MEDICAL HEALTH SCIENCE SYSTEMS & STRUCTURES

2022-2023
Grades: 10-11
Prerequisite(s): Introduction to Medical Laboratory & Health Sciences

Course Description

Description: This second year course explores how the combination of various systems and structures in healthcare and medicine provide quality health care for an entire population. Scholars will be trained in technical skills including measuring and recording vital signs (BP, Temp, O2, Pain, Pulse, Respirations) and training in basic life support (CPR, AED, First Aid, FBAO). They will also analyze legal and ethical issues from the field, as well as professional standards for and characteristics of successful health care workers. Furthermore, they will examine how the diversity of their community impacts the provision and access to healthcare for various individuals. Scholars will attain HIPAA certifications and are eligible to sit for the National Health Science Certification Assessment after successful completion of both the first and second year courses.

Course Units/Skills & Knowledge

This course is broken into 4 units:

UNIT 1: FUNDAMENTALS OF HEALTHCARE SYSTEMS
UNIT 2: FUTURE OF MEDICINE & HEALTHCARE
UNIT 3: HEALTHCARE AND OUR COMMUNITY
UNIT 4: MEDICAL LAW & ETHICS

SEP	OCT	NOV	DEC	JAN	FEB	MARCH	APRIL	MAY	JUNE

Unit 1 Fundamentals of Healthcare Systems	Unit 2 Future of Medicine & Healthcare	Unit 3 Healthcare and Our Community	Unit 4 Medical Law & Ethics

UNIT 1: FUNDAMENTALS OF HEALTHCARE SYSTEMS

UNIT 1 UNDERSTANDINGS:

U1 Varying medical philosophies, cultural influences, and scientific contributions from ancient through modern times have had a significant role in the development of our current healthcare system and practices.

U2 There are multiple delivery systems with similar components, including hospitals, long-term care facilities, medical offices, and laboratories which affect services performed and quality of care.

U3 Medical Laboratory & Health Science workers are respected professionals who must maintain basic professional standards and characteristics and who also require specialized knowledge and skills so that they can effectively work as part of the healthcare team, including their ability to promote the delivery of quality healthcare

Knowledge	Skills
What knowledge will students learn as part of this unit? ***Students will know…***	*What skills will students learn as part of this unit?* ***Students will be skilled at…***
- Key facts about the history of medicine and healthcare along with significant individuals who helped shape our current healthcare system and practices - Similarities and differences of complementary and alternative health practices - Similarities and differences among various healthcare delivery systems and healthcare related agencies - Healthcare consumer's rights and responsibilities within the healthcare system - How physical, mental, social, and behavioral development change and impact healthcare - History, role, and types of insurance plans - Fundamental terms related to health insurance - Concepts of effective communication - Professional standards as they apply to hygiene, dress, language, confidentiality and behavior - Personal and environmental safety - Common safety hazards and emergency procedures and protocols	- Comparing and contrasting complementary and alternative health practices - Comparing and contrasting various healthcare delivery systems and agencies - Differentiating between types of insurance plans - Evaluating healthcare systems from around the globe - Effective communication and healthcare team participation - Demonstrating procedures for measuring and recording vital signs including the normal ranges - Demonstrating technical skill procedures (AED, CPR, First Aid, FBAO) - Applying personal safety procedures and body mechanics - Observing and applying safety standards and techniques in the work environment

UNIT 1: PERFORMANCE TASK:

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Criteria to assess understanding: *(This is used to build the scoring tool.)* "Look Fors"	Performance Task focused on Transfer:
Product: ● Thoughtfully maps out a layout of delivery systems, related agencies, and other enterprises that stays within the given budget ● All group members are able to articulate basic information about the renovated space ● Thoughtful and thorough justification of choices and response to EQ: How do healthcare systems affect services performed and quality of care ● Information is presented confidently and convincingly and relevant information is used to answer questions posed by the audience Self-Knowledge & Reflection: ● Fully articulates the thinking and learning processes and analyzes the value of the learning experience	Goal: Your goal is to transform a current vacant/semi vacant Rochester mall into a comprehensive medical facility to meet the needs of the community and answer the EQ: **How do healthcare systems affect services performed and quality of care?** Role: You are a healthcare delivery systems and related agencies specialist in the greater Rochester area. Audience: Your audience will be a board of medical professionals and community members to review and authorize your plan. Situation: Over the past several years, countless retail stores have gone out of business. As a result, numerous shopping malls have been left vacant. Medical providers are opening healthcare facilities and offices in open stores and shopping centers are being redeveloped as a destination option for health care services. An advantage of choosing a mall is the convenience as they are usually located near major highways and accessible by public transportation. Be thoughtful in your transformation of the space as you consider what delivery systems and related agencies will be included to best meet the needs of the Greater Rochester Community. Product: **Group presentation of layout and justifications of the delivery systems and related agencies that were chosen.**

UNIT 2: FUTURE OF MEDICINE & HEALTHCARE

UNIT 2 UNDERSTANDINGS:

U1 As the world advances, our society changes, and the needs of patients vary, our healthcare requirements naturally evolve.

