Earth Health – An Elective Course in Climate Change and Health

Hugo A. Aguilar and Yaser Khoshal
Carbon Neutrality Initiative Fellows
University of California San Francisco, School of Pharmacy

Introduction

Students at UCSF are trained to be expert health-care providers with an emphasis on clinical knowledge, however the topic of environmental health is oftentimes neglected and left out of the discussion. It is important for students to gain an understanding of how climate change relates to health and learn practical steps that can be applied to mitigate our impact on the environment. As future health-care providers, UCSF students should be at the forefront of advocating for environmental justice and endorsing changes in policy related to environmental issues.

Goals

Climate change is increasingly becoming apparent to the public and health-care professionals are taking notice. Elective courses such as Earth Health are potential tools for promoting professionalism and activism among health-care students by enhancing foundational knowledge regarding climate change and human health.

Course Objectives

• Describe how climate change affects human health
• Explain how social determinants influence health across the lifespan
• Outline the relationship between health-care waste, health systems, and the environment
• Describe practical steps that can be taken to reduce greenhouse gases in health care
• Develop plans for how health care providers can serve as advocates for sustainability in their communities

Design

Syllabus: Spring Quarter 2017

• A 10-week elective course titled “Earth Health” was offered to UCSF students through the School of Pharmacy
• Students met weekly for one-hour sessions to learn from guest lecturers
• Constructive feedback for each speaker was collected from students via an online survey after each session
• Students completed a pre-course and post-course survey

Outcomes

Enrollment: School of Pharmacy 97.78% (88)
School of Dentistry 0.00% (0)
School of Medicine 1.11% (1)
School of Nursing 1.11% (1)
Total: 90 students

Completed Pre/Post-Course Survey: 84% (76)

Assessment

Attendance:

1. Students were required to attend weekly lectures and fill out a short survey at the end of each class to provide feedback and answer a few questions
2. If a student missed a class, they completed a make-up assignment
3. Missing more than two lectures in the quarter (with or without a make-up assignment) resulted in NO PASS

Grading:

To receive full credit in the course, students met attendance requirements and completed pre & post-course surveys

Sample Survey Questions:

To what extent do you agree or disagree with the following statements:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Course</th>
<th>Post-Course</th>
<th>Strongly agree</th>
<th>Somewhat agree</th>
<th>Neither agree or disagree</th>
<th>Somewhat disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Healthcare systems are efficient in minimizing waste products and implementing sustainable practices</td>
<td>26.0%</td>
<td>28.5%</td>
<td>14.4%</td>
<td>33.7%</td>
<td>16.1%</td>
<td>23.1%</td>
<td>28.5%</td>
</tr>
<tr>
<td>There was an incentive for me to take action against climate change, and this would be more practical</td>
<td>16.1%</td>
<td>22.9%</td>
<td>5.7%</td>
<td>30.0%</td>
<td>16.1%</td>
<td>22.9%</td>
<td>26.0%</td>
</tr>
<tr>
<td>It is the best interest of the Planet’s economy and health accuracy to prevent sustainability and prevent environmental harm</td>
<td>23.1%</td>
<td>22.9%</td>
<td>13.7%</td>
<td>30.0%</td>
<td>16.1%</td>
<td>20.8%</td>
<td>16.1%</td>
</tr>
<tr>
<td>Pharmaceutical waste is well regulated and under control</td>
<td>23.1%</td>
<td>28.5%</td>
<td>13.7%</td>
<td>30.0%</td>
<td>16.1%</td>
<td>20.8%</td>
<td>16.1%</td>
</tr>
<tr>
<td>There is not much that I can do to reduce my health care policy and environmental policy at the national, state, or local level</td>
<td>23.1%</td>
<td>28.5%</td>
<td>13.7%</td>
<td>30.0%</td>
<td>16.1%</td>
<td>20.8%</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

Student Feedback:

“I think that having more class participation and Politic implementation (like Donjacour’s presentation) would make the course more interactive, easier to take attendance, and also keep the audience engaged in the subject being discussed.”

“I would like to learn about exposure to industrial chemicals (inner cities), and chemicals in our food due to pollutants (animals products, fish, processed foods).”

“Great class. Great speakers. Very happy I took this class.”

Discussion

This novel elective course was offered to students in all academic programs at UCSF. We wanted to analyze the differences in the pre-course and post-course survey data in order to measure the impact of the course on student learning and assess how well the course objectives were covered. The level of interest for the course showed a majority of survey respondents enrolled to learn more about how environmental changes affect human health. The course was offered for 1-unit elective credit and this incentive attracted 25% of enrolled students. Publicity and advertising efforts proved to be successful, but will be improved to broaden the outreach to a more diverse group of students.

Conclusion

All students enrolled in the course met the requirements and received passing grades. The pre- and post-course surveys revealed that students’ levels of confidence about knowledge of climate change and understanding its connections to health was increased. Feedback obtained from students revealed an appreciation for environmental justice and sparked interest in activism. Students gained a broader understanding and more confidence in discussing climate change issues with regard to health. As a result of enrolling in Earth Health, students’ expressed that learning about the impact of climate change on human health will make them better healthcare providers. Eight students have showed interest in taking on leadership roles to continue the efforts of Earth Health when it is offered in Spring 2018.

Acknowledgements:

University of California Office of the President, Carbon Neutrality Initiative, Mentors: Dr. Anne-Marie Donjacour, Dr. Robert Gould, Dr. Katherine Gruenberg, Dr. Connan MacDoughall, and all of the volunteer guest lecturers.

References:
