

Sustainable Healthcare Teaching Case Study

Medical School: University of Dundee

Course: *The Natural Health Service: biodiversity, ecosystems and human health*

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Summary

We offer a 4 week SSC (Student Selected Component) to 2nd and 3rd year students at the University of Dundee Medical School. It has been running for two years since 2018 and takes place once a year, in May. It explores the links between ecosystems, biodiversity and human health. This includes not just the health implications of ecosystem degradation and biodiversity loss, but also the mounting evidence for the health benefits of nature contact and green exercise. It also introduces students to the concepts of sustainable healthcare, green prescribing and environmental advocacy.

Background

The course is designed and run by a Consultant Anaesthetist and a Senior Public Health Registrar from NHS Tayside, with the assistance of some expert outside speakers and local sustainability champions. The aim is to teach future doctors that human health and survival is dependent upon the life-support services provided by intact ecosystems and biodiversity, and that good medical practice is therefore not just about reacting to illness, but about promoting healthy, sustainable, low-carbon lifestyles, and advocating for the preservation and enhancement of the natural environment.

Course Description

Year group taught: 2nd and 3rd year medical students

Status of this teaching within the curriculum: Student selected

Curriculum area SSC

Course content (topics covered by lectures/ tutorials):

- Biodiversity / Ecosystem Services
- Biodiversity Loss
- Medicines from nature
- Health benefits of nature
- Climate change and health
- Air pollution
- Plastic pollution
- Pharmaceutical pollution
- Sustainable food systems
- Environmental advocacy
- Sustainable healthcare

Project work:

During the SSC, the students undertake a project focusing on a specific planetary health topic. They present their findings at the end of the course, and the project work forms the basis of their written report.

In year one of the SSC, the project focused on **waste segregation and recycling** within anaesthetic rooms and operating theatres in the local tertiary hospital, and the impact of a promotional campaign to improve waste management.

In year two, the students investigated the use of **green prescribing** amongst health professionals from a number of clinical backgrounds, including a GP pilot project in Dundee.

Sustainability learning outcomes:

- ✓ PLO 1 - Describe how the environment and human health interact at different levels
- ✓ PLO 2 - Demonstrate the knowledge and skills needed to improve the environmental sustainability of health systems
- ✓ PLO 3 - Discuss how the duty of a doctor to protect and promote health is shaped by the dependence of human health on the local and global environment

Pedagogical format

A number of learning modes are used including:

- Lectures and interactive tutorials
- Weekly online discussions centred around the critical appraisal of journal articles on relevant topics (eg. active travel, greenspace and health, pollution etc)
- Field trips (eg. to community gardens, waste and recycling sites)
- A mini-project

Teaching time

Total teaching time for this course or session (hours): approximately 30 (includes lectures, tutorials and field trips). Teaching time devoted specifically to sustainable healthcare (hours): 4

Number of students taught:

2018: 7

2019: 10

Materials used:

We give some of the tutorials ourselves (eg. biodiversity loss, climate change, sustainable food systems), using our own knowledge of planetary health and sustainable healthcare, however we also use expert speakers from outside institutions to teach the students about topics such as pharmaceutical, air and plastic pollution, and the health benefits of nature. We utilise a free online educational platform called Knowledge Hub to disseminate the course information and as a forum for the online discussions.

Assessment:

1. Attendance and participation at the lectures
2. Participation in the online discussions
3. Group presentation of the mini-project
4. Individual written report related to the mini-project

Lessons Learned

- Small group teaching has the advantage of allowing all the students to get involved in the discussions, and to make a significant contribution to the group projects. However, this is at the expense of only reaching a small number of students each year. The aim is ultimately to embed planetary health and sustainable healthcare teaching into the whole medical school curriculum.
- Students want the SSC to be as relevant as possible to their studies and future careers. As a result, they particularly relate to sessions involving the experiences of clinical environmental champions who practice sustainable healthcare within their individual departments
- Interactive tutorials and discussions are generally more impactful than lectures
- Try and blend a scientific, evidence-based approach with sustainability stories

Quotes

“I think the information covered in this SSC is vital to medical school teaching and that it should be incorporated into our timetables. Our environment is taken for granted and it is our duty as doctors to help our patients understand its role in our health and wellbeing and also emphasise the need to protect it. “ (SSC student 2019)

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