systems and organs. Students can look inside organs from any angle and investigate how different diseases and injuries affect different body parts. First- and second-year Cleveland Clinic Lerner College of Medicine students use the Campus to learn anatomy and experience the clinical environment through a virtual reality anatomy curriculum developed in partnership with Zygote Medical Education. The Zygote program includes a virtual anatomy lab, in which students collaborate on clinical case studies with peers from around the world.



Source: [ConsultQD](#)

### The University of Tulsa

Like Case Western Reserve University, [the University of Tulsa's Oxley College of Health Sciences](#) uses XR tools in its nursing program. Students in the University's BSN program use software from Oxford Medical Simulation and complete five simulations over their first three semesters. Students participate in 3D virtual reality simulations with headsets and hand controllers. Research conducted at the University found that nursing students that used XR tools to practice nursing reported less anxiety related to nursing after completing the simulations.



# COMPETENCY-BASED EDUCATION

# COMPETENCY-BASED EDUCATION

## COMPETENCY-BASED EDUCATION

Many health sciences programs are shifting to a competency-based model of education. While traditional “time-in-place” clinical education models require a specific number of months in a given program or discipline and this time is taken as an assurance of competency, [competency-based models allow students to achieve and demonstrate competencies at their own pace](#). In a competency-based model, learners are provided adequate time to achieve educational goals but are not required to spend time that is not needed to achieve these goals. In this way, the instructional program becomes more individualized, and the “learner becomes much more self-motivated to achieve the competency in order to move to the next level and actively seeks feedback.”

Competency-focused portfolios additionally enable flexible education that lets students build competencies in their areas of interest. With [competency-focused portfolios](#), programs can be tailored to local health needs, allowing institutions and students to prioritize certain skills over others. Instead of demanding expertise that may not be relevant to a community, health sciences programs can let students develop a portfolio that aligns with their professional goals. At the same time, resource-rich and resource-poor places can both benefit from the enhanced communication and consistency of a clear, competency-based metric.

*“The concept of time as a resource has a liberating effect on both learner and teacher. Learners are allowed adequate time to achieve educational goals but are not required to spend time that is not needed to achieve these goals. Teachers are afforded adequate time for observation, assessment, and coaching to feel comfortable with their judgments. This could result in some learners achieving competencies and moving on in the continuum in less time (and some may take more time). In many instances the total time may be the same, but how that time is used will be different from one learner to another.”*

Source: [“The future of health professions education: Emerging trends in the United States”](#)

## SPOTLIGHTS: COMPETENCY-BASED EDUCATION

[Oregon Health and Science University School of Medicine](#) has implemented a competency-based, time-variable curriculum for its entire medical school class. The University’s associate dean of undergraduate medical education and professor of pediatrics, provides the following insight into the institution’s competency-based model:

“As of July 1, 2021, all of our courses in the entire UME program changed to pass/no pass grading. Now, individual competencies are linked to all courses in our program, and students are provided an assessment for each linked competency by a qualified assessor (i.e., course director).”

“Students and the UME EG are able to review in real time students’ progression in competency attainment and badging for EPAs [through an e-portfolio]. The OHSU-specific e-portfolio, REDEI, houses all student assessment and performance data (e.g., USMLE Step scores).”

“Since implementing our competency-based curriculum in 2014, students have increasingly been able to graduate on an accelerated pace, reducing their educational debt by approximately \$17,000 per student.”

# **HUMANISTIC AND CULTURALLY SENSITIVE EDUCATION**

# HUMANISTIC AND CULTURALLY SENSITIVE EDUCATION

## SOCIAL AND HUMANISTIC FOCUS IN EDUCATION

As issues of social justice continue to be of importance across industries, healthcare experts expect education in the social determinant of health and the social and humanistic mission of the health professions to be a growing trend in higher education. [Social determinants of health](#) are important in health science education not only because they are major contributors to health but also because they are the principal causes of health disparities prevalent in the U.S. healthcare systems. Awareness of such disparities has been magnified amid the COVID-19 pandemic. In response to the need for greater education in social determinants of health, the National Academy of Medicine [created](#) “A Framework for Education Health Professionals to Address the Social Determinants of Health.” Because the goal of the health professions is to improve the health of the public, experts recommend that health sciences programs help students develop an understanding of social determinants of health. To do this, health science programs may need to collaborate with other departments (e.g., social sciences, humanities, economics).

