Making our health system more sustainable:

An ideas paper for the Commissioner of Environmental Sustainability, Victoria.

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Making our Health Services More Sustainable

The worlds of sustainability and health have developed almost independently of one another...it is time to reunite them in the interests of our quality of life

Sir Gustav Nossal, Healthy Parks, Healthy People Congress, 2010

This discussion paper aims to provide background information and reflections for the Commissioner of Environmental Sustainability on how we might specifically address the challenge of climate change and create a more sustainable health system in Victoria. In addition to initial consultation with the Commissioners’ Office, Department of Health, and Sustainability Victoria, it draws on the author’s twenty years experience working in the health sector and papers presented at the 2010 Third Green Hospital’s Conference.

Making our Health Services More Sustainable: The Imperative

The health imperative

The strength of the evidence that we are facing the biggest health threat through climate change is stronger than the evidence on which virtually every clinical decision is made

David Pencheon, Director, NHS Sustainability Unit, Third Green Hospital’s Conference, 2010

The imperative to make our health system more sustainable and to act on climate change in terms of health is three fold. The first, most obvious, reason is that climate change is the biggest global threat to health of the 21st century (Costello et. al., 2009). Climate change will impact on health both directly and indirectly. It will cause changes in the patterns of disease; injuries and deaths from extreme weather events; food insecurity and famine; fresh water scarcity and deterioration in sanitation; disruption to shelter and human settlements and human displacement and migration. Across the globe, we are already facing many of these problems with the 0.7°C increase in temperature that has occurred to date. These problems are expected to escalate. It is estimated that with a 2°C rise in temperature, there will be at least a doubling in the annual death rate just from heatwaves. With respect to human displacement, climate-change related migrants could be in the hundreds of millions by 2050¹. Climate change also poses a specific threat to our health services across the world. We will need to develop services that are both more resilient to climate change and can respond to climate emergencies and challenges as they occur (Carthey, et. al. 2009).

¹ United Nations 2006 revision of population predicts movement from climate affected lands in developing countries to developed countries to be 2.3 million every year after 2010 (Costello et. al., 2009)
The second reason to act, is that the health of economically privileged nations like ours and that of many economically developing nations is deteriorating though obesity, over-nutrition and inactivity. The carbon consuming way we live is killing us as well. There is an increasing body of literature around the co-benefits to our health if we adopt a less carbon-consuming way of life\(^2\). The changes that we need to bring about to address climate change and make our health system more sustainable will both modernise and strengthen our health system and bring us closer to a system better placed to improve health outcomes.

Finally, the resources used by our health system are significant. We must reduce its ever-increasing carbon footprint if we are to help mitigate against catastrophic climate change. In Victoria, the Department of Health is the largest portfolio within Government and is responsible for about 50% of the Victorian Government’s energy use (approximately 15% of Victoria’s total greenhouse gas emissions from stationary energy), 40% of its greenhouse gas emissions (from stationary energy) and about half its water use\(^3\).

### The financial imperative

Developing a more sustainable health service will bring significant financial savings if we act now. Stern has predicted that the economic benefits over time of actions that shift the world onto a low-carbon path could be in the order of $2.5 trillion each year. The shift to a low-carbon economy will also bring huge opportunities. Markets for low-carbon technologies will be worth at least $500bn, and perhaps much more, by 2050 if the world acts on the scale required. Tackling climate change is the pro-growth strategy; ignoring it will ultimately undermine economic growth (Stern, 2006).

Stern has also stated that acting now will cost 1% of the annual global GDP. Not acting will cost 5-20% of annual global GDP. More recent predictions put the economic cost even higher than this.

Both the United States and Europe have argued similar financial imperatives to act. The European Commission has estimated that a 30% reduction in greenhouse gases by 2020 will save £25 billion/year, while the United States has estimated that for every dollar a hospital saves just on energy will be generate $20 (WHO, 2010).


\(^3\) Figures quoted, sourced from www.dhs.vic.gov.au
The moral imperative
It is morally and ethically incumbent on us to lead in this area and to develop a more sustainable health service that can both use resources more wisely and can help reduce our green house gas emissions. Climate change will act mostly as an amplifier of existing risks to global health. The world’s most poor and disadvantaged will experience the greatest proportion of disease burden, having contributed the least to the problem. Currently the 20% of our global population with the highest levels of consumption account for 80% of anthropogenic GHG emissions and an even higher historical contribution. Australia is part of that 20%. Right now a child born in Australia has the carbon footprint of 150 children in Bangladesh, 8 children in Indonesia and 5 in China (Satterthwaite, 2009). It is imperative that we get our own country in order for our own population, so that we can responsibly help our neighbours over future years.

The impact of living unsustainably and climate change are issues of intergenerational justice. They are happening on our watch and will have a devastating impact on the health of those yet to be born. The best way to both stabilise and reduce our carbon emissions is through a framework of sustainable development (Pencheon, 2010).

Making our Health Services More Sustainable: Key Challenges
Challenges outside health
Making our health system more sustainable is predicated on getting our whole house in order. The changes needed to make our health system properly sustainable can't happen unless we are also working at a national level across the board.

Whilst many individuals and departments in government have been working tirelessly to get sustainability and climate change onto all government agendas, it is probably fair to say that we are still struggling to develop and adopt strong policy and legislative leadership at both a federal and state level. Internationally also, we need to continue to develop and strengthen our own leadership in sustainability and climate change mitigation and give strong support to the countries that are already leading in this area.

Some non-government institutions are taking steps to tackle sustainability and are keen to lead but they are probably still more the exception than the rule. BHP’s recent call for action on a carbon tax is a very positive step and hopefully demonstrates that change is being initiated across a range of sectors. Broad community engagement on a wide range of issues relating to sustainability is also essential.

Challenges in our health system
Our attachment to an illness treatment approach to health problems
Throughout history it has been public health measures that have had the greatest impact on the health of societies. This is still the case, yet we are spending more on the treatment of individual diseases as they present rather than on prevention. Whilst we now have a vast fixed public health infrastructure
which involves virtually all of our government departments (planned urban environments, housing and building regulations, water treatment plants, public transport and road systems, food production and distribution systems etc), that have virtually solved the health problems of past centuries\(^4\), our current health problems are not being thought about in any coherent or serious way through the lens of population health and prevention.

A recent report from the Australian Institute of Health and Welfare found that while our spending on public health activities had increased by 12.5 % over the last 7 years, most of this increase related to organised immunisation programs. Public health still only accounted for <2% of our overall health spending ($1.7 billion over 2006-2007, virtually the same as the spending over 1999-2000 (AIHW, 2008)).\(^5\)

The illnesses that dominate Australia now are largely preventable conditions; diabetes, cardiovascular disease, lung and bowel cancer. To a large part, the escalating levels of overweight and obesity are causing these chronic health conditions. Smoking is still another significant causative factor, though has reduced over recent years. Injuries and mental health problems are other key causes of illness in Australia. All, largely preventable yet these conditions are being dealt with through an individual disease model and are ferociously gobbling up the remaining 98% of our health dollar.

This list of our top pharmaceuticals being used in Australia also demonstrates the big-ticket, essentially preventable illnesses that we are primarily treating.

<table>
<thead>
<tr>
<th>Big Ticket Drugs purchased in Australia in 2006(^6)</th>
<th>By Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renin-Angiotensin system drugs</td>
<td>19,798,050</td>
</tr>
<tr>
<td>Lipid modifiers</td>
<td>17,365,169</td>
</tr>
<tr>
<td>Acid-related disorder drugs</td>
<td>13,680,432</td>
</tr>
<tr>
<td>Psychoanaleptics/psycholeptics</td>
<td>19,496,941</td>
</tr>
<tr>
<td>Analgesics</td>
<td>10,699,437</td>
</tr>
<tr>
<td>COAD drugs</td>
<td>9,178,632</td>
</tr>
<tr>
<td>Rheumatic/anti-inflammatory drugs</td>
<td>5,873,572</td>
</tr>
<tr>
<td>Calcium channel blockers</td>
<td>7,388,143</td>
</tr>
<tr>
<td>Antidiabetic drugs</td>
<td>5,508,145</td>
</tr>
<tr>
<td>Beta blockers</td>
<td>5,097,677</td>
</tr>
</tbody>
</table>

Source: Pharmaceutical Benefits Scheme (PBS), 2006.

Our primary challenge is that the prevalence of these illnesses is increasing overall and the costs of our ever expanding highly technical and resource intensive approach to treating these problems is also increasing with very little

\(^4\) A notable exception to this is the health problems facing large elements of our Indigenous population.

\(^5\) One problem we need to face is the invisible and often more complex nature of public health. The media and community in general can easily understand the opening of a new hospital or an article on waiting lists, but it is harder to celebrate the measles deaths you have prevented or to publish an article that focuses on how you will never have enough beds in a hospital no matter who is in government, if you don't tackle obesity.

\(^6\) Pharmaceutical Benefits Scheme 2007.
overall improvement in health outcomes. Health care spending in Australia is approaching 9% of our GDP without a clear relationship to better health outcomes (Anderson et. al., 2007 & Paez e. al. 2009). It is expected that health costs will escalate to 25% of the GDP in developed countries by 2025 (Corbett, 2005). The environmental implications of this are enormous. Environmentally speaking, we cannot really begin to talk about reducing the energy usage in a hospital or the waste recycling program in a small community centre or even addressing procurement head-on, until we tackle this issue and completely turn both our attention and our funding dollar to prevention.

There has been increasing widespread agreement at both federal and state government level that it makes good economic sense to focus on prevention rather than treatment (Armstrong et. al. 2007). There is also broad public support for this approach and support amongst key health bodies including the AMA, Royal Australian College of Physicians, and a range of chronic health associations. Yet we are struggling to make the big changes that would be needed to make the shift.

One good example to illustrate this overall problem of where our health dollar is currently going is that of the obesity epidemic. Two in three Australian adults and one in four children are now overweight or obese, with prevalence even higher amongst disadvantaged and lower SE groups (ABS, 2007 and CSIRO 2008). It is anticipated that the number of obese Australians is set to nearly double by 2025.

The contribution of excessive weight to ill-health has more than doubled in just 6 years; has overtaken tobacco as the leading cause of premature death and illness (Hoad, 2010) and is expected to reduce the life expectancy of for today’s children by 5-10 years by the time they are 20 years old (National Preventative Health Taskforce, 2008).

It has recently been estimated that the financial cost of obesity in Australia in 2008 was $8.3 billion Of this, productivity costs were estimated at $3.6 billion (44%), health system costs were $2.0 billion (24%) and carer costs were $1.9 billion (23%) The net cost of lost wellbeing (the dollar value of the burden of disease, netting out financial costs borne by individuals) was valued at a further $49.9 billion, bringing the total cost of obesity in 2008 to $58.2 billion (Access Economics, 2008). 7

Even in 2003 it was estimated that we were spending less than $1/person preventing obesity but about $70/person/year treating its consequences (Catford and Caterson, 2003). Treating obesity at the level of the individual is notoriously expensive and extremely difficult. Health system costs for diabetes alone, primarily due to increased obesity, are anticipated to rise from $1.3 billion in 2002-03 to over $8 billion by 2032-33. The greatest potential for us to turn this problem around will be at a population level, focusing on prevention. Both financially and environmentally we cannot afford not to do this.