U2 Medical and health professionals should practice delivering patient-centered care as members of an interdisciplinary team, emphasizing best practices to improve quality utilizing technology and health informatics to support these practices.

Knowledge	Skills
What knowledge will students learn as part of this unit? ***Students will know…*** ● Similarities and differences of biomedical therapies ● Emerging factors that will have an impact on healthcare delivery systems ● Key components of an electronic health record and/or electronic medical record ● Principles and practices of various health data collection tools, including medical wearable devices, patient monitoring equipment, phone applications, and telemedicine/telehealth	*What skills will students learn as part of this unit?* ***Students will be skilled at…*** ● Describing biomedical therapies as they relate to the prevention, pathology, and treatment of disease ● Comparing and contrasting various biomedical therapies such as gene testing, gene therapy, cloning, and stem cell research ● Analyzing the impact of emerging issues on healthcare delivery systems and determining how the system should/could evolve ● Describing the practical use of various health data collection tools ● Creating an electronic health/ medical record that reflects timeliness, completeness, and accuracy

UNIT 2 PERFORMANCE TASK:

PERFORMANCE TASK: *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

| Criteria to assess understanding: *(This is used to build the scoring tool.)* "Look Fors"

Product:
● Clearly explains the medical innovation to the judges and how it is used
● Provides historical context, including information about the creator(s)/discovery
● Describes overall impact on medicine and delivery of healthcare, including the benefits, challenges, costs, training requirements, and career implications
● Thoroughly articulates and provides supporting evidence for why this innovation is needed
● Organized, uses appropriate content vocabulary, balanced with visuals that enhance the presentation, and delivered with appropriate voice and presence

Self-Knowledge & Reflection:
● Fully articulates the thinking and learning processes and analyzes the value of the learning experience | **Performance Task focused on Transfer:**

Based on HOSA Medical Innovation Event

Goal: Your goal is to create and share your innovative medical tool or treatment and outcomes with others that supports your response to the EQ: **What is the future of medicine and healthcare?**

Role: You are a top clinician who has been assessing the evolving trends and needs of the community. You are incharge of utilizing the most cutting edge technology and materials available to create an original innovation idea that could lead to an advancement in medicine or the delivery of healthcare.

Audience: Your audience will be a group of judges who will unveil the top medical innovations for 2040.

Situation: Medical innovation is essential in the medical and healthcare field in order to meet the evolving needs and provide patients with the best care. Medical innovation requires gaining more knowledge and transforming an existing process. Big data, artificial intelligence, and other emerging technologies are fueling a wave of health innovations around the world. The year is 2040, what will health and healthcare look like?

Product: Presentation for the board of judges. |

UNIT 3: HEALTHCARE AND OUR COMMUNITY

UNIT 3 UNDERSTANDINGS:

U1 Factors such as cultural values, religion, age, socioeconomic status, and disabilities can have a significant impact upon a person's ability to maintain optimal health.

U2 Properly handling diversity & barriers significantly affects how patients respond to medical services and interventions, as well as impacting the type of quality care that patients receive from healthcare professionals.

Knowledge	Skills
What knowledge will students learn as part of this unit? ***Students will know…***	*What skills will students learn as part of this unit?* ***Students will be skilled at…***
- Common barriers to communication - How cultural, social, and ethnic diversity can impact the delivery of healthcare services - Key facts about how culture can influence perceptions of health maintenance - Where their own personal biases exist - The importance of being respectful and treating all patients as individuals - Strategies, especially in the Rochester community, for prevention/risk reduction of diseases & disorders - The role that social determinants of health play in determining health outcomes, especially in the Rochester community	- Modeling appropriate verbal and nonverbal communication with team members, healthcare professionals, community members, and patients - Providing respectful and empathetic treatment to all clients, including modifying communication to meet the needs of the patient and be appropriate to the situation - Recognizing the effects cultural values, religion, age, socioeconomic status, and disabilities on community health - Using techniques to bridge barriers - Identifying community health resources and promoting healthy behaviors - Promoting changes in the Rochester community that would support health equity

UNIT 3: PERFORMANCE TASK:

