

Developing an environmentally sustainable NHS: outcomes of implementing an educational intervention on sustainable health care with UK public health registrars

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Abstract: Environmental sustainability is a new and fast moving field in health. There is little evidence about how to teach it effectively to health professionals. **Methods:** We conducted a pilot study of an educational intervention with more than 200 UK public health registrars. The intervention consisted of a day-long workshop with the aim of training participants to help make the UK's National Health Service more environmentally sustainable. **Results:** We measured outcomes in three areas: awareness, advocacy and actions. Comparison of baseline and post intervention questionnaire scores showed statistically significant improvements in the awareness and advocacy scores. Actions were assessed qualitatively. Our findings suggest that, while there are some pockets of good practice, many health professionals are yet to engage with sustainability in the workplace. **Discussion:** We propose reasons why health professionals are yet to become involved in sustainability issues despite the related opportunities for health and health services.

There are multiple benefits – health, financial, reputational and environmental – for health services to take a lead on sustainability. In the United Kingdom (UK), a sustainable National Health Service (NHS) is an ambitious goal and achieving it will require large-scale, transformational and organisational change. There are legal and regulatory

drivers of this change,^{1,2} as well as political support: in *Equity and Excellence: Liberating the NHS* White Paper, the coalition government has demonstrated their commitment to a sustainable health service

...Further efficiencies can, and need to, be made from improving energy efficiency and developing more sustainable forms of delivery across the NHS... (Section 5.17).³

The NHS is however one of the largest workforces in the world. How can sustainability be taught to this workforce to help understanding of why and how sustainability is essential to improving patient care and public health?

The NHS Sustainable Development Unit (www.sdu.nhs.uk) was established in April 2008 to assist the NHS to become an exemplar low-carbon, sustainable organisation. As the NHS has a carbon footprint of 21 million tonnes of CO₂ e (CO₂ equivalent) – larger than some medium-sized countries⁴ – there is an additional imperative for it to show leadership on this issue. In 2010, as part of its organisational development strategy, and with financial support from the Department of Health, England, the Sustainable Development Unit developed and piloted an educational intervention on sustainable health care. This paper describes how the project was implemented and evaluated.

Methods

The intervention was developed using an iterative process over a period of several months. The intended audience was public health registrars enrolled with the UK Faculty of Public Health. There were several steps in the development: initially a literature review was conducted to inform the development of the intervention; the design drew on the expertise (e.g. communications, organisational and workforce development) of the Sustainable Development Unit team; and a pilot study was conducted with a group of public health registrars. The evaluation tools (the questionnaires and phone interview questions) were also piloted.

The final model of the intervention consisted of a 4-hour train-the-trainer workshop on climate change,

Table 1. Comparison of 166 participants'* baseline and post-intervention awareness and advocacy scores, from a study of an educational intervention on sustainable health care for UK National Health Service health professionals, 2010

Score	Baseline Mean ± SD	Post-intervention Mean ± SD	Difference (95% CI)	P-value
Awareness	24 ± 2	37 ± 1	12 (11,14)	<0.001
Advocacy	25 ± 2	34 ± 2	9 (8,10)	<0.001
Combined	49 ± 4	70 ± 3	21 (19,24)	<0.001

CI: confidence intervals.
SD: standard deviation.
*Public health registrars

sustainability, health and the NHS. All UK Faculty of Public Health Trainees were encouraged to attend; some public health consultants also attended. It was delivered face-to-face by the same facilitator in 15 sessions in every region of the UK between February and April 2010.

We assessed outcomes in three areas: awareness, advocacy and actions, which acted as surrogate measures of knowledge, attitudes and practices. Levels of awareness and advocacy were assessed by comparison of baseline and post-intervention self-rated scores (using a four-point modified Likert scale). This information was gathered using questionnaires that were administered at the beginning and at the end of each workshop. Participants' baseline and post-intervention awareness and advocacy scores were compared using the 2-tailed Pearson's correlation test and P-values from significance testing in a parametric paradigm were derived using a 2-tailed Student's *t*-test.

The action objective was evaluated by conducting telephone interviews 3 months after the intervention with a stratified (by region), random sample of 26 participants. The interviews consisted of eight semi-structured open-ended questions. Interviewees were asked whether and to what extent they had achieved their actions, and they were encouraged to speak freely about their experiences and their opinions. Framework analysis of these qualitative data was conducted.

Results

The intervention was conducted with a total of 238 individuals, of which 205 were public health registrars. The group of registrars based around Cambridge (*n* = 33) was excluded from the evaluation as some had been involved in the pilot. Of the remainder, there were complete data for 166 participants (of which 147 were public health registrars). The response rate was 81%. Reasons for the incomplete data included: participants arriving late or leaving the workshop early (and so failing to complete either the baseline or the post-intervention questionnaires) and some participants not answering all the questions. Comparison of baseline and post-intervention questionnaire scores showed statistically significant improvement

in both awareness (mean increase 12 points) and advocacy (mean increase 9 points) scores (Table 1).