7 Tobacco costs the nation $31.5 billion/year.
The Public Health and Well-being Act 2008
The Health and Well-bring Act 2008 defines what is core business for Health Services in Victoria. It came into effect in January 2010, replacing the Health Act 1958. The primary responsibility of health services is to deliver this Act and for sustainability to become core business in health service delivery, it must be in the Act. If it is not, it can never properly become core health service business. It is vital that this be addressed, next time the Act is reviewed.  

The ‘silo’ nature of government departments
The State Services Authority, as part of its charter to promote effective public administration in Victoria, has identified the engagement of departments across jurisdictions and portfolios as a major challenge for the public sector. This ‘silo’ nature of government is an issue both within the Department of Health where sustainability has not become core business across the whole department and between health and other departments. The authority has been examining approaches to ‘joined up’ government for some years and many examples now exist of the benefits of a joined up approach. In health, ‘Go for your life’ is one example of this approach, with the Departments of Human Services, Education, Sustainability and Environment and Premier and Cabinet all involved. ResourceSmart Healthcare is another obvious example with the Department of Health and the Department for Sustainability and Environment working jointly on the project. Nevertheless, these examples are in the minority and there is great scope for expanding this approach. If we are to adopt a much broader view of the problems facing our health services, the expertise and involvement of a number of departments will be required. Tacking transport and procurement in health are two obvious areas where a joined up approach is currently lacking and is very much needed.

Difficulties setting limits around health spending
As a society, we find it difficult setting limits in health funding, partly because of the emotive nature of health problems. How do you decide that a young child with cancer can’t have a new trial drug or that new experimental surgery? How do you say no to IVF as the technology becomes available. What success rate warrants the cost? How many people and what groups of women can have access to it? The issue is however, that we will have to make these decisions if we are to develop a health system that both improves people’s health and is sustainable.

The public/private mix of the Australian health system
In Australia, our health system is a conglomerate of public and private services. Hospitals and aged care facilities are mixed and most general practice is private. The whole system is supported by a suite of ancillary, largely private allied

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health services and medical industries such as physiotherapy podiatry, dentistry, radiology and pathology. Our private/public mix of services works relatively well in a number of ways. Often the two are entirely dependent on each other. Our public hospitals would grind to a halt if it weren’t for the many private services like radiology and pathology that support it. Likewise, the private sector relies on the public sector’s capacity to treat seriously ill patients with complex problems and lengthy admissions. Overall though, the system is not thought about as the public/private mix that it is and whilst the different systems exist together, they still operate quite independently.

To date, the Victorian Department of Health’s sustainability projects have concentrated almost entirely on our public health services. This has not been unreasonable given that many projects have been at a pilot level and that funding and resources have been very limited. Sustainability has been independently addressed to a certain extent in the private sector but in a very ad-hoc way. Many private hospitals are woeful in their lack of action. Others are trying to tackle certain aspects of sustainability, particularly with respect to waste, energy and water, but efforts are still piecemeal and on a small scale. It is a big problem that we are not looking at the system as a whole. We will need to if we are to properly address all aspects of sustainability including our carbon footprint in health.

There is also an inherent bias in the private system that is important to appreciate. Failing to understand this bias will mean a failure in trying to achieve sustainability across the whole system. The main way that our private health system makes money is to do a lot of a particular kind of work. Quick operations with short stays, that attract a high rebate (certain specialties are particularly represented in the private system) are the bread and butter of a private hospital and by-and-large, they do this work exceptionally well. Difficult, complex health problems or patients requiring long periods of time in hospital are often offloaded to the public system\(^{11}\). These operations in the private system however, are still very resource intensive but the inherent bias in the whole system is to keep it all going because it makes money.

The Federal Government’s main relationship with the private health system over recent years has been to use it to take on certain workloads from the public system in an effort to reduce the work load on the public system and reduce operating waiting lists. They have tried to convince themselves that this will work but arguably these arrangements, form a sustainability perspective, have just led to the use of more and more resources. Private hospitals are exceptionally good at getting through operating lists in a way that the public system has notoriously struggled to achieve\(^ {12}\).

\(^{11}\) Obviously we have many excellent large not-for-profit hospitals that work more like public hospitals and manage the full range of health problems. Nevertheless, they still struggle with these issues of what makes money and what doesn’t in health.
Whilst the private system certainly seeks out young people and excludes many who have multiple health problems, it has not yet fully realised that the best way to make money may well be to really keep everyone out of hospitals.

**Biases in our Medicare Schedule and how we pay for medical materials**

There are certain biases in our Medicare Schedule Benefits Scheme. Some specialties have ended up with much higher levels of remuneration for operations of similar difficulty or skill level required than other specialties. For example, general surgery and gynaecology get less, while orthopaedics and ophthalmology get more. There rebate differences mean that our system, especially the private system, ends up doing a lot more of the types of surgery that are better rebated. The government has tried a few times to make the rebate system fairer amongst different medical and surgical specialities but has found the task extremely difficult. Professional bodies that stand to lose the most, grow to be giants in their fury and to date, we have not stood firm while they have their tantrum.

The system also has a bias that rewards the more resource intensive procedures over the least resource intensive procedures. Whilst this is understandable given that counseling someone for an hour uses less material resource than an orthopaedic arthroscopy, this issue of what pays the most and what doesn’t pay, has an impact on any services current capacity to reduce its use of resource.

The actual number of expensive disposable instruments used or the number of times an expensive piece of technologically advanced equipment is used does not really matter for the hospital under our current system. In fact, often the greater the use of disposable materials and technological services, the more income to the hospital, because there are more operations being done. The health sector and the industries that surround it are incredibly wasteful. At every turn there is careless and wasteful use of resources. In the private system, the cost for instruments is generally transferred directly to the patient and whilst individual surgeons and nurses are often very careful to use materials mindfully, this is often not the case. There is no system overseeing the use of resources or rewarding places that are not reaching for the next disposable instrument for the next operation quite so much.

Whilst comparing different ends of treatment is problematic, it is still arguably the case that ‘lap band’ surgery for obesity for example, pays. Helping someone over years to change how they feel about themselves; to change their relationship to food; to make changes so that they have access to healthy food and know how to cook it, on the other hand, does not.

Our current biases in remuneration for different medical services and procedures, and our use of equipment are environmentally unsustainable. The difficulty with any big, complex system like the Medicare Benefits Schedule is that there is no quick, easy solution. Any attempt to do so can lead to unintended problems that can just compound the problems you were attempting to solve.
Our reluctance to mandate with respect to sustainability

Alongside wide-ranging voluntary initiatives, mandated initiatives are essential if we are to achieve the kind of structural change needed to make a more sustainable health system. There are many examples in public health where mandating for change has been well supported by the community and have been very successful (seat belts and smoking). There will always be a range of opinions expressed when a government mandates change and whilst governments struggle with the vagaries of short-term election cycles and focus-group driven policy, ultimately mandated policies and programs need to be a key part of any change program.

The mandatory requirements that both the Federal Government’s National Greenhouse and Energy Reporting System (NGERS) and the State Government’s environment and Resource Efficiency Program (EREP) are implementing are a positive step in this regard. Because hospitals now have to report on their energy, water and waste, they are realising the extent to which they have to think about these things. Anecdotally there is a lot of evidence that it has been this government requirement of mandatory reporting that has got hospital executives suddenly thinking about forming Environmental committees or employing an environmental officer.

Nevertheless, the vast majority of sustainability projects in health are occurring primarily at the voluntary level and there is certainly a feeling on the ground that we are more reluctant then eager to make many mandatory changes for sustainability. Our national health service accreditation processes have also been slow to include sustainability in their standards. Whilst there have been some changes so that sustainability measures are now at least included as voluntary standards, they are still not mandatory. Mandating environmental measures and more sustainable practices in health care delivery as a part of all health service accreditation would be an extremely important driver for change and could help facilitate rapid improvements in sustainability in our health services (McGain et. al. 2009).

Funding constraints which favour pilot projects and one-off funding over ongoing funding

It is very difficult to get recurrent funding. It is easier to get one-off funding, even if it is an apparently large amount of money, than it is to get recurrent funding. This is a real issue when one obvious need is to increase the number of staff dedicated to sustainability issues within services. Many projects that make good environmental sense are being carried out at a number of hospitals around the state now but in most cases, they have not been adopted as policy for the whole system. To a certain extent some initiatives get stuck at the point of being a pilot project or a one-off program rather than getting rolled out across the system. Dialysis wastewater recycling is just one example where the technology is almost ‘old-hat’ now and we have many hospitals that recycle dialysis

\[13\] The NHS Sustainability Unit talk about the importance of having ‘drivers for change’ from both above (government) and below (community) and that both are essential to help create change.
wastewater but it is not happening in all the places around the state where it could.

Healthcare agencies are funded for a specific purpose. There is no ‘fat’ in health care funding and there is no income raising capacity like there is in some non-health statutory agencies. The Department of Health and most of its public health services are often hamstrung financially and have no capacity to fund any new ongoing positions, such as an environmental officer or an ongoing program. At the moment some of the health department projects like the waste and water projects are coming to an end. It is imperative that these projects be funded on an ongoing basis.

This has meant that whilst a lot of good work has been done, with many wonderful pilot projects, there is a very large gap between innovative ideas and ways of thinking in certain health services and what is happening on the ground in most places. Another important issue is that even when there is good work going on, most people on the ground do not know about it. Department of Health projects for example, are not widely understood by staff on the ground in many public and private health services. This is a real pity. There is a need for a lot more showcasing, championing and celebrating. There is also a great need to start to talk more about the impacts of climate change on health and the co-benefits to our health, social cohesiveness, the environment, food production, transport etc if we were to adopt the measures necessary to make our health system more sustainable. These actions however, require resource and are difficult with small numbers of staff dedicated to this work.

Engaging our health workers in sustainability
Just like the general community, workers in health have struggled to get a handle on the urgency of addressing climate change, given the confusion that has been promulgated by different interest groups and the media over recent years. In addition to this, many working in health services are not aware of how much health services contribute to our states overall energy, water and resource usage. Many would find it difficult to appreciate how what we do in health impacts on our ability to address climate change. The issue of engaging and supporting staff is an enormous and vital to any health service becoming more sustainable. Every place will need dedicated teams to help drive change and to help bring all staff on board, if we are to succeed in this area.

In every discipline in health and in every sub-specialty in medicine however, there are people thinking about how their bit of practice in the health system could be more sustainable. It is also remarkable when you start asking questions to people in each discipline how much agreement there is on the problems. Many specialists will tell you the same information say with respect to how their area could be less wasteful. People also know when a part of their group is not acting particularly ethically. People are keen to tell you if they trust you, the particular private clinic for example that is unscrupulous in its over servicing of a procedure purely as income generation. There is a lot of sustainability information out there to be tapped into. It just takes time, trusted relationships and good coordination to get this information. In every profession and sub-
specialty group we need people thinking about sustainability and getting this information.

**Challenges at the level of individual health services**

Currently, there are few financial incentives to use less resource. Saving money though reducing your use of resources; adopting recycling measure etc, is not financially rewarded in traditional hospital accounting systems. In general, managers run around making sure that all parts of their budget are spent each year in the fear that they may get less money in next year’s allocation. In general, you do not get more money to spend on sustainable innovation if you demonstrate savings you have made though sustainable interventions in the previous year. Outsourcing is another issue. Large chunks of a health service’s business can be outsourced and the level of control the organisation retains can vary depending on the nature of the contract.

In most organisations, the lack of staff thinking about these issues on the ground is one of the biggest barriers at the institutional level. Only one hospital in Victoria has a full-time Environmental Officer. Staff are generally overwhelmed by their own workloads and feel quite powerless to constructively bring about change.

