Needs Assessment for Sustainable Healthcare Education (SHE) Curriculum at U.S. Medical School

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Background

Only a minority of US medical school curriculums currently provide any teaching about environmental sustainability. "Teaching on climate change in UME, GME, and CME" AMA Resolution #A19-302 calling for "teaching on climate change in UME, water-use, etc."

Sustainable Healthcare Education

Impact of healthcare industry on environment (CO2 emissions, landfills, etc.) Impact of climate change and ecosystem alteration on human health
• Student-driven, faculty supported initiative to integrate climate change and sustainability education into curriculum at University of Michigan Medical School.
• Created and distributed an online 36-question needs assessment to all current medical students.
• Adapted 12 learning objectives, reaching significance (≥ 0.80) modified Delphi study [Teherani et al, 2017]
• Methods
Learning Objectives

A. Doctor as scholar and scientist

1. Outline the dependence of human health on global and local ecological systems
2. Describe the mechanism by which human health is affected by environmental change
3. Describe the features of a health-promoting local environment
4. Discuss the contribution of human activity to global environmental changes
5. Explain the concept of environmental justice and principles for addressing it
6. Discuss the medical, ethical, legal, and economic factors in caring for patients with environmental disease

B. Doctor as advocate for environmental health

1. Describe the impact of environmental policies on health disparities
2. Advocate for sustainable practices in healthcare settings
3. Collaborate with environmental organizations for public health initiatives

C. Doctor as researcher in environmental health

1. Conduct research on the interplay between environmental changes and human health
2. Evaluate the effectiveness of environmental interventions in improving health outcomes
3. Develop evidence-based guidelines for environmental health interventions

D. Doctor as educator in environmental health

1. Educate patients on the role of environmental factors in health
2. Train healthcare professionals in environmental health practices
3. Promote environmental literacy among the general public

E. Doctor as policy maker in environmental health

1. Engage in policy development related to environmental health
2. Advocate for environmental health policies at the local, national, and international levels
3. Evaluate the impact of environmental regulations on public health
Learning Objectives

B. Doctor as practitioner

1. Identify ways to improve the environmental sustainability of health systems
2. Identify potential synergies between policies and practices that promote both environmental sustainability and health
3. Define environmental sustainability
4. Take a focused occupational and environmental history
Learning Objectives

C. Doctor as professional

1. Discuss the ethical tensions between allocating resources to individual patients and protecting the environment upon which the health of the wider community depends.

2. Evaluate work or school environment for level of sustainability.
Results

135 students completed survey

M1 students: 46 (34.1%)
M2 students: 19 (14.1%)
M3 students: 24 (17.8%)
M4 students: 41 (30.4%)
Multiple degree: 5 (3.7%)
What is your current level of knowledge with the following topics?
"What is your current level of knowledge with the following topics?"

- A.1 Discuss the contribution of human activity to global environmental changes.
- A.2 Evaluate the sustainability of your school environment.
- A.3 Evaluate work or school environment for level of sustainability.
- A.4 Discuss the
To what extent does the medical school engage you in the following topics?

1. Not at all
2. Somewhat
3. Neutral
4. Often
5. Very Often
To what extend does the medical school engage you in the following topics?

C.2 Evaluate work environment or school sustainability

B.4 Take a focused occupational and environmental history
How interested are you in learning more about the following topics?"
"How interested are you in learning more about the following topics?"

A.1 Evaluate work or school environment for level of sustainability.
A.2 Discuss the medical, ethical, legal and economic factors in caring for patients with environmental disease.
Identified several major learning gaps related to SHE among medical students at U.S.-based medical schools. Needs assessment results will guide the development of a medical student elective on SHE learning objectives.

1. Current knowledge & interest
2. Interest & medical school engagement
3. Policy recommendations & medical school engagement

Discussion
Thank you!

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Background:
In 2019, the American Medical Association introduced a resolution calling for teaching on the relationship between climate change and human health among trainees and practicing physicians. Sustainable Healthcare Education (SHE) focuses on the impact of climate change and ecosystem alterations on health, and the impact of the healthcare industry on the planet. Research suggests that only a minority of US medical school curriculums currently provide any teaching about environmental sustainability. US medical schools are not keeping pace with a growing need for SHE teaching.

Summary of Work:
This is a student-driven, faculty supported initiative to integrate climate change and sustainability into medical curriculum at the University of Michigan Medical School. Guided by previous literature, we created and distributed an online 36-question needs assessment regarding 12 SHE learning objectives to all current medical students, to assess the current state of sustainability curriculum and help determine the need for SHE learning opportunities.

Summary of Results:
One-hundred and twenty-six current medical students completed the needs assessment, comprised of 36.51% first-year, 15.08% second-year, 18.25% third-year, 26.98% fourth-year, and 3.17% MD-PhD students. The majority of students, 60.1% reported that they were not being engaged at all by the medical school in each of the 12 learning objectives. When asked about their interest in engaging these topics in the curriculum, the majority, 85.1% expressed that they were interested or very interested in engaging with the learning objectives. Students were most interested in learning about the medical, ethical, and legal factors in caring for patients with environment-related disease.

Discussion and Conclusions:
Medical students at a U.S. based medical school desire training in topics related to climate change and environmental sustainability that are not currently being provided by the medical curriculum. The results of this survey will guide the development of a 4th-year medical student elective on SHE learning objectives. If successful, this could provide a model for expansion to other medical schools and collaboration between institutions.

Take Home Messages:
There is a clear learning gap between the current level of student engagement around topics related to climate change and environmental sustainability, and the interest and needs of students in these areas.