“The social determinants of health (SDH) are the non-medical factors that influence health outcomes. They are the conditions in which people are born, grow, work, live, and age, and the wider set of forces and systems shaping the conditions of daily life. These forces and systems include economic policies and systems, development agendas, social norms, social policies and political systems.” – [World Health Organization](#)

## SPOTLIGHTS: COURSES AND PROGRAMS ON HEALTH DISPARITIES

- **University of Connecticut:** [Certificate in Social Determinants of Health and Disparities](#). The certificate “is intended to train 21<sup>st</sup> century health care and public health practitioners with skills and vision necessary to identify health disparities and develop public policies that promote health equity.”
- **Johns Hopkins University:** [Health Disparities and Health Inequality, Certificate](#). “The goal of the certificate program is to train future leaders in research on health disparities and health inequality, and to train individuals to identify the underlying causes of health inequalities and how to develop and implement effective solutions.”
- **The University of Arkansas for Medical Sciences:** [Social Determinants of Health: A Short Course](#). “The material is presented in 15 distinct modules, averaging 15 minutes long. Each presents how the factor may influence health and how that information can be used to inform policy and programs.”
- **Stanford University:** [Social Determinants of Health: Achieving Health Equity](#). “This course examines the theoretical basis and societal context of social determinants of health, health disparities, and health equity. Each session focuses on one of the following social determinants of health: the social gradient, racism, stress and trauma, early life and Adverse Childhood Experiences (ACEs), mental illness/social exclusion, work/unemployment, drug and media addiction, food, transportation.”



# **INTERPROFESSIONAL EDUCATION**

# INTERPROFESSIONAL HEALTH EDUCATION

## INTERPROFESSIONAL HEALTH TRENDS AND BEST PRACTICES

Interprofessional health education (IPE) brings together students in various disciplines to collaborate and create simulations of the real-life work environment. According to the [World Health Organization](#) (WHO), "Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes." The WHO [reports](#) that IPE "strengthens health systems and improves health outcomes." While interprofessional healthcare has existed for decades, [there has been a surge of interprofessional collaboration](#) within the field in recent years, causing health science education providers to incorporate more IPE into programs. Some programs include [the ability to work in a team as a core competency](#).

The [Interprofessional Education Collaborative](#) sets the core competencies for IPE. They identified four core competencies for IPE:

"Work with individuals of other professions to maintain a climate of mutual respect and shared values. (Values/Ethics for Interprofessional Practice)"

"Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations. (Roles/Responsibilities)"

"Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease. (Interprofessional Communication)"

"Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable. (Teams and Teamwork)"

## IMPLEMENTING IPE

Healthcare education experts advise that educational institutions that implement IPE into health science programs should adhere to the following [best practices](#):

1

"Leadership from the top is essential. Deans, Provosts, Chancellors, and Presidents must embrace IPE and make it a high priority as expressed by budget and organizational structure (such as an office of IPE). Only in this way can the inevitable logistical and political barriers be overcome."

2

"Intensive planning with clear educational goals and metrics must lay the groundwork for all IPE initiatives. IPE experiences must be as rigorous as all other parts of the formal curriculum."

3

"Interprofessional learners must be engaged through real, meaningful work that advances patient care and their own professional development. These experiences must be reinforced in a developmentally appropriate way throughout the entire educational trajectory."

4

"Innovative use of educational technology such as simulation and on-line, asynchronous learning can help overcome logistical barriers and complement face to face encounters and real patient experiences."

5

"Much attention must be paid to faculty development since most faculty have had little or no experience working with faculty or learners from other health professions."