**Making our Health Services More Sustainable: Our targets.**

To date, Victoria has called for a 20% reduction in CO₂e emissions by 2020 based on 2000 levels (Victorian Government, Department of Premier and Cabinet, 2010). It is important that we think carefully about setting targets in all areas of sustainability. Often simple phased percentage reductions are appropriate. We must not avoid however, the urgent and pressing issue of climate change, nor avoid translating the urgently needed reductions in our CO₂ emissions into the real energy, waste and sustainable procurement targets, no matter how massive they might seem. For instance, it has been predicted that for one of the world’s largest carbon polluters like Australia to achieve its part in a 60% chance at keeping climate change within 2 degrees, we must convert to 100% renewable energy over the next 10 years (The University of Melbourne Energy Research Institute and Beyond Zero Emissions. 2010). This level of change needs to be reflected in all health sector targets.

It is worth examining the UK’s targets and the struggle they are having even trying to curb ongoing increases in CO₂ emissions. It is important that we use their experience to help us in setting our targets and understanding the battle ahead.

The UK Climate Change Act (Nov 2008) calls for a reduction of 80% by 2050 (based on 1990 emissions); 10% by 2015 and a reduction of 26% by 2020. It also calls for a carbon budget alongside a fiscal budget from 2009 for all government departments and outlines a carbon accounting system.

Carbon emissions are continuing to rise. In 2007 the UK NHS reached 21 MtCO₂/year (larger than some medium sized countries). Simply stabilising carbon emissions will be a huge challenge. The NHS has become more carbon efficient.
but the absolute footprint is continuing to rise by some 40% since 1990 and is projected to increase to 55% by 2020\textsuperscript{14} (NHS Sustainable Development Unit, 2009). As a result of a failure to curb the trend in rising CO\textsubscript{2} levels, the reduction required by 2020 is now 32%. The NHS now needs to reduce their footprint by 86% by 2020.

![Graph of the NHS England CO\textsubscript{2} Emissions Baseline and Climate Change Act Targets](image)


We can assume that our emissions are following a similar trajectory and like the NHS. We will need to urgently curb this very difficult to control growth of emissions, before we can even start to reverse the trend.

**Making our Health Services More Sustainable: Our Carbon Footprint**

**Victorian data**

The Ecological Footprint of Victorian Hospitals Study was commissioned in 2009, to begin to establish baseline on figures on the mass balance\textsuperscript{15} and ecological footprint\textsuperscript{16} for all Victorian public health services. This is only the third time in the world that such an ecological footprint study has been commissioned (previous studies have been conducted in Canada and the UK). A secretarial

\textsuperscript{14} A part of this rise is because they are now measuring more green house gas emissions not just CO\textsubscript{2}, but the expansion of health services and the ever increasing use of resource in medical management is also a significant factor.

\textsuperscript{15} Mass balance is a technique used to determine the status of an ecosystem by comparing its inputs and outputs. Material is tracked within a defined boundary to determine how much is accumulated and how much is emitted (Sustainability Unit. 2010(a)).

\textsuperscript{16} Ecological footprint measures the human demand on our planet’s ecosystems by comparing this demand with the planet’s ecological capacity to regenerate. It estimates the area of productive land measured in global hectares required to sustain the level of consumption and waste generation of an organisation or entity (Sustainability Unit. 2010(a)).
briefing is currently underway. The study was undertaken of Southern Health, as Southern Health is Victoria’s largest health service, comprising of more than 40 sites\textsuperscript{17}. This data has also been extrapolated to estimate the environmental impact of Victoria’s whole public health service.

**The mass balance study**

The mass balance study found that 8,000 tonnes of products were purchased. For every tonne of material and product purchased by Southern Health in 2007-2008, 24% was retained and 76% left Southern Health (17% was recycled). Most of the product that was consumed was linen (40%). Medical gases were the next largest contributor (7%). With respect to waste and recyclables, of the 7,647 tonnes, 75% was general waste and clinical waste was 5.2%. Just over 17.2% of waste was recycled.

450 million megajoules of energy were consumed from stationary energy sources (natural gas 61%, electricity 39% and diesel 0.2%). Transportation consumed over 460 million mega joules of energy (similar to stationary energy), 70% of which was staff travel (air and road travel), followed by visitor vehicle transportation (17%) and outpatient transportation (5%).

**The ecological footprint study**

The average ecological footprint of Southern Health was 7.88 gha, higher than the average Australian at 6.6 gha. Victorian at 6.6 gha. Just over 80% of the ecological footprint of consumables came from miscellaneous medical equipment. (4,000 tonnes of medical equipment). Linen and cloths made up 13% (3,0000 tonnes).

Medical consumables have to be our main focus if we are to reduce the ecological footprint of our health services. Linen and cloth is also important, as the land use required for the production of cotton is a significant environmental impact. Electricity was the major utility contributor and made up 75% of the ecological footprint of all utilities. (Gas 25% and diesel <1%)/(Sustainability Unit. 2010(a)).

For Southern Health, 57% of the ecological footprint related to procurement, 20% to stationery energy, 13% to travel and 10% to waste.

Ninety eight percent of the ecological footprint of travel was through commuting to and from the hospital by car and 2% by rail. Business travel made up less than 1%. Waste made up 13% of the ecological footprint most (94%) was classified as general waste as opposed to clinical or recycled waste.

\textsuperscript{17} The 40 odd sites of Southern Health include 6 major hospitals with 2,100 beds. In terms of floor area it represents approximately 10% of the total Victorian public health system.

(From Sarah Bending’s presentation Ecological Footprint and Mass Balance of Victoria’s Public Health Portfolio at Climate Change Carbon and Carbon Footprints Conference. Changemakers. Qld. 2009.)

Approximately 65% of energy in hospitals is used for heating, cooling and air conditioning and 20% is used for lighting. (McGain, 2009). Another recent study by the Victorian Department of Health has found that the average energy consumption for a large metropolitan hospital across all functional areas was 224 kilograms CO\textsubscript{2}e/m\textsuperscript{2}/yr. Ward areas were the highest energy users (293) and surgery areas were the second highest (268). These areas should be prioritised with any energy efficiency measures being undertaken in a hospital (Sustainability Unit Dept. Of Health, 2010 (c))

When extrapolating the data for all public health services for this period (2007-2008), the greenhouse gases represent 1% of Victoria’s carbon footprint. The health system made up approximately 2.8% of Victoria’s total ecological footprint.

Another Victorian study, conducted by Forbes McGain consisted of an audit of general and infectious waste at Western health in 2009. He found that 60% of the hospital’s general anaesthetic and ICU waste was potentially recyclable with minimal cross-contamination of general waste with infectious waste (McGain et. al., 2009)

**Overseas data**

**UK**

The NHS Sustainable Development Unit study into the NHS’s carbon emissions in 2004 found the following breakdown: Sixty percent related to procurement (the emissions in the manufacture and transportation of NHS purchased goods and services), 22% to building energy use (heating, lighting how water ventilation and cooling) and 18% to transport (travel of patients, staff and visitors).
Pharmaceuticals and medical equipment made up half of the emissions from procurement. Pharmaceuticals alone contributed the same amount of carbon emissions as total energy, as did transport. Since 1990 however, the NHS footprint has increased by 40%. Emissions from procurement are rising faster than the total emission rise. Between 1992-2004, procurement emissions rose by 26% while overall emissions rose by 12%.

The UK are starting to talk and act like procurement is contributing 60% of the carbon footprint of the NHS that it is and that transport, pharmaceuticals and stationery energy are all contributing an equal 20%.

Acknowledging some differences in methodologies, Southern Health’s breakdown is similar to those of the UK and Canada. In comparing the carbon footprint, Southern Health’s carbon footprint\(^{18}\) for procurement was 67% and was slightly higher that the NHS figure of 60%. Southern Health’s energy was 22% cf. 20% NHS figure and travel was 13% cf. 18%. These differences are largely attributable to differences in what was counted for the data.

**How should we use this data to help make our health system more sustainable?**

To date, the focus of the Department of Health has primarily been on resource efficiency measures in energy, water and waste. Whilst we need to address all areas of energy, waste, water usage etc with respect to sustainability, the imperative to reduce our carbon footprint to help mitigate the impact of climate change means that we must address the key areas that are contributing to the carbon footprint of health services according to the proportional contribution that they are making. This sounds blatantly obvious but we are currently struggling to do this on the ground.

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\(^{18}\) The carbon footprint looks solely at the greenhouse gas emissions associated with the activities of an organisation, product or process and is measured in CO2 equivalents.
There are a multitude of good reasons behind this, but these reasons are what we specifically need to address. Our pervading view that every individual patient deserves the best that is on offer, combined with a system where manufacturing companies of diagnostic machinery, instruments and pharmaceuticals have significant influence on medical management and purchasing decisions, mean that we are very prone to an ever expanding system, consuming more and more resource that can only become less and less sustainable.

Every area; energy, transport, procurement, water, waste and building design have significant specific barriers that need to be addressed if we are to make our system sustainable and reduce our carbon footprint. In this single paper, it is not possible to explore all the specific barriers to each of these areas. For our purposes here, I have selected only the areas of procurement and waste for further discussion. Procurement, because it is causing 60% of our emissions and is not being addressed. Waste, because that is the issue that is the most obvious to staff on the ground in health services. The one that they readily understand, that causes them the most frustration, and the one that can draw staff into the broader issues of sustainability if we get it right.

The other areas are obviously equally important: barriers to transport and energy in particular. Both are complex and no one is really addressing the elephants in each room. One, being our reliance on coal and our urgent need to adopt renewable energy on a massive scale. The other being a transport and infrastructure system organised around the car, with a struggling public transport infrastructure.

**Procurement: barriers**

Whilst we do have a fairly comprehensive system for assessing new pharmaceutical products which properly evaluates cost of a new drug against its health benefits, there is no similar system to comprehensively assess the cost-effectiveness of new surgical interventions, devices and other new technologies that come onto the market on virtually a daily basis (Armstrong et. al. 2007).

Without this government regulation, we are particularly vulnerable to the power of medical markets on purchasing decisions and medical practice. Just as our corridors of power in government are full of lobbyists from coal intensive industries convincing politicians of the inability of renewable energy to power our future, the makers of every medical product used in hospitals walk the corridors of our health services selling their wares.

We currently have no organisation that sits over the whole system and is thinking about sustainable procurement. Purchasing decisions are often made by Health Purchasing Victoria on behalf of a number of hospitals. Until very recently however the main idea has been solely to get the cheapest deal. Sustainability issues have not been considered to any great extent. It is as much a problem in

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19 It is of interest to note that in the United states for every politician in both levels of government, there are 4 lobbyists on climate issues. Those opposing climate change, largely from the carbon intensive energy corporations outnumber those that support climate change and climate change legislation by 8:1 (Gore, 2009)
health service procurement as it is in all purchasing, that the real cost of any
good in terms of the environment is not factored in. These negative externalities
involved in the production of all goods are not considered. The main way that we
have to address this and to have environmental issues, as part of our purchasing
decisions is to start to look at life cycle analyses of all goods procured.

