

Improving a hospital's environmental impact: what can a doctor do?

A practical guide to achieving change...

As health professionals, our primary duty of care is to 'do no harm'. Another important duty of care is to advocate for action to protect health and humanity. With climate change being the world's greatest current threat to human health, it is doubly challenging that our own hospital workplaces are significantly contributing to unhealthy ecological and carbon footprints. This document aims to encourage and guide doctors to help their workplaces move towards greater environmental sustainability.

Our expenditure in healthcare is escalating, yet improvements in health outcomes are likely to fall if negative environmental impacts continue to rise. Over 7% of Australia's total carbon footprint is generated by our health care system with hospitals responsible for 44% of these emissions.¹ Fortunately, many of the changes needed to improve environmental sustainability in healthcare are the same changes needed to deliver financial sustainability and quality improvements in health outcomes (e.g. the Choosing Wisely agenda).² Placing greater emphasis on public health, preventive medicine and primary care; promoting resource and waste efficiency; and focusing on value and cost-effectiveness will lead to improvements across the board in patient, environmental and financial outcomes.

To initiate change within large highly structured organisations such as hospitals is not easy. **Doctors for the Environment Australia's (DEA) practical guide** therefore aims to identify areas where change can most easily be initiated to improve a hospital's environmental impact. Though some suggestions may be seemingly trivial, experience indicates that **all of the suggestions in this guide** can have a positive impact on environmental outcomes and that doctors can help instigate change. 58% of the NHS's 2015 CO₂ emissions were from the procurement of goods and services (15% medical drugs) whilst powering of buildings contributed to 20% of emissions and staff and patient travel 12%.³

1. Assess the degree of environmental sustainability activity occurring within the hospital.

i. Does your hospital have an Environment Sustainability Officer and/or an Environment Committee?

If you have a Sustainability Officer, ask to meet with them and discover what has been achieved. Find out what are current priorities and future plans. Ask how you and interested colleagues might be able to get involved. Hospitals need as many staff as possible actively engaged in sustainability. It is vital that interested individuals and departments, service areas or wards are guided by the Sustainability Officer and the Environmental Committee, and that individual and small group efforts are all part of the overall hospital plan.

The environment sustainability officer is the best person in the hospital to most effectively improve a hospital's environmental footprint.

If there is no sustainability officer or no environment committee, consider how to help facilitate the creation of these roles. Talk to others who have done this from scratch. Within reason, a hospital has a choice about how it spends its money with respect to the 'activities' it performs. Actions which augment the possibility of hiring a sustainability officer are: seeking the support of the hospital CEO and/or Board; obtaining the support of senior medical and nursing staff and investigating the Australian state-based reporting requirements for energy, water and waste data (which may be currently performed by expensive external consultants in lieu of the sustainability officer).

ii. **Ask to attend the hospital Environmental Sustainability Committee.**

Become familiar with the terms of reference, plans, members of the committee and other integral people. Listen to people about successes and their frustrations. These committees are often very pleased to have medical input.

iii. **Engage hospital executive/administrators.**

Identify if the hospital Environmental Sustainability Committee has a hospital executive present. If not, work with others to encourage this to occur. From experience, we know this is vital to raising the profile and ultimate success of hospital programs to improve environment sustainability. Again, look at different models in different hospitals.

iv. **Ensure the Environmental Sustainability Committee supports and encourages hospital engineers and waste managers having a central place on the committee.**

There may be many plans already underway or projects identified in engineering or waste that could save money and improve environmental outcomes. Identify other relevant stakeholders who may be influential, e.g. Procurement Officer; Pharmacy; Facilities Managers etc.

v. **Find out whether audits of resource consumption or waste management have already occurred? Have these audits been acted upon?**

Benchmark against what is happening in other hospitals and learn about their strategies to improve environmental sustainability.

vi. **Discover what the state government may be doing to improve the energy and water consumption of hospitals.**

There may be time critical grants or procurement programs that could be considered to improve environmental impacts. It is also important that your hospital engages with state departments of health to ascertain what other groups and programs could assist you.