In keeping with the advocacy objective, one of the additional aims of the intervention was for the registrars to subsequently facilitate a similar (albeit shorter) workshop themselves, thereby cascading the learning further. The bank of slides used in the workshop was therefore made available to participants for them to use and adapt for their own workshop. In the follow-up telephone interviews, we asked whether they had facilitated a workshop: of the 26, five had delivered one and three had set a date. Several others had raised the issue with colleagues or supervisors, and one had become involved with teaching medical students on sustainability. The reasons cited for not running a workshop included: lack of time, lack of confidence, inexperience, being of the view that it is not the role of a health professional, and being cynical about how much influence they would have and how difficult it would be to make changes.

The themes that emerged from the framework analysis of the phone interview responses are presented in the Discussion as five key lessons learnt.

Discussion

The quantitative results show that participants' self-rated levels of knowledge and attitudes increased following the intervention. While this finding is encouraging for promoting system-wide change, do these improvements translate into actions and do those actions help to make the NHS more sustainable? To answer these questions the lessons that emerged from the qualitative results from the phone interview responses are instructive.

Lessons learnt

Get the facts straight

You do need to get the (climate change) story straight: clarifying climate change terms and examining the basic science (including common myths and misconceptions) were rated by participants as among the 'most useful' parts of the workshop. They were surprised by the graphical comparison of countries' per capita carbon footprints, the

NHS's carbon footprint, the multiple ways in which climate change affects health (e.g. mass migration and food and water shortages), and the fact that climate change is a major global issue of social justice and health inequality.

Tailor your message

Most people respond to messages that address their own interests and concerns.⁵ Sustainability is well aligned with many other health objectives (such as the importance of prevention, more cost-effective use of resources, providing care close to or in the home and the greater use of information and communication technology) and is relevant to the practice of many medical specialties and health issues. The Sustainable Development Unit has found that most clinicians and general practitioners respond best to the health co-benefits argument (that is, that a low-carbon lifestyle is a healthy lifestyle); that medical students and public health professionals are often interested in the social justice and health inequalities issues; whereas finance directors and chief executives are often attracted by the financial savings and reputational issues. In this study one registrar working in maternal and child health began to consider the links between sustainability, family planning and population issues. Another registrar working on a needs assessment pledged to think about how to incorporate sustainability issues.

Be realistic

The participants wanted to focus on practical, achievable, individualised actions. Thus the expectation was of actions that they could carry out as public health registrars and in their workplaces. Some examples of their subsequent achievements were: incorporating sustainability in their current work (e.g. including carbon reduction in a procurement policy and in a commissioning contract); raising the issue with colleagues and implementing workplace changes (e.g. sustainable meetings, home-working and remote access, organising a 'green week'); another was submitting sustainability proposals to the finance director who had asked for cost-cutting suggestions. One regional group of registrars conducted an audit of the business miles travelled (and costs incurred) in meeting their training commitments and several groups implemented teleconferencing of trainee meetings.

Be positive

If people feel that a challenge is too great or that they are powerless to act, a powerful coping mechanism is denial.^{6,7} Thus, doomsday scenarios are unlikely to be effective in encouraging engagement with the issues.⁸ With health professionals, we have found that talking about sustainability rather than climate change can be much more broadly and positively framed as a set of solutions. As noted, there are many reasons for the NHS to deliver

services sustainably; climate change is just one of them. Responses from this group confirm this, for example: 'it is hard to win people over by scaring them'. Several registrars advised re-framing the issue as a positive first, emphasising 'what's in it for them', especially the financial benefits.

Tell stories

Having narrative examples of success that are not too ambitious can be highly motivating. Stories are what people remember and often what inspires them. In the feedback from this pilot, participants frequently asked for more anecdotes and case studies.

Why don't we take sustainability seriously?

Currently there are relatively low levels of engagement in this issue by health professionals. In this study, at 3 months after the intervention, around one-third of those in the follow-up sample had facilitated a similar workshop themselves, and the actions achieved by this group had been modest. These findings are in keeping with the Sustainable Development Unit's wider experience that, while there are some exemplary individuals and pockets of good practice, many in the NHS are yet to engage with this agenda. Given that climate change is the biggest global health threat of the 21st century⁹ and that implementing the principles of sustainable development are an opportunity – particularly for health and health services – it is perhaps surprising that so many health professionals are yet to be convinced and engaged.

Drawing from this study and the Sustainable Development Unit's wider experience we would suggest that there are at least four reasons conspiring against the broader and deeper involvement of health professionals:

1. We naturally apply a critical and balanced approach to all new evidence which may result in our being overly sceptical of new health threats or opportunities.
2. We are very busy, and focused on the day job – hence we have less time than we would like for longer-term issues such as sustainability or climate change.
3. We are focused on reacting to demand, problems and crises; and not on being proactive to need, preparation or prevention.
4. We work in health and so feel that we are already making a worthy contribution to society (sometimes termed a moral offset).

We hope that these reasons – and thoughts about how to overcome them – will promote discussion and debate among health professionals, and that future interventions of this type will take our lessons and experiences into account.

Next steps

There was significant interest in this intervention from Australian colleagues; it was adapted for an Australian

public health audience and a feasibility study of running the workshops was successfully conducted in Sydney in June 2011. The Australasian Faculty of Public Health Medicine (AFPHEM) has subsequently endorsed the workshops, and intends delivering a series of 10 in 2012.

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