In every area of medicine, good studies are regularly conducted that question
our current medical practice. Questions commonly asked might be: Is there a
difference between physiotherapy and exercise compared with a particular
surgical procedure in orthopaedics? Is a widely used drug any different to a
placebo? Or is a complex, highly invasive surgical operation any better than a
less invasive, less resource using one? In many of these studies, whether or not
the resources we are using are improving our health outcomes, is regularly
questioned. Again however, because there is no one organisation thinking about sustainable procurement and keeping abreast of this research,
there is often no one to champion the work or to fight for a change in practice
across the board other than the authors of the study themselves. Many of these
studies disappear from view; others of course do change medical practice but it
would be safe to say that questions of sustainability are by and large not being
talked about in these decisions.

Excellent studies questioning the benefit of certain practices in health are
obviously often taken up. There is an urgent need however to formally bring
sustainability into all aspects of our decision making about health care. At the
very least, if there are two interventions where there is arguably little difference
in outcome, we should be advocating the one that has the least impact on the
environment and our use of resource.

As has happened more broadly in our late-capitalist society, most people
working in health have become very separated from their own society’s means of
production. It is almost entirely the case that workers are completely ignorant
about the lifecycle history of virtually all the products used in their health
service. In many situations, if staff and the general community actually knew
about such issues as the conditions for the people in an overseas country
producing a particular product, the environmental damage, energy usage, waste
produced or the transport miles travelled in the lifecycle of a product, I have no
doubt that the majority would want to promote change to more sustainable and
ethical methods where ever possible.

The lifecycle history of pharmaceuticals is a particular case in point. It has been
estimated that half of all pharmaceuticals made are simply not even used.
Pharmaceutical companies, basically make their money out of what we throw
away. (Pencheon, 2010). Another important case is food. In Victoria, we are
currently heading towards just having a few ‘super’ food producing centres to
provide the food for all our public hospitals. The aim is to reduce each meal at
$10/person. We are still making these decisions without factoring in the true
cost of production. If the real cost of making food like this could be counted,
small production centres with seasonal, locally grown food would be a lot more
viable. Pharmaceuticals and food will need particular attention.
In a global market, many products are made across a number of countries. Manufacturing of medical products in poorer countries where the costs of materials, production and labour are considerably less is a real issue. The moral and ethical issues involved in this practice are complex and on the whole are largely ignored by those in more wealthy countries who are doing the purchasing. A recent article in the British Medical Journal has highlighted these issues with respect to hand held surgical instruments.

**Fair Trade for Surgical Instruments**
The global market for hand held surgical instruments is worth $650 million/year. The majority are made in Tuttlingen in Germany and in Sialkot in Pakistan. Both towns have over 30 manufacturers. Tuttlingen however, has only 6000 workers involved in the specialised technological end of surgical instruments, while Sialkot has over 50,000 workers making instruments by hand. Workers in Sialkot do not have the living conditions and working conditions of those in Tuttlingen. Most of the work is done in people’s homes or in small working centres. Workers are exposed to corrosive chemicals and unsafe work practices with no job security, guaranteed income or insurance. Instruments cost $1 to make in Pakistan, are sold for $1.25 to German companies and eventually sold to end-users for $80. The United States passed legislation that required all imported surgical instruments to be of a certain standard. Having all instruments complying to an international standard but without reform in working conditions and gen conditions in Pakistan has led to an explosion of short term contracts based on cheapest price. This has further driven down wages and safety standard for Sialkot workers. One sixth of the workers in the Sialkot are under 9 years old. There has been pressure from the west to stop child labour but without reform to improve the working and living conditions for all workers and reforms to develop an education system particularly for children and for women, problems will only escalate. What has happened in Sialkot over recent years highlights the unintended consequences of actions taken by more wealthy countries on poorer countries around regulation and how the ever present problem of more privileged countries thinking they understand the problem and know what to do without really listening to those in an economically less well off country directly involved and how important it is to truly understand the situation from the pos (Bhutta, 2006)

**Waste management: barriers**
We are literally running out of space to keep sending most of our waste to landfill. Another issue is that landfill waste creates methane which is another, very potent greenhouse gas. Whilst the recent increases in landfill costs have been a very positive step, there are still relatively few financial incentives in waste management helping to drive change towards reducing waste and recycling. The review undertaken by DHS and Sustainability Victoria estimated that it costs the Victorian Public Hospital Sector $10 million/year for the disposal and treatment of solid waste and recyclables. (The overall cost of waste management including transport and disposal has been estimated to be at least $490 million/year) Senior management are often unaware of the real costs and the financial savings that could be made if overall waste was reduced, recycled and separated properly into clinical and non-clinical waste.

The Waste Minimisation in Health Care review found that up to 40 different departments can be responsible for waste management in a health service. Staff
involved are often juggling many other tasks. Time constraints, workload priorities and lack of support from senior management often make change difficult even when people on the ground are enthusiastic to make things better. Design of waste areas is often very inadequate, making change difficult.

Amongst the health services that are collecting data, there is a lack of consistency in what data is being collected and the methods used. Only 26% of those that responded to the Waste Minimisation in Health Care Survey had actually set targets (Sustainability Victoria, Department of Human Services, 2010. http://www.resourcesmart.vic.gov.au/for_government_2376.html).

Many products used widely in health services are not currently being recycled. Medical plastics for example are generally not recycled. Recycling plastics has been found to reduce the energy consumed in procuring plastic products by 75% (McGain and Kayak, 2009). Plastics often need to be separated however and this would need to be addressed in each health service 25% of medical plastics are PVC and for recycling purposes must be processed differently to other plastics (Lee et. al. 2002).

There is a lack of companies currently taking on commercial waste recycling relevant for health services. It is not uncommon for a health service to have a company that recycles some component of its waste that suddenly goes out of business or decides it is not profitable to be recycling. It is often difficult to find many other companies at present that are willing to take on waste recycling on a large scale. These organisations may need some governmental support. Whole waste management strategy can be dismantled overnight with the collapse of a company that was managing a large section of waste recycling within the organisation.

There is a commonly held view across the health sector that disposable medical products are the preferred option compared to equivalents because they are perceived as costing less, and posing a reduced infectious risk. Contrary to this view, studies undertaking lifecycle analyses of medical products have generally found that reusable products are both financially and environmentally preferable to their single-use equivalents (Ison and Miller, 2000; Adler et. al., 2005; Schaer et. al. 1995; McGain, 2010) This information is contrary to widely held beliefs. Even when infection control issues have been proven to be irrelevant with recycled products, the fears and concerns held by health professionals and the general community will require further research and targeted educational interventions if we want to shift practice.

Another issue is the lack of overall research. This means that there is a real difficulty getting unbiased information on recycling and re-using materials. Many health services rely on the companies that sell them their products for information. Companies that produce single-use products are often the sole source of information on the merits of single-use as opposed to re-using equipment. There is considerable confusion. Often existing hospital best practice policy will actually advocate for a disposable product over a reusable one, such as disposable drapes in operating theatres. There is a lot of confusion about fear
of contamination, which is generally unfounded. The clear move from reusables to disposables is being fueled by this lack of good research and non-biased information.

**Making our Health Services More Sustainable: What have we done so Far?**

**The Federal Government**

**National Greenhouse and Energy Reporting Scheme (NGERS)**

Since July 2008, corporations have been required to register and report on their energy consumption and their greenhouse gas emissions if they are emitting 25 kilo tonnes (KT) or more of greenhouse gases/year or consume 100 terajoules (TJ) or more of energy. Lower threshold are being phased in this year (by 2010-11). The final thresholds will be 50 kilo tonnes of greenhouse gases and 200 terajoules of energy.


**State Government of Victoria**

There are many State Government projects that are currently being undertaken by the Victorian department of Health and Sustainability Victoria.

**The Environment Protection Agency (EPA)**

**Environment and Resource Efficiency Plans (EREP)**

Like NGERS, EREP is a new state regulatory program to help address climate change and resource scarcity challenges. Businesses, government agencies or health care service participate in EREP if they use more than 100 TJ of energy and or 120 ML of water/year. They are required to collect energy; waste generation and water use baseline data, develop targets, efficiency actions, timeframes and expected savings, monitor and report on progress and review procedures. EREP programs are legally binding. Guidance and on-line tools are available to support services develop their EREP program.

## Summary of Projects currently being undertaken by the Victorian Department of Health.

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<tr>
<th>Victorian Department of Health Initiatives</th>
<th>Project Description</th>
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| **Greening Our Hospitals: Water**  
(Due completion date Nov 2010) | • Allocated $3.9 million as part of the Environmental Sustainability Action Statement (ESAS) for 2006/07 to 2010/11.  
• The program involves:  
  o Completion of 40 water audits across health facilities  
  o 40 water efficiency retrofits (e.g. flow restrictors)  
  o 29 steriliser retrofits  
  o A trial program to assess opportunities to save water in laundries and reuse of dialysis water.  
• Evaluation of the program is currently underway.  
• Anticipated that actions undertaken today will save up to 360,000 kilolitres of water/year. |
| **Guidelines for water reuse and recycling in Victorian health care facilities.** | • The department has produced Guidelines for water reuse and recycling in Victorian health care facilities.  
| **Greening Our Hospitals: Energy** | • Allocated $3.3 million as part of the Environmental Sustainability Action Statement (ESAS) for 2006/07 – 2010/11.  
• The program involves  
  o Installation of digital smart lighting systems in 10 hospitals, reducing light energy loads and improving heating, cooling, air conditioning efficiencies.  
  o Installation of energy saving appliances across 40 hospitals, including installation of building management systems to allow hospitals to better monitor and manage energy use.  
  o Improving lighting at 20 hospitals by replacing light reflectors  
  o Re-commissioning of existing major plant and equipment at 12 hospitals to improve operating efficiencies heating, ventilation and air conditioning systems.  
  o Installation of power correction equipment at 20 hospitals to improve on-site electricity distribution and reduce greenhouse emissions. |
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• A review of waste management has been undertaken across various public hospitals  
• Recommendations from this review are listed elsewhere in this report  
• DSE and the Department of Human Services have now entered into a Memorandum of Understanding to progress waste management in health care facilities in the state and a steering committee has been established.  
• Landfill levies across Victoria were increased in July 2010.  
  o Progressive increases in levies have been set over the next 5 years and the EPA will re-invest $14 million of the funds generated in a 4 year waste reduction fund to help industry implement waste avoidance and efficiency initiatives. (The EPA is open to this money being available to government agencies and was consulting on this issues late 2010) |
| Ecological Footprint of Victorian Hospitals Study (Commenced 2009). | • See earlier discussion |
| Government Sustainable Energy Target (GSET) Program (Established in 2001). | • The aim of this project initially was to improve the energy efficiency in government buildings by 15% by July 2006 (based on 1999/2000 levels).  
• The energy efficiency in Victorian public hospitals was improved by 15.3% by 2006.  
• The policy was revised in 2006 to continue improving efficiency by a further 5% by July 2011.  
• Energy usage over this period has increased however, whilst efficiency has continued to improve. |
| Sustainability in Health Care Capital Works | • The Department of Health invests about $500 million/year upgrading and building new health care facilities. (This excludes major projects like the Royal Children's Hospital ($1 billion), the Parkville Comprehensive Cancer Centre ($1 billion), the new Bendigo Hospital ($473 million) and the Box Hill Hospital redevelopment ($407 million)) |
| Lifecycle assessment of hospital design | • This study found that over a hospital's life, the fossil fuel embodied in the building fabric is on average twice that of the calculated operating electricity load. |
Summary of Projects currently being undertaken by the Victorian Department of Health (cont.)

