

# Sustainability in psychiatry

**Occasional Paper 97**

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# | Aims

- 1 Introduce the concept of sustainable mental healthcare to members.
- 2 Inspire members to consider the sustainability of their clinical practice.
- 3 Enable psychiatrists to improve the sustainability of their clinical practice, their team and their organisation.
- 4 Improve education and training in sustainability across the health-care workforce.

# Key messages

- 1 A sustainable approach to healthcare can provide an answer to some of the current challenges in mental health. Addressing the environmental and social effects of care leads to a change of focus, from illness and the individual to health and community.
- 2 Sustainability involves improving quality, cost and best practice, with a particular focus on reducing the impact on the environment and the resources used in delivering health interventions.
- 3 To reduce the economic and environmental burden of healthcare, a renewed focus on promotion and prevention is needed at both an individual and community level.
- 4 Sustainable services are patient-centred, focus on recovery, self-monitoring and independent living, and actively reduce the need for intervention.
- 5 National Health Service (NHS) organisations need to reduce their carbon footprint by 80% within three decades. Meeting this target will require clinical transformation, as clinical factors account for the majority of the carbon footprint, whereas building and energy use constitute only 17%.
- 6 The effect of climate change on mental health can be significant and mental health services need to be adaptable to respond to potential increases in demand following extreme weather events, such as flooding.
- 7 The recovery approach is a method that can improve the social sustainability of an organisation by ensuring that people return to maximum independence following illness.
- 8 Models of care should reflect the changing needs and demands of society. The most important recent development in this area has been online communication. Engaging with these technological developments is key, as they offer the potential to improve the value of care delivery, reduce resource usage and improve access to care.
- 9 Sustainability must be incorporated into medical education at both undergraduate and postgraduate level. Psychiatrists should be well equipped to mitigate the environmental effects of mental healthcare.
- 10 Sustainable reporting systems should be based on service lines or care clusters that capture the full effects of care, so that informed decisions can be made about patient benefit, patient harm and resource use.

# Introduction

Sustainable healthcare is fundamentally about creating healthy communities and prioritises preventive and adaptive strategies to improve health. A 2013 report found that the current healthcare system is unsustainable: ‘Without bold and transformative change [...] Not only will the NHS will become financially unsustainable, the safety and quality of patient care will decline’ (NHS England, 2013). Mounting economic, social and environmental constraints have resulted in a mental healthcare system that is stretched to breaking point and already unable to meet the demands of the community. It is vital to ensure that high-value services continue despite these constraints. Sustainability is one means of doing so.

## Sustainability as a concept

The concept of sustainability arose out of the 1992 United Nations Conference on Environment and Development in Rio de Janeiro, Brazil (Meakin, 1992). Conference attendees discussed how awareness of environmental effects needed to be integrated into every economic and political plan. Two years later, the ‘triple bottom line’ sustainability framework was developed (Elkington, 1994). This framework has been widely adopted across the health sector (Slaper & Hall, 2011) and covers the three ‘P’s: profit, planet and people (economic, environmental, and social; Fig. 1). The ‘triple bottom line’ framework defines the relationship between an organisation and the wider world, in terms of both what it takes and what it gives back.

## Sustainable healthcare

Sustainability is written into the NHS constitution (Department of Health, 2013). In Principle 6, it states that the ‘NHS is committed to providing best value for taxpayers’ money and the most effective, fair and sustainable use of finite resources.’ A sustainable healthcare system maintains the health of the population, reduces disease burden and minimises use of healthcare services. A sustainable approach, therefore, has a focus on developing healthy communities and prioritises preventive strategies. Sustainable healthcare involves balancing the social, environmental and economic demands within healthcare settings. Sustainable development in this context refers to the efforts made by all those within the healthcare system to maintain this balance while modernising and improving healthcare services.

If we apply the triple bottom line to healthcare, we can see that financial capital is needed to develop and run services. Environmental capital is needed to manufacture medication and medical equipment, heat and light buildings, fuel staff and patient travel, and procure food and other clinical supplies. Social capital – staff, patients, carers and community structures – is needed to provide services.

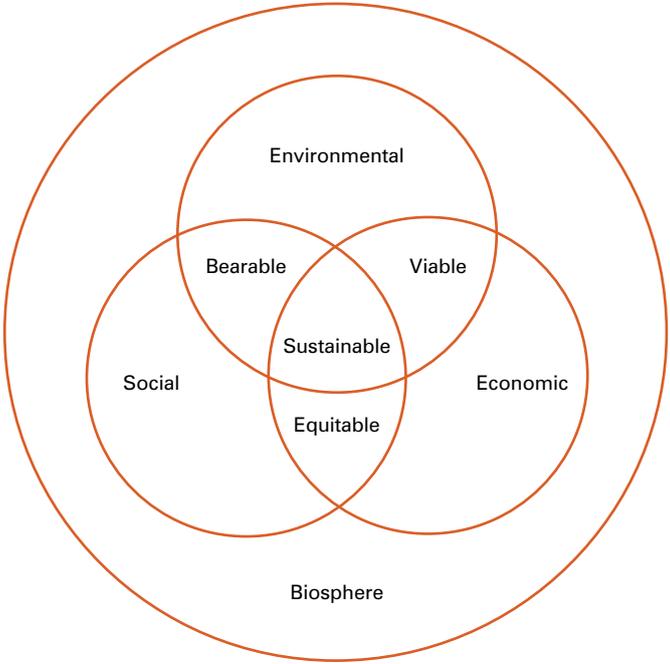


Fig. 1 The three