2. Waste management

Start with a project that is likely to succeed. Build on experience and networks for further initiatives. Waste management is an area where changes can be visualised and improving practice has potentially large environmental and financial gains. The mantra '*Reduce, Reuse, Recycle*' is often used to encourage improved environmental footprints – though when it comes to waste management, improved segregation should be put first.

- i. **Segregate** infectious and general waste correctly (infectious waste is far more expensive to dispose of and requires extensive processing). Surprisingly, few clinical areas within hospitals do this well yet correct segregation is potentially the easiest practice to instigate, as no new systems/waste streams need to be altered or introduced. There are also significant financial and environmental savings in improving the segregation of waste.

- ii. **Recycle**– paper, cardboard, plastic, glass, batteries. Find out which materials can be recycled by asking the hospital's waste contractor.
- iii. **Compost** food waste.
- iv. **Reduce single-use products where possible** - consider re-usable equipment and ways to minimise equipment use. There are increasing publications of Life Cycle Assessments in relation to single use and reusable medical equipment. The environmental and financial implications are potentially very significant.
- v. **Purchase recycled paper** and **change printer default settings to double sided printing**.
- vi. Promote ideas to **discourage the use of disposable cups** within your hospital.

3. Recycle

Although recycling is a small part of the big picture of environment sustainability, it can often be a great 'hook' (the first tangible project) to subsequently enlist staff in further sustainability initiatives.

Involve staff who are keen to assist or even lead in particular wards. Consider starting in the hospital's operating suite, Intensive Care Unit (ICU) and office areas. Identify what can readily be recycled. Be aware that recycling does not in itself save the hospital much money but **can indirectly reduce the amount of inappropriate and costly infectious waste**. If your hospital is remote from major recycling centres it may even cost the hospital to recycle, so focus upon reusing and reducing.

- i. **Paper/cardboard** are easily recycled, though plastics can be more challenging, and PVC needs to be separated.
- ii. **Co-mingled recycling** (where multiple recycling streams can be put into the one receptacle) is possible and does occur in some hospitals.
- iii. **Theatre 'blue wrap' (polypropylene)** is valuable to recyclers as it has an intrinsically high value and is rarely contaminated.
- iv. **PVC plastic** can be recycled, and the Vinyl Council of Australia is actively seeking to expand such PVC recycling.⁴

Details of how best to recycle are beyond the scope of this guide, although seeking advice from Sustainability Officers in other hospitals is suggested. Contamination of recycling streams with infectious waste can be problematic initially, and arrangements with recyclers about what to do if this occurs are integral to long term success, e.g. the hospital may agree to pay for removing infectious waste bins from the recycler. 'If in doubt, chuck it out' is helpful in facilitating feasible rates of recycling, rather than trying to achieve 100% recycling.

- v. **Procure recycled/environmentally friendly products.**
It is important to consider how the purchasing of products can help support the recycling processes and reward companies that are producing products with less environmental impact.

4. Reduce

- i. **Avoiding unnecessary patient procedures/investigations/activities** is an important part of decreasing a hospital's environmental footprint and improving sustainability. Consider recommendations from a program such as Choosing Wisely Australia.⁴
- ii. In non-clinical areas (even on wards) it is possible to set computers and air conditioners **to stand by out-of-hours**, convert photocopiers to **double-sided** - avoid printing in general.

- iii. Hospital staff can choose to **reduce the use of equipment** (eg. equipment that is opened and not used) on a daily basis. This is particularly pertinent in hospital interventional areas. Though in **critical care areas and the operating suite** there are also opportunities to avoid opening equipment unless it is absolutely necessary, resist drawing up emergency medication as standard practice, use fewer syringes for individual patients where appropriate, use low flow anaesthetic gases, and avoid the two anaesthetic gases with high global warming potentials- desflurane and nitrous oxide.

Senior medical officers should aim to lead by example in influencing the practices of more junior medical and nursing staff. Junior staff though should be questioning the validity of certain practices that may seem to generate unnecessary waste and use of resources.