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<th>Victorian Department of Health Initiatives</th>
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| Guidelines for Sustainability in Health Care Capital Works  
www.capital.health.vic.gov.au/sustainability | - This program has increased the environmentally sustainable requirements for all health care capital works. The first guidelines were released in 2004 and since then the department of Health has allocated almost $50 million in implementing leading practice sustainability initiatives. This is above high-level standard practice in insulation. Water and energy efficiencies and native garden landscaping.  
- It stipulates that  
  - 2.5% of the total construction costs (up to 5%) must be put toward sustainability measures that are ‘leading practice’ initiatives while the government continues to invest up to 5% of the total construction cost in ‘leading’ sustainability initiatives.  
  - Independent sustainable consultants must be appointed for projects >$15 mill.  
  - 80 ‘standard practice’ initiatives must be implemented on all projects.  
- The program also formalises the existing expectation that contractors delivering health care capital works have an EMS (in accordance with ISO14001) and develop a site-specific environmental management plan. |
| Cost-benefit analysis of GreenStar Healthcare | - With SA Health, ACT Health and DSE, Victoria, the Department of Health has undertaken a cost-benefit analysis of using GreenStar Healthcare. It has examined both hard and soft savings |
| Energy Modeling Project | - Victoria is participating in an energy modeling project with WA, Qld, SA and Tasmania to look at both energy consumption and carbon emissions |
| Energy Performance Contracting (EPC) | - This project gives interest free loans from Treasury to any public health agency for a major energy and water retrofit that has up to an 8-year payback.  
- The first new Energy Performance Loans with an 8-year payback have been negotiated to retrofit both the Heidelberg Repatriation Hospital and royal Talbot and a project manager is being employed to run the pilot.  
- It is planned that 90% of portfolio by 2018 and that there will be 50 new EPCs over the next 8 years, each worth $2-5 million (FTE capped) |
**Summary of Projects currently being undertaken by the Victorian Department of Health (cont.)**

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| Seminars on Sustainability in Health Care. | - Seminars are organised by the Sustainability Unit on an ongoing basis. Seminars due to run in the latter part of 2010 for example were:  
  - Sustainable Procurement in Health (with Association of Hospital Supply and Purchasing Officers - AHSPO)  
  - Energy and Water Efficiency in Hospitals (with the Institute of Hospital Engineers - IHEA) |
| Behavioral Change Training Sessions | - The Sustainability Unit is offering 1-day training session on delivering effective behaviour change programs for health agencies. |
| Longitudinal Study of Alexandra District Hospital | - This study, a joint project between the Department of Health and Sustainability Victoria, is attempting to formally determine links between health care in a more sustainable hospital and patient and staff outcomes.  
  - The new Alexandra hospital is currently being built next door to the old Alexandra hospital.  
  - Data will be collected on average patient stays, patient outcomes, staff productivity and retention, medical errors etc. in both hospitals.  
  - This study is a first for Australia in quantifying the importance of sustainability on health care outcomes and will hopefully help strengthen the business case for further investing in the delivery of sustainable health care facilities.  
  - Interim results should be available by Nov 2011. |
| Joint key innovative programs with Sustainability Victoria | - Solar Thermal Cooling: Echuca Regional Hospital\(^{20}\).  
  - Central Victoria Solar Cities.  
  - Electric car train at Bendigo Hospital  
  Charging station powered by solar.  
  - Environmental Data Management System – The Department of Health is having input into this |

\(^{20}\) Dept of Health is paying for the absorption chiller and Sustainability Victoria is paying for the solar infrastructure.
| new, whole of government environment data management system being developed by DSE. |
Sustainability Victoria.

ResourceSmart Healthcare

The ResourceSmart Healthcare Program began in 2009 as a pilot project with six health care agencies. It is now available to all statutory authorities and 88 public health care agencies, providing support and a range of practical mechanisms to help agencies develop their Environmental Management Programs. To date 59 organisations have been involved from metropolitan Melbourne, Gippsland, Loddon-Mallee, and Barwon-South Western. The program has commenced in the Grampians and Hume regions and the final phase of the program will return to metropolitan Melbourne in early 2011. It is a program for change model and has been well supported by the Department of Health. This has enabled strong program development and delivery across agencies.

ResourceSmart Healthcare has developed a suite of training and on-line resources to help guide, encourage and support individual agencies work toward becoming more sustainable services. Workshops, coaching, resources to help develop environmental programs EM polices, EMP Environmental impact assessments, how to monitor and review, how to develop and apply strategies. Specific water MAP plans energy reduction and efficiency plans.

With respect to the structural issues of energy, waste and water, healthcare agencies are similar to other government agencies and ResourceSmart Healthcare has been successful in providing people with a framework to develop an EMS around these structural issues. The overarching structure is as follows: continue to improve; gain commitment; establish baselines; set targets and actions; invest and communicate and finally monitor report and celebrate. Phase 1 and 2 of the project are complete and there are deadlines for participating organisations that have yet to submit an EMP (Phase 1 participating organisations were due July 2010). Outstanding EMPs are to be submitted ASAP. Phase 2 participating organisations, EMPs due in June 2011). Phase 3 is due to commence over Jan-June 2011.

There are two obvious ways that ResourceSmart Healthcare has been a very successful program. One has been the training and on-line resources. The second has been the follow-up that staff receive after the initial engagement with the process. For the majority of its participants, ResourceSmart Healthcare training is a journey. People often feel overwhelmed at some point when they go back to their day job. Some are able to take some action, but for others it is too hard. Some participants try to do too much, while others become unambitious for fear of not delivering. Follow-up training and coaching at the work site has

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21 To date, 51 health services, 3 aged-care homes and 5 community health centres have participated in ResourceSmart Healthcare (as of October 2010). It is planned that the program will be offered to a further 77 organisations.
23 EMPs have been submitted by Austin health, Forensicare, Goulburn Valley Health, Hepburn Health, LaTrobe Regional Hospital, Melbourne Health, Peter Macallum Cancer Centre, Southern Health, The Women's, Northern Health and West Gippsland Healthcare Group.
often helped people realise that things are not as hard as they thought; that they can get help to develop an integrated approach and to realise what they have been doing and identify the gaps.

Currently a health service must report from its second year of involvement and submit its EMS. A health service can develop a strategy however that does not have meaningful targets because of a lack of experience. Some develop strategies with no targets; others develop strategies with targets that are too ambitious. It is critical that SVE and DH provides expert advice and feedback and provides facilities with useful targets.

**Challenges facing ResourceSmart Healthcare**

**Facility-based approach to sustainability**

One key challenge for ResourceSmart Healthcare, as seen by those who have been involved in the program from the outset, is that the program has not as yet moved beyond a facility-based approach to sustainability. That is, the focus has been almost solely on the energy, waste and water issues of a particular facility. ResourceSmart has recently engaged an RMIT nursing student to look at the tool-kit with the view of building up the non-facility aspects of sustainability.

ResourceSmart would like to see health services seeing themselves as leaders in change, helping to build community awareness and capacity building in their region. As often the largest employer of people in a rural town, hospitals could be key in driving change for sustainability. They could be involved in wide-ranging community and workforce education on climate change and sustainability and facilitating local communities coming up with local solutions that are built on the input of that particular community.

ResourceSmart Healthcare wants to see health services thinking about all aspects of health promotion and well being, the production and provision of healthy food, the development of an active transport system and an approach to the carbon footprint of health services that properly takes into account all contributing factors. The program would also like to incorporate climate change adaptation issues, such as developing heat wave strategies for services and communities.

ResourceSmart Healthcare argues that it will be very hard for any healthcare agency to start to pick up how important it is to move beyond a facility-based approach to sustainable health care and reducing our carbon footprint when our government departments have not got this message themselves in terms of how they work and are still acting very independently of each other, in a facility-based paradigm.

**ResourceSmart Healthcare: Voluntary versus mandatory**

Another challenge is that the program is voluntary rather than mandatory. This has meant that several policy weaknesses are becoming apparent in the program as it currently stands.
This has raised a number of questions that need to be resolved. What should happen with agencies that don't voluntarily join up? What should happen with agencies that say that they already have an EMS? Should this EMS be evaluated in any critical way? What if this EMS is found to be lacking or not in line with current approaches as our thinking improves in this area?

With respect to participating agencies, the response rate of agencies submitting their EMSs has been quite low. How should ResourceSmart Healthcare deal with this? What consequences should be attached to not delivering? What should happen if the EMS that an agency submits after participation in the program, is weak? How should this be followed up? Who decides? What action should be taken?

It will be important to decide who needs to monitor these performance issues and the program overall. Whoever does the monitoring, will need to be seen by healthcare agencies as having some authority or they will not take the issue seriously. The department of Health is an obvious choice but this will need to be negotiated. There could be problems with DSE taking on this role as they may not take as seriously by the healthcare agencies.

What role could the Office for the Commissioner of Environmental Sustainability have in helping to resolve these issues of voluntary versus mandatory participation and monitoring and regulation around performance? Could the Commissioner’s Office ask a series of questions to healthcare agencies as part of its next audit? How much power can the Commissioner’s Office have in this area? Could questions relating to the existence of environmental committee and its performance; executive engagement; how much an institution is looking beyond its facilities etc become part of an auditing system, as key performance indicators under the Commissioner’s watch? Equally importantly is how we determine to best recognise agencies that do the right thing.

ResourceSmart Healthcare has been doing excellent work in this area and its website’s resources and tools to help services get going is a testament to their wonderful work. In our culture of one-off funding and short-term programs DSE has reduced their support. Some obvious questions are: How many years is their funding secure? What will their work force numbers be as their programs progresses? There is clearly a need to expand into the private sector and other health care facilities. Will there be the resources and commitment to do this?

**Eco-Buy**

EcoBuy, is a Victorian State Government initiative aimed to support departments and agencies to make more sustainable purchasing decisions. It is a fee-for-service program and provides tools, resources and training to its members.24

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The Australian Council on Healthcare Standards (ACHS) Evaluation and Quality Improvement (EQuIP 4)

ACHS, an independent, not-for-profit organisation, is Australia’s healthcare assessment and accreditation body. Its mission is to improve the quality and safety of healthcare in Australia. All health services are accredited by ACHS. Its core accreditation program is the Evaluation and Quality Improvement (EQuIP), which guides organisations through a four-year cycle of self-assessment, organisation-wide surveys and independent review to ensure that ACHS standards are met. Australian health Services are accredited against a set of mandatory and preferred criteria every 4 years.

Environmental factors such as energy usage, water usage, waste management, wastage in terms of resource usage the presence of environmental committee and environmental officers, evaluation of sustainability measures since last accreditation process etc have, until recently, had virtually no role in our current accreditation processes. It is astounding that in 2010 with the urgent need to address climate change and reduce our carbon footprint that these measures have not been adopted as a priority.

Whether or not a health service has an Environmental Management Program has recently been included to the non-mandatory list of polices and programs which an ACHS surveyor can choose to include as one program on the list of policies and programs against which accreditation is determined. Whilst having an EMP is still only on the voluntary list, this recent change is to be praised. There is still a very long way to go however before ACHS makes having an EMP mandatory and has the process in place to properly assesses this EMP.\(^{25}\)

Other reporting and accreditation systems that have not been discussed in this paper are:

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We are going to require both broad level and institutional level change to help make our health system more sustainable, supported at every point in the system by technological and behavioural approaches to achieving change. Given that a lot of good work already exists around change at the institutional level, particularly in terms of energy, waste and water, comments here will focus more on broad level change. At the level of institutional change, procurement and transport will be discussed but in the main, these areas will be kept brief with a focus more on case study references for possible inclusion in later documents.