# INTERPROFESSIONAL HEALTH SPOTLIGHTS

## IPE SPOTLIGHT: EAST CAROLINA UNIVERSITY

East Carolina University's College of Allied Health Sciences has an [Interprofessional Education Collaborative](#) that “empowers individuals to improve the health and wellbeing of eastern North Carolina and beyond by:

- Fostering an environment that values interprofessional collaboration and practice (IPCP).
- Educating students and faculty about interprofessional team skills.
- Providing opportunities to explore and engage in clinical and community collaborations.”

### Interprofessional Education Collaborative Vision:

“Our vision is to create an interprofessional culture for learners and faculty through professional development, collaborative networking, and interprofessional immersion experiences.”

The University hosts the following activities that contribute to interprofessional learning:

#### Fall Activities

- ❑ Activity: “Patient Voices”
- ❑ Teams Discussion: “The Importance of Interprofessional Teams and Patient Perspective”
- ❑ Activity: “Four Habits of High-Performance Teams and Teamwork”

#### Spring Activities

- ❑ Activity: “Telemedicine”
- ❑ Activity: “Cultural Humility Activity and Discussion prepared by [CAHS Diversity Committee](#)”

East Carolina University publishes the following stories about IPE collaborations and events at the University:

### Pediatric Case Study

“Students in **Communication Sciences and Disorders, Occupational Therapy, and Physical Therapy** programs met in April for the annual interprofessional pediatric case study. Faculty guided the small groups through a written scenario and led an event-wide debrief session to conclude the event.”

### Nursing and Physical Therapy

“**Physical Therapy** collaborated with undergraduate **Nursing** students during a home-visit simulation. Small groups of PTs first met with a patient-actor, separate from the nursing students. They asked questions and performed evaluations to help inform a plan of care. In the second portion of their activity, PT and nursing small groups united to discuss the patient case. They shared insights with one another using their discipline-specific training and skill sets.”

### IPE Event

“An interprofessional team of faculty hosted an educational event for students from **Addictions and Rehabilitation Studies, Clinical Health Psychology, and Physician Assistant Studies** focused on opioid use disorder. Split into interprofessional groups, students learned about each other’s disciplines and how each encounters opioid use disorder before working on a case study together with the help of standardized patient actors.”

# INTERPROFESSIONAL HEALTH SPOTLIGHTS

## IPE SPOTLIGHTS: INDIANA UNIVERSITY AND QUINNIPIAC UNIVERSITY

### Indiana University

**Indiana University** incorporates IPE into its curriculum, faculty development, and programming. Indiana University's IPE initiative is implemented in the University's health and social care programs, as well as in several other partner universities (e.g., Butler University, Purdue University, and Ball State University, among others). An overview of how the University incorporates IPE into its programs is below:

#### TEACH Curriculum

"TEACH, our specialized curriculum extends from the classroom into practice. Its goal is to ensure better care for patients and populations by training future health and social care professionals to work collaboratively. Students from a wide array of health and social care professions learn about, from, and with one another to develop specific competencies that foster collaboration in practice."

#### Faculty Development

"Interprofessional Practice and Education are essential concepts for effective health and social care. A core factor in the success of collaborative training is the role of educators and practitioners in facilitating students to develop and apply collaborative skills in practice."

#### Programming

"As part of the greater Indiana University community, IU IPE provides programming for those interested in learning about or engaging in interprofessional practice or education. We host workshops, training sessions, and consultations focused on designing, delivering, and evaluating interprofessional collaboration and team-based care."

### Quinnipiac University

Quinnipiac University's Center for **Interprofessional Healthcare Education** provides IPE opportunities for students. The overarching purpose of the Center is "to give students in the School of Health Sciences, School of Nursing, and Frank H. Netter MD School of Medicine the opportunity to develop skills in hands-on, team-based health care environments, preparing them for all of the obstacles inherent in modern health care." IPE learning opportunities offered by the Center are:



Interprofessional healthcare community-based service activities



A variety of interactive case studies and seminar discussions that focus on interprofessional healthcare for children and adults across the practice settings that have complex needs



Online learning modules



Team learning with mannequins and standardized patients: These exercises include simulated cardiac arrests, end of life care, transition of care, home visits, simulated births, ambulatory and in-hospital care.





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