> **PERFORMANCE TASK:** *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Criteria to assess understanding: *(This is used to build the scoring tool.)* "Look Fors"	Performance Task focused on Transfer:
Product: ● Understands the issue at the level to have a conversation about the community healthcare issue that includes, but is not limited to, overall description, risk factors, preventative measures, impact on individuals, and statistics pertaining to the community ● Clearly connects the community healthcare issue to Rochester culture & demographics, social determinants of health, and healthcare equity concerns ● Thoroughly explains, using relevant but concise details, how various community health resources can support individuals dealing with the chosen community wellness/healthcare issue ● Thoughtfully incorporates an interactive piece that engages the expo participants and deepens their understanding ● Provides a persuasive dialog about one reasonable solution to enact change in the Rochester community to support health equity regarding the chosen wellness/healthcare issue ● Modes appropriate verbal and nonverbal communication with partner and expo participants, modifying communication and using techniques to bridge barriers as needed **Self-Knowledge & Reflection:** ● Critically reflects on the feedback provided by community members ● Fully articulates the thinking and learning processes and analyzes the value of the learning experience	Goal: Your goal is to support and advocate for the Rochester community through analysis of the EQ: How healthy is our community, promoting awareness of healthcare and wellness issues, sharing local resources, and promoting health equity on a chosen community healthcare issue. Role: You are you- a member of the Medical Laboratory & Health Sciences Pathway and East High Upper School scholar advocate! Audience: Your audience will be your peers, family members, and various community individuals. Situation: In the United States, health disparities are a well-known problem among ethnic minorities such as African Americans, Asian Americans, Native Americans, and Latinos. Studies have shown that these groups have a higher prevalence of chronic conditions along with higher rates of mortality and poorer health outcomes, when compared with the white population. There are 748,076 residents living in Monroe County, over 200,000 are minorities and the county ranks as one of the lowest for quality of life in New York State. A Community Wellness Expo is a way to advocate for change and provide educational information about health issues, preventative medicine, screenings, and local resources. **Product: An interactive poster presentation at the annual Medical Laboratory & Health Sciences Scholar Wellness Expo.**

UNIT 4: MEDICAL LAW & ETHICS

UNIT 4 UNDERSTANDINGS:

U1 Healthcare professionals have an obligation to be advocates to uphold patient rights and legal responsibilities in order to maintain their license and to assure patients are receiving quality care.

U2 Bioethical issues require medical and healthcare professionals to carefully examine the situation from many viewpoints, discuss the situation with the patient, family members, and other healthcare professionals before moving forward with a legal, morally sound and ethical decision.

Knowledge	Skills
What knowledge will students learn as part of this unit? ***Students will know…***	*What skills will students learn as part of this unit?* ***Students will be skilled at…***
- Fundamental legal responsibilities, limitations, and implications on healthcare worker actions - Key facts about HIPAA and privileged communication - Types of advance directives - Essential characteristics of patient's basic rights within a healthcare setting - Principles of consent - The concept of scope of practice - The significance of documentation and reducing liability - Accepted ethical practices with respect to cultural, social, and ethnic differences within the healthcare environment - Key ethical issues and their implications related to healthcare	- Analyzing scenarios for legal responsibilities and implications - Differentiating between criminal and civil law regarding medical practice - Applying standards for the safety, privacy and confidentiality of health information - Comparing and contrasting advance directives - Identifying if a patient's basic rights were violated - Differentiating between informed and implied consent - Compare and contrast scope of practice for specific healthcare professionals - Utilizing incident reports in regards to behaviors and activities that affect the health, safety, and welfare of others - Differentiating between laws and ethics impacting healthcare - Identifying ethical issues that arise in healthcare and the process of making tough choices in various dilemmas

UNIT 4 PERFORMANCE TASK:

> **PERFORMANCE TASK:** *How will students demonstrate their understanding (meaning-making and transfer) through a complex performance task?)*

Criteria to assess understanding: *(This is used to build the scoring tool.)* "Look Fors"	Performance Task focused on Transfer:
Product: ● Thoroughly explains the dilemma, including relevant facts, questions that remain, identification of all stakeholders & their values/concerns, and any legal issues involved ● Strategically seeks out and considers alternate options and rebuttals ● Carefully assesses the situation to provide a thoughtful legal and logical explanation that connects the evidence to the claim provided to present to the ethics committee ● Thoughtfully weighs the questions and feedback provided by the ethics committee to reconsider or commit to the proposed course of action ● Defends final decision and course of action, including how to deliver news to appropriate stakeholders **Self-Knowledge & Reflection:** ● Thoughtfully reflects on problem solving & decision making skills, ability to defend decision, and overall performance ● Fully articulates the thinking and learning processes and analyzes the value of the learning experience	Goal: Your goal is to analyze a situation in which a bioethical dilemma has occurred and determine what your actions should be as a healthcare professional, answering the EQ: **What is the "right" decision in a medical/healthcare dilemma?** Role: You are a medical professional involved in a bioethical dilemma. Audience: Your audience will be your peers and adults acting as the ethics committee. Situation: In making decisions about healthcare, patients, families, and healthcare professionals often face difficult, potentially life-changing situations. Such situations can raise ethically challenging questions about what would be the most appropriate or preferred course of action. Ethical dilemmas occur when moral beliefs conflict. Bioethical dilemmas are dilemmas that involve health care and biological sciences. For example, euthanasia is a bioethical dilemma. Euthanasia is the act of painlessly ending the life of a terminally ill patient at the patient's request due to intense suffering. The moral beliefs in conflict are that ending people's lives is wrong but that diminishing people's suffering and people's right to make decisions regarding their health are right. As a healthcare professional, even if you feel strongly about a situation, you must still respect the patient's right to their own opinions. Ethics committees offer assistance in addressing ethical issues that arise in patient care and facilitate sound decision making that respects participants' values, concerns, and interests. **Product: A professional presentation and "critical conversation" round table discussion with the ethics committee.**