\(^{25}\) See [http://www.achs.org.au](http://www.achs.org.au)
**Broad level change**

**Primary health care and prevention**

We urgently need a whole-of-government approach that can properly address the complex social, economic, political and environmental causes behind the health problems that we face today, with better stewardship of public health infrastructure, effective partnerships inside and outside government and robust, national goals and targets for public health achievements (Russell et. al., 2008). Such an approach would need to develop new policies in all areas of government. We will need changes to our urban planning, expansion of an active transport system, changes to the ways we work and live with increases in our physical activity, dramatic reductions in the exposure to advertising and marketing of unhealthy foods\(^{26}\), increased and equitable access to healthy and sustainable foods, just to name a few. I would argue that some big change is needed. Without it, we are drawn to thinking that elements of our existing system can solve these huge problems. General Practice for example, over recent years has been called on more and more to deal with health promotion and prevention. This is not wrong and it is good to see that it has been supported to do so, but individual consultations on healthy lifestyles will not solve these big problems that we face and nor should they be expected to do so.

Corbett has suggested that because our health system is really a medical and hospital system the best way to fully and seriously address prevention would be to create a new Ministry for the Public's Health (Corbett, 2005). He points to a number of models overseas that would be worth us considering.

<table>
<thead>
<tr>
<th><strong>Oversea Models in Primary Health</strong></th>
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<tbody>
<tr>
<td><strong>Sweden</strong></td>
</tr>
<tr>
<td>Sweden has had a Minister for Public Health since 1992, supported by an Independent Institute of Public Health. A Public Health objectives Bill was passed in 1993, requiring the public health impacts of all political decisions to be considered. Government has to follow-up and report on public health endeavours.</td>
</tr>
<tr>
<td><strong>Canada</strong></td>
</tr>
<tr>
<td>Following the SARS outbreak in 2004, Canada appointed a Minister for Public Health and created a separate Public Health Agency within the health Ministry.</td>
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<tr>
<td><strong>UK</strong></td>
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<tr>
<td>The UK has had a Minister for Public Health answerable to the health minister since 1997 but struggled to shift the balance away from medical care. A Health Protection agency separate from government, initiated by Treasury, was instituted in 2002. Since then the 2004 Public Health White Paper has gone on to develop a host of cross-agency projects with improved resourcing and partnership building, regulation, planning, program delivery and assessment (Corbett, 2005)</td>
</tr>
</tbody>
</table>

\(^{26}\) The massive promotion of high-energy snack foods and soft drinks through television advertising is widely commented on. Young children watching television are watching on average 25,000 ads/year and 25-40% of these are for food. Children less than 8 years of age are not able to differentiate between a program and an advertisement.
In Australia, subsequent to recommendations arising from the National Preventative Health Taskforce, we have developed a National Preventative Health Strategy and are now in the process of establishing a National Preventative Health Agency\(^\text{27}\). The targets being set in the strategy are precisely what we need to help make a sustainable health system. They are: to halt and reverse the rise in overweight and obese adults and children; to reduce the prevalence of smoking and harmful drinking and to contribute both to the 'Close the Gap' target for Indigenous Australians and reducing health inequalities amongst Australians overall. Last November, the Federal Parliament passed the Australian National Preventative Health Act 2010\(^\text{28}\) and the process of establishing the agency is now underway. The Agency will be independent from but work closely with government. It is proposed that the Minister for Health will be the responsible minister in consultation with the Prime Minister. A significant omission is discussion papers, both those of the Taskforce and those arising from the Federal Governments response to the Taskforce\(^\text{29}\) has been the omission of any discussion on sustainability and making a more sustainable health system. With the Agency just being established, now would be a highly opportune time to bring these issues to the table and to propose that the agency take sustainability on as a central pillar in all its work. This is a place where sustainability and health could be melded together and provide a model for all health agencies in general\(^\text{30}\).  

Coordinating sustainability

While we ponder how the best ways to seriously address and properly fund public health, our sustainability endeavours will still need good coordination. If we ever were to develop a new ministry for Public health, in or outside of health, it would make good sense to marry sustainability with such a ministry. Currently we have a small Sustainability Unit, which sits in Capital Projects and Service Planning in the Health Department. It has a full-time staff of 3.5 people and strategically does an amazing amount of work, given its small size. Clearly there will need to be some expansion of human power if we ever expect such a unit to be able to properly coordinate sustainability efforts.  

One coordination model worth looking at is Practice Greenhealth in the United States. Practice Greenhealth is separate to the Department of Health in the United States. It sits outside government structures as a non-government organisation and overseas all work across the whole mix of private and public in the health system.

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\(^{28}\) See http://www.health.gov.au/internet/main/publishing.nsf/content/phd-anpha


\(^{30}\) Even at the individual level of preventative health education, we continue to keep health and sustainability separate. For example, we frequently talk about promoting a healthy diet but we hardly ever talk about a sustainable diet. The two could be beautifully married together to make a stronger message.
**Practice Greenhealth**

Practice Greenhealth is an independent centralised agency, which leads, supports and coordinates sustainability across the whole healthcare sector. It is a non-profit membership organisation and all hospitals, health services, procurement agencies, pharmaceutical companies etc belong. Practice Greenhealth drives a host of sustainability initiatives including coordinating an annual conference, which is attended by 600 odd members. This system of centralised and independent coordination has meant that a more planned and long-term approach across all organisations can be achieved.

Janet Green who is the Director of Sustainable Operations argues that the most important thing to do is to create the foundation to support the work that needs doing. If you have no overall coordination, create the place to do this. (Pers. Comm. 29/9/10)

This type of approach could work for us in Australia where we have this private/public mix of services and a problem of trying to achieve a coordinated program for change across the whole sector.

**Funding**

In terms of immediate change there is a significant funding block. It would cost approximately $1mill/year if the Department of Health were to employ an environmental officer in each of its 93 agencies. They currently do not have the capacity to cover this level of ongoing funding. Some sustainability units in other states have got around this by creating different funding models that have allowed them to get going on the grounds that they will fund themselves through the savings made by adopting sustainability measures.

**Carbon Management Unit Queensland Health**

The Carbon Management Unit was initiated by Pat McGuire who now heads the Unit. He went to Queensland Health with a proposal to establish a new unit that would work to reduce the carbon emissions of Queensland Health and be cost neutral, funding its own cunning costs on the income generated by its own carbon saving projects. The Unit got approval with the plan that for all retrofits done, the hospital involved would borrow the money from Capital Works. They would then pay this back plus 3% over a period of time on the savings that the hospital made with the retrofit. The 3% would be used by the new Carbon Management Unit for its own running costs.

The unit has been very successful and is now funded through recurrent funding (McGuire, 2010)


Another way of accessing existing money would be if the Department of Health could gain better access to other government grant programs. Most government grant programs focus on business and industry or community. Public agencies are generally not included (waste funding in the EPA for example has mostly gone to business and industry in the past) or where government agencies have been able to access government grant money, health has been least successful (Schools for instance were able to access funds for water tanks, where as Health was less successful).

Tweaking funding around the edges however is not going to solve the big problems we are facing. If the health system costs of obesity alone were $2 billion in 2008 (Access economics, 2008), we need to start arguing that there is
enough money in the system to do things differently. We need big structural change. Obviously it is not a simple matter though to find it to start funding large-scale public health and environmental interventions. The truth is however that we do find it most of the time when someone with end-stage renal disease as a result of obesity and type-2 diabetes, needs a renal transplant (a complex resource intensive operation with significant mortality and morbidity).

There are people inside and outside of government thinking about both Medicare Schedule reform and how health services manage their spending and their budgets. Existing groups could be expanded or new groups formed that continue this work but with sustainability as a new central pillar.

**Increasing the drivers for change: top-down and bottom-up**

There are a number of examples described in this paper where mandating change has been a driver for change. The Federal Government’s National Greenhouse Energy Efficiency Reporting Scheme (NGERS), requiring all organisations over a certain size to report on its energy, waste and water as already mentioned is a good example. Mandating does not have to be punitive. It can be pitched to stress the co-benefits of adopting change (increased physical activity, improved diet, improved mental health, safer travel, improved air quality, economic regeneration of local communities; or about leading organisations and companies being good corporate citizens.

Getting mandatory sustainability accreditation right with ACHS is one key mandatory measure that needs to be addressed. Equally, we need bottom-up drivers from a host of professional bodies, non-government organisations and community groups.

**Working better across both private and public parts of our health system**

A public health driven approach to sustainability will need all our government departments working together in the ‘joined up’ government model outlined earlier. Agriculture and industry, urban planning and transport will all need new interdepartmental approaches with health.

Obviously departments have been working well with a whole host of non-government organisations and continue to strengthen these relationships on an ongoing basis. There is never an end to the work of fostering good relationships. We only ever need more of it. We will need to increase our efforts across local, state and federal government, across health services and professional bodies and peak organisations such as ACHS.

We urgently need a co-ordinated approach that incorporates both our public and private health services. This will need new private/public funding agreements and a fresh approach on the part of both our public and private health systems. Kaiser Permanente is a private health system in the United States that has adopted a completely different approach to health and to sustainability and could well provide our private system here with a new lens for viewing health and profitability.
Kaiser Permanente

Kaiser Permanente is a 20% for profit and 80% not for profit (largely faith, university and community based private health services) private health system, serving 8.6 million people over 9 states and one district. Like many private health bodies insuring individual people, it has realised that the most profitable thing to do is to give people the least amount of medical attention it possibly can. Unlike the approaches taken by many conventional organisations it has done this by completely embracing the principles of good public health care and sustainability practices. Its charter is to surround people in good health (Abelkis, Pers. Comm. 2010).

Kaiser Permanente promotes sustainable food choices, supports sustainable agriculture and has a range of community programs advocating for pedestrian and bike paths, community gardens and farmers markets. It has built some of the greenest health facilities in the United States, has invested in significant amounts of solar power across its facilities, has worked steadily to reduce its green house gas emissions and has developed a single-use medical device reprocessing program which has reduced its landfill by 7.6 tons, saving $3.2 million.

Kaiser Permanente has made sustainable procurement a priority. In 2009 alone it saved $20 million switching to more environmentally products and services. In May this year it adopted a sustainability score card, the first of its kind in the United States requiring all of its hospitals, medical centres and other facilities to provide environmental data on the $1billion of medical products and equipment that the organisation purchases each year. Kaiser Permanente has huge purchasing power. When it starts to expect a certain level of sustainability in the products that it purchases, manufacturing companies sit up and listen and respond.

https://members.kaiserpermanente.org/kpweb/aboutus.do

Education

It is important to never lose sight of the fact that the vast majority of staff care about what is happening to the planet and they do want to do something when they are given some guidance and support to do so. They also have pre-existing relationships with many co-workers across the health services that they work in. These are great strengths and can be built on at every level to help bring about change in a health service. There are however a host of barriers operating at every institution. We need to understand these barriers for people and work out the support and education processes necessary to bring staff along.

(Rasmussen, 2010)

All health workers need to become more aware of sustainability in health care and both the impact of what we do in health on our carbon footprint and on our ability to address climate change and the impact of climate change on the health of the community and on health services in general. Most staff across the health sector are completely unaware of the key areas that contribute to our carbon footprint and the proportional contribution that they make. This information is not common knowledge as yet. One lever to help facilitate change will be to get time for education, and sustainability work into every staff’s job description.

Practice Green healthcare again provides us with a good model here. Where there is a need for a particular job, create the place to do it. We desperately need
sustainability officers supported by environment committees and the hospital executive at all health care services who can drive this work and who can facilitate the learning that is needed and can support the development of groups and working parties at all levels across a hospital to start to achieve change.