- iv. **Energy consumption** – particularly for areas not in use. Whilst not straight forward, it may be possible to reduce the large energy consumption of multiple areas of the hospital, such as clinical areas when not in use. Enlisting the hospital engineers is crucial. Many operating rooms, for example, are not turned to low activity for air conditioning out of hours, though this could save tens of thousands of dollars per annum for each operating theatre by considerably reducing electricity and gas consumption. All new hospitals should have Variable Speed Drives (VSDs) to turn down theatre ventilation when not in use, whilst older hospitals can be retrofitted with VSDs (routinely with a short payback time).
- v. **Water consumption** - Consider what has been done to reduce the water consumption of the hospital with the engineers. Often simple, though useful water audits have already been performed.

5. Reuse

Life cycle assessment ('cradle to grave') is a method used to calculate the environmental footprint of processes and products, and increasingly is being used in healthcare.⁵ There is a growing body of evidence indicating that reusing hospital equipment where possible rather than purchasing single use items can have both financial and environmental benefits. Decisions are often the result of marketing campaigns rather than evidence. Ask for the evidence supporting healthcare purchasing decisions, particularly if infection control issues are used as a reason without evidence to increase the numbers and types of single use items used.

Published evidence indicates that reusable equipment is beneficial compared with single use equipment (both financially and environmentally) for anaesthetic medication trays; the outer coverings of suction canisters; the breathing circuits of anaesthetic machines; laryngeal masks; laryngoscopes; face masks; and several surgical laparoscopic instruments. There are little data for most other areas of medicine.

6. Research

Certain hospital environment sustainability areas have been well researched, e.g. hospital environmental design and architecture. Yet how to best improve the environmental (and financial) footprint of activities within a hospital is usually opaque. Every area of medicine has an environmental impact, from the environmental footprint of medication production and packaging, to the energy use of the radiology department.⁵ Unfortunately, however most detail is simply unknown as it has not been researched or measured.

7. Advocate

Advocate at all levels; hospital executive; environment sustainability committee; amongst your peers; amongst nurses and other doctors.

Join with other DEA members to collaborate and consider a movement to raise the hospital renewable energy use, encourage health superannuation funds to divest from non-renewable energy sources, improve hospital teleconferencing, meet with state Department of Health staff to consider how to improve hospital financial and environmental sustainability, advocate within your college/society to be more environmentally sustainable.

DEA supporting documents

DEA Health Sector Sustainability (HSS) Discussion Paper. *Improving the environmental sustainability of Australia's health sector: cost, quality and environmental benefits.*

DEA Proposal. *An Australian Healthcare Sustainability Unit (HSU).*

<https://www.dea.org.au/wpcontent/uploads/2018/05/DEA-HSU-Proposal---05-18.pdf>

DEA Sustainable Hospitals – Response to the Victorian Climate Change Green Paper, 2011. Available at <https://www.dea.org.au/sustainable-hospitals-response-to-victorian-climate-change-green-paper-healthy-planet-healthy-people-dea/>

Useful Websites

- The Sustainable Development Unit UK. Available at <https://www.sduhealth.org.uk/>.
- Victorian Department of Health, Sustainability in Healthcare. Available at <https://www2.health.vic.gov.au/hospitals-and-health-services/planning-infrastructure/sustainability>
- Health Care Without Harm. HCWH. Leading the global movement for environmentally responsible healthcare. Available at <http://noharm.org>
- The related group 'Global Green and Healthy Hospitals' (US based). Available at <https://www.greenhospitals.net>
- Australian networks. Available at http://www.caha.org.au/globalgreen_healthyhospitals
- Centre for Sustainable Healthcare UK. Available at <http://sustainablehealthcare.org.uk>

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References

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- ² Cassel CK, Guest JA. Choosing wisely: helping physicians and patients make smart decisions about their care. *Jama* 2012; **307**(17): 1801-2.
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- ⁴ The Vinyl Council of Australia. PVC Recovery in Hospitals. 2012. <http://vinyl.org.au/about-pvc/pvc-products/pvc-in-healthcare/pvc-recovery-in-hospitals>. (accessed cited 7 Aug 2015).
- ⁵ McGain F, Story D, Kayak E, Kashima Y, McAlister S. Workplace sustainability: the "cradle to grave" view of what we do. *Anesthesia and Analgesia* 2012; **114**(5): 1134-9.