Another key issue is training our future healthcare professionals in sustainability. At the moment training is woeful across the board. We need to embed sustainability into all aspects of learning so that it becomes core business in all aspects of healthcare decision-making, policy and practice. We need Education FOR sustainability not education ABOUT sustainability (Galbraith, 2010. Pers. Comm.) We will need to develop competencies in sustainability that are attached to Health Practitioner Registration processes at all levels of vocation training in the health sector.

Every group within health services is different and will need a particular approach. Their work is different, their level of education is different and their position in the hospital is different. Just in medicine alone, David Pencheon, Director NHS Sustainable Development Unit, sees each sub-specialty as a completely different ‘tribe’, requiring different treatment. He has also commented on the particular challenge working with doctors involved in direct care of patients in general as they almost see themselves as having moral credits given the amount of ‘good deeds’ they are already doing in society. They can then go and do something not particularly sustainable because they have so many credits or ‘spiritual offsets’. He finds these groups often to be the most difficult to get on board over climate change and sustainability. (Pencheon, 2010). These educational challenges may require further research and targeted interventions to help bring around the whole health community.

Given the wealth of expertise that the NHS sustainability Unit staff have, one consideration might be to organise a study tour with the NHS with a series of metropolitan regional visits.

Finally, we will need continued thought given to our targets to always make sure they properly reflect the actual change that we need to make, and we must ramp up the research, particularly in terms of procurement, and accreditation

**Institutional level change**

Making our services more sustainable needs all of us everywhere, in every health service working on this. Each service has a unique history, workforce, capacity, and focus in terms of health service delivery. Each service will need to develop its own Environmental Management Strategy and Environmental Management Plan alongside national and state leadership and support

The first thing to get right will be governance structure. Without this, institutions will struggle to realise change. At every institution, there needs to be good environmental committees that are responsible for doing stuff. The main Environmental Committee must have a direct link to executive and be properly supported by executive. Environment committee must communicate and
properly brief executive. It will be the job of these committees to be gathering the data and properly briefing executive.
Employment of Environmental Officers

**The Value of having an Environmental Officer: A Case Study**

Kai Abelkis is the Sustainability Coordinator at Boulder Community Hospital Colorado in the USA. In 1995 the hospital began its sustainability program. The program started after 2 nurses, frustrated that there was no recycling program at work, began to take bottles and cans home for recycling. Their actions sparked enough interest in the hospital that Kai was employed as a sustainability officer 10 hours a week. He became the hospital’s full-time Sustainability Coordinator in 2002 and in 2003, Boulder became the first LEED certified hospital.

Kai focused his initial efforts on recycling. He describes recycling as the ‘feeder drug’ in sustainability. His first action was to set up a table and ask staff if they would like to recycle. 90% said yes and they were given a blue recycling bin. Each staff member was told that it would be their responsibility to empty their bin into the larger 95-gallon bins. Administrative waste quickly fell from 75% to 25%. This simple action of getting staff to do this job, took away 75% of janitorial workload, saving the hospital $350,000. These jobs had been hard to fill and were often performed by short-term casual staff. This initial action created a major paradigm shift in the hospital. The organisation changed and became willing to contribute to recycling because it could suddenly see the benefits.

Kai provides guidance, leadership and is a driver for getting things done. He holds everyone in the hospital accountable and is available as the ‘go to person’. Kai says that you need someone who lives, breathes and embodies sustainability. He now sees that he has 2,400 people (the whole staff of the hospital) on his green team. He has also found that awards really matter and that people appreciate them. He now finds that people want to do more and more.

One of the next waste products to tackle was the polyethylene blue wrap used in the operating theatre. 23% of the hospital’s waste was blue wrap. One of Kai’s insights into the cost savings possible when you tackle waste is to focus on the amount of times something is handled. Blue wrap was being handled multiple times and each time it was being handled was costing money. The hospital decided to completely do away with blue wrap and purchased reusable containers instead which are handled a lot less and are not thrown away. This is saving the hospital $150,000/year. The hospital is gradually tackling more and more waste issues and its new goal is to become a ‘zero waste’ hospital. Solar energy and energy efficiency measures have also reduced utility bills by over $50,000/year. Kai is now focusing on procurement within the hospital and is working with manufacturers to make the products that the hospital purchases more sustainable. The aim is not to shame or walk away from manufacturers but to work with them within certain time constraints to help drive change.

Kai argues that these kinds of achievements can only happen by having a full-time sustainability coordinator on staff, whose sole job is to investigate, implement and realise these kinds of cost savings though the delivery of a sustainability program. Staff are now coming Boulder Community hospital to work because they have heard it has a sustainability program and they want to be a part of it (Abelkis, 2010).
A Framework for Action: The NHS’s approach to procurement, transport and energy over the next 10 years.

The NHS Sustainable Development Unit has done some very valuable work in determining exactly what it is that health services will need to do in order to reach necessary greenhouse gas emission targets over the next 10 years. They have taken each specific area (procurement, transport and energy) where intervention is needed and developed models of the combined impact of these interventions.

**Graph:** NHS England CO₂e baseline emissions to 2020 with 8 reduction measures
The NHS believe that this modelling demonstrates it is technically feasible to achieve the scale of reductions required to reduce emissions to set targets and that standards of care will not need to be compromised. (I would argue that if we are ensuring less unnecessary technical interventions, focussing on primary health are and prevention and adopting an increasingly more rational use of medications that we will in fact be improving the quality of care).

If this program is fully realised by 2020, the proportional contributions of the key areas: building energy, travel and procurement, will considerably change. The amount of change we can make to buildings and to stationary energy will reduce, as will transport and it will be procurement that will be our primary area of concern.

<table>
<thead>
<tr>
<th>Emissions sector</th>
<th>Type of emissions reduction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building energy</td>
<td>1. Refurbish buildings</td>
<td>Refurbish all NHS buildings using Low or Zero Carbon Technologies (LZCT) - reduces NHS building energy use by 25%.</td>
</tr>
<tr>
<td>Building energy</td>
<td>2. Replace buildings</td>
<td>Replace all NHS buildings with super-efficient stock - reduces NHS building energy use by a further 25%.</td>
</tr>
<tr>
<td>Travel</td>
<td>3. Low carbon travel plans</td>
<td>Low carbon travel plans adopted across entire NHS - reduce mileage and corresponding CO₂ by 20%. Increasing vehicle efficiency reduces business travel emissions by a further 30%.</td>
</tr>
<tr>
<td>Building energy</td>
<td>4. 40% renewable electricity</td>
<td>40% renewable electricity from National Grid - reduces NHS building energy emissions by 40%. Procurement related emissions will also drop by 5%.</td>
</tr>
<tr>
<td>Procurement</td>
<td>5. Reduce pharmaceuticals wastage</td>
<td>Reduce pharmaceuticals wastage - improvements in dispensing and packaging leads to 20% cut in pharmaceuticals purchased.</td>
</tr>
<tr>
<td>Procurement</td>
<td>6. Review procuring medical equipment</td>
<td>Review procuring medical equipment - efficiencies reduce purchases by 20% in combination with sharing specialist equipment between Trusts.</td>
</tr>
<tr>
<td>Procurement</td>
<td>7. Maximise procurement efficiencies</td>
<td>Maximising procurement efficiencies - minimising waste produces 20% savings in non pharmaceutical and medical equipment.</td>
</tr>
<tr>
<td>Travel</td>
<td>8. Model of care</td>
<td>Shifts to less intensive models of care - reduce NHS emissions by an extra 10% above efficiencies already gained in transport and procurement.</td>
</tr>
</tbody>
</table>

Table 1: GHG emission reduction measures

Pie charts: summary of CO₂ emissions in 2020 pre-wedges (LHS) and post-wedges (RHS) application to baseline model
With this understanding of how important procurement is now and how more important it will be in the future, the NHS has developed the Procurement for Carbon Reduction (P4CR) program. The full program is readily available on the Internet and provides a way of thinking about procurement, guidelines, tools and best practice examples for organisations and industries. 

http://www.sdu.nhs.uk/page.php?page_id=159

**The P4CR Hierarchy of Interventions**

![Hierarchical Diagram]

Specific strategies for action in energy, buildings, waste and water are well covered in the literature. ResourceSmart Healthcare, the NHS Sustainability Unit and Practice Greenhealth for example all have extensive material on their websites. I have limited these final comments on A Framework for Action primarily to procurement and transport. A list of case studies is included for the remaining areas of action so that they can be easily sourced if necessary.

**A Framework for Action: Procurement**

Health services have enormous potential to influence a move towards more sustainable purchasing. Most of the industries that make medical products and pharmaceuticals only produce for the health industry. If health services work together, procure as large groups through Health Purchasing Victoria for example and start to say that they want to make the shift towards sustainable procurement, companies will listen. Many will even be quite keen. This change does not have to be combative. Health services can work with their suppliers to progressively make more sustainable purchasing decisions.

With respect to the global market, all international labour conventions must be followed so that we can achieve ethical trade for ALL medical goods and services. The NHS Purchasing and Supply Agency has developed a document: ‘Ethical Procurement for Health’, to help ensure that goods purchased for the NHS are manufactured ethically (NHS Purchasing and Supply Agency, 2008). As we work out new systems of sustainable procurement with key agencies such as Health Purchasing Victoria and Eco-Buy etc, it is important that we draw on these existing documents to help us progress the work here. One important step towards this will also be to support the Medical Fair and Ethical Trade Group.
that has recently been established, especially over time when they seek international support. www.fairmedtrade.org.uk

Key steps will be to:

- Develop a sustainable procurement strategy for Victorian Health Services
- Develop product lifecycle analysis training and sustainable procurement training courses. (The Department of Health has started to focus attention in this area with its first training seminar on procurement this month).
- Develop key performance indicators
- Expand Eco-Buy program to all Victorian health services
- For the Victorian Department of Health to support and help resource further research to develop life-cycle analyses of a range of medical products to help inform policy and purchasing decisions.
- Give special attention to pharmaceuticals (This is going to need the whole system, changing its prescribing practices, finding alternatives wherever appropriate, reducing wastage and looking at the whole supply chain).

Case Studies
http://practicegreenhealth.org/educate/purchasing/epp-case-studies-in-healthcare/

A Framework for Action: Transport

Given that transport contributes 20% to our carbon footprint we must begin to develop a framework for action in this area as a state. This cannot happen without interdepartmental cooperation and a statewide effort to develop a truly sustainable public transport system.

Key steps will be to:

- Systematically review the travel of staff, patients and visits and review the need for travel.
- Provide incentives for reducing transport for all groups and encouraging lower carbon modes of transport.
- Consider mileage reimbursement rates that favor reduced carbon transport.
- Improve monitoring of all forms of transport usage.
- Car pooling/lift sharing
- Multi-occupancy vehicle parking
- Increase working at home
- Increase use of telemedicine
Addenbrooke’s Hospital Cambridge:
With over 18,000 traffic movements each day, Addenbrooke’s Hospital is reported to be the largest single generator of traffic in Cambridge shire. In order to cope with this huge volume of traffic, they have developed the ‘Access to Addenbrooke’s Strategy’ to help reduce car parking demand and traffic congestion. At peak times now, more than 60 buses stop at Addenbrooke Hospital every hour and bicycle parking has increased to 1,300 spaces. This is complemented by a weekly visiting cycle repair service. To encourage staff to use more sustainable and healthy methods of transport, the Trust offers interest-free loans for pedal cycle or motorcycle/scooter purchase, have 16 pool cars, a car-share scheme and offer discounted weekly bus tickets. Latest reports on the Trust’s highly successful travel plan show impressive shifts from car commuting to healthier and more sustainable modes of transport. Bus use is now at 23% (from 12% in 1999) and cycling is up to 25% (from 21% in 1999). All Access to Addenbrooke’s initiatives are self-funding. No money destined for patient care is used for any Access projects. In conjunction with the travel plan, the Space Programme advertising campaign was launched to inform people travelling to the site about all the transport options available to them and to encourage them to leave their cars at home.


A Framework for Action: Energy
Reducing the energy part of the carbon footprint of health services is probably where we have made the most inroads. This is partly because many of these interventions, despite still being very challenging are easier than addressing procurement and transport. Energy has been well addressed elsewhere. It still remains however, that whilst we are so reliant on coal as a state, any energy efficiency improvements and our small steps to using more renewable energy pale into insignificance.

A Framework for Action: Waste
One of the most successful ways for any health service to quickly disengage its staff from sustainable practices within the service is to not have available, the kinds of waste recycling measures that staff are already used to doing in their own homes. If staff can’t do the things that they have learnt to see as important at home at work, they commonly decide that these things have been deemed unimportant in the work place and disengage from the whole area. Waste is a key starting point for health services.

The Waste Minimisation in Health Care Review includes a number of recommendations. Namely to:
• Develop waste reporting templates and standardised implementation procedures to ensure consistency of the collection and analysis of waste and recycling data, reporting of waste management performance and promote
the development of waste management strategies based on waste avoidance.

- Produce a set of waste minimisation resources to provide advice on waste/recycling bin/container specifications and standardised signage for correct waste separation.
- Develop standard design guidelines for waste/recycling transfer/disposal rooms. The guidelines would also be useful to encourage health care facility developers to consider waste/recycling solutions that encourage safe, easy and correct disposal and collection methods.
- Promote membership in Australian Council on Health Care Standards EQuIP and Sustainability Victoria's Waste Wise program to give staff access to a range of resources.
- Establish stakeholder groups to discuss issues including Health Purchasing Victoria's method to reduce packaging waste.
- Update information on the Department of Human Services and Sustainability Victoria websites to provide case studies and technical guidance on issues such as conducting audits, measuring waste generation and opportunities for waste avoidance.


Other key steps could be to ensure that:

- Progressive improvements towards sustainable waste management, including measures to reduce use of resources, expand the re-use and recycling of materials be adopted as mandatory measures in health service accreditation (ACHS EQuIP).
- There is structural support for new recycling processes once they have been proved to work, so that they can move from being single pilot studies to large-scale state recycling projects.
- Recycling versus single-use be put forward as best practice in health service delivery by government and that it be instituted at an institutional level throughout.
- Health services use their purchasing power to insist that companies start reinstituting reusable products

Case Studies

Eight healthcare waste studies have been written to demonstrate some of the progress that has been made in improving waste management in Victoria. They are available on the ResourceSmart website: http://www.resourcesmart.vic.gov.au/for_government_4608.html

- Reducing and segregating waste - a trial by Austin Health
- Reducing compostable waste - Frankston Hospital’s success story
- Battery exchange program - Frankston Hospital case study
- Sustainable garden and kitchen waste mulching - Goulburn Valley Health case study
- Making savings with rechargeable batteries at Northern Health
- Options for greener purchasing at Southern Health
- Recycling PVC: a new initiative for Western Health
- A life cycle analysis: Anaesthetic drug trays a Western Health

**Western Hospital: Waste Initiatives**

Western Hospital has undertaken a number of waste initiatives.
- A pilot project to recycle several types of hospital plastics. A number of these plastics were recycled to make plastic flooring.
- The first Australian pilot project to convert oxygen masks and IV fluid bags into irrigation pipes.
- A life-cycle analysis comparing single-use versus re-usable anaesthetic drug trays. They found that the single-use trays were at least twice as expensive with far greater energy and water costs than reusable trays. The research team calculated that for a 500-bed hospital, just this one item would translate to $5000/year.
- They have also developed a guide so that staff could readily identify recyclable plastics (McGain et. al., 2008 and 2010).

**A Framework for Action: Building design**

Building design obviously has a significant impact on all aspects of sustainability and on both climate change mitigation and adaptation. There is a wealth of material available on this topic as again this is one of the areas where we have been doing quite a bit of work.

There is no shortage of examples to use to highlight the changes we are making both in terms of new buildings and in retrofitting old buildings.31

**Case Studies**

**Victorian Government**
- Wantirna Health: General sustainability Building Design
- Maroondah Mental Health Unit: displacement ventilation
- Wimmera Health Service – St Arnaud Campus: Recovery of Demolition and construction Waste
  

The Alexandra Hospital study outlined earlier is particularly important as it is attempting to quantify how hospital design can improve health outcomes and productivity.

- Narrabri District Health Service Redevelopment
- Royal Children’s Hospital, Melbourne.

Overseas examples

New Karolinska Hospital, Sweden: aiming to be carbon neutral
Mestre Hospital, Venice: Built a new train line and train station to the hospital at the same time that they built the hospital.
Embassy Medical Centre, Colombo, Sri Lanka: Is implementing a range of climate-saving strategies including a plan to use waste from local open-air dumps to fuel the hospital operations.

Conclusion

Sustainability in healthcare cannot be addressed without focusing our attention and resources on public health and prevention. The new Australian National Preventative Health Agency is a positive step, but it appears to not be thinking in any organised way about sustainability. This new agency could possibly take up both prevention and sustainability as its central pillars and provide a clear model for other organisations and agencies in health.

There are several other models that could also be considered to help us work our how to best tackle sustainability in health. The UK, Canada, and Sweden all have created new public health port-folios. Practice GreenHealth in the USA is a good example of how an NGO, with membership from private and public health agencies can help drive sustainability in a coordinated way. Kaiser Permanente is another example of how the private health system can adopt a sustainable model that currently would seem virtually impossible here in the present climate. This need not be the case.

The current lack of funding for sustainability in health is not going to go away and will require a big change in thinking so that we can shift part of the billions of dollars that get spent at the tertiary level in the health system every year to more preventive health measures and sustainable initiatives. If we don’t do this, our efforts will fail under the weight of short-term funding and pilot projects.

For sustainability interventions to have any impact on the carbon emissions produced in health and on our unsustainable use of resources in general, we must start thinking about the health system as a whole. This means thinking about all the public and the private aspects of the health system. Most attention to date has been on public hospitals. There is an urgent need for a larger-scale approach to sustainability across the whole sector that involves a wide-range of interventions and one that is properly coordinated throughout the many and varied public and private organisations in health. How we do this and who should coordinate such a task needs our mindful consideration. Can or should it be the Department of Health? How will the many private limbs of the health sector manage that? It is unlikely that to deal with the complex and specific challenges in health that it could be Sustainability Victoria. It may be best for over-arching coordinating role to be done by a not-for-profit non-government organisation, standing separate but accountable to government.
We also need to think about health as part of a broader system. Taking a ‘joined-up’ government approach as well as working closely with a host of peak organisations and professional bodies will be essential. Developing both our thinking and our interventions so that the notion of co-benefits in health and sustainability becomes widely understood and accepted will be key. What is good for the environment is, by and large good for our health. Moving away from our reliance on coal towards more renewable energies, developing sustainable agricultural systems; improving our public transport systems to reduce carbon emissions; maintaining and increasing urban green wedges and our forests etc all have significant co-benefits for our health.

We also need to be less frightened of mandating change. Mandating change is an important tool at our disposal and can significantly help to drive change.

Despite all these issues we still have many successful and innovative projects in Victoria that are helping to make our health system more sustainable. These projects need to be celebrated and championed within the broader health community and the general community. Realistically, this can’t happen till there is a larger workforce directing their attention to sustainability in health.

Our efforts to help make the health system more sustainable must start to proportionally reflect the relative contributions that specific areas are having on our carbon footprint. Just as the UK has done, we need to broaden our current focus from primarily looking at stationary energy, waste and water issues overall and in specific health care settings. We need to put 60% of our attention on procurement, 20% on transport and 20% on energy. Obviously this is more a symbolic statement than a formula for a new agenda, but it does mean a big shift to looking at procurement (with a special focus on pharmaceuticals) and transport. With respect to procurement, as a matter of urgency, work needs to start with Health Purchasing Victoria and Eco-Buy.

Finally, What will be the role of the Commissioner’s Office in helping to make our health system more sustainable? How much clout can the Office have? Who should review and assess health services as we increasingly set sustainable policies, guidelines and measureable targets? ResourceSmart Healthcare is already coming up against these challenging questions, making sure that organisations are on track and doing the right thing.

People consulted

This report contributes to Phase 1 for the OCES in their work on reporting on sustainability in the Health Sector. Consultation with the Department of Health and ResourceSmart was essential to this process and this was conducted at the outset. This paper is intended to primarily be an ideas paper based on the experience of the author in the sector and aside from the Department of Health and ResourceSmart; other consultations were limited to people key to case studies or examples in the paper. The paper was discussed with a few people in health with significant experience in the sector. Wider consultation across the sector is planned for the second phase of this work.
People consulted were:

- Tiernan Humphrys, Manager, Environmental Sustainability, Capital Projects & Service Planning, Department of Health, Victoria
- Stuart Galbraith, Partnerships Manager, ResourceSmart Healthcare, Sustainability Victoria.
- Forbes McGain, Anaesthetist, Western Health
- Eugenie Kayak, Chair, Doctors for the Environment
- Marion Carey, Monash Sustainability Institute
- Patrick McGuire, The Carbon Management Unit, Queensland Health.
- Janet Brown Practice Greenhealth, USA
- Kai Abelkis, Environmental Coordinator, Boulder Community Hospital, Colorado, USA
- Shanti Raman, Paediatrician, Sydney South-west area Health Service.

**Organisations/people to consult**

Further consultation with the Department of Health and Sustainability Victoria will be the first step.

Following on from this consultation with key Victorian Health Services would be important.

Victoria’s Health services are as follows:
- Metropolitan: Austin Health, Alfred Health, Eastern Health, Melbourne Health, Northern Health, Peninsula Health, Southern Health, Western Health,
- Country: Albury Wodonga Health, Ballarat Health Services, Barwon Health, Bendigo Health Care Group, Goulburn Valley Health and Latrobe Regional Hospital
- Specialist: Dental Health Services, Peter MacCallum Cancer Institute, The Royal Children’s Hospital, The Royal Victorian Eye and Ear Hospital, The Royal Women’s Hospital,

With consultation with the Department of Health it will be important to select a few key metropolitan and regional health services to consult. Some of these groups already meet together and seeking permission to meet at key joint meetings of these facilities might be the most strategic way to consult with these services.

Other groups to consider consulting with would be:

- Health Purchasing Victoria
- ECO Buy
- Australian Council on Health Standards
- Australian Public Health Association (Stephen Leeder)
- General Practice Division of Victoria
- Environmental Health Association of Australia
- Australian Institute of Hospital Engineers.
- Australian Private Hospitals Association
- Australian Health Insurance Association
Bibliography


Accessed on the Internet on 5/7/10.

http://www.nice.org.uk/niceMedia/docs/Making_the_case-Procurement.pdf


London. 2009.


NHS Sustainable Development Unit. 2010(a). Procuring for Carbon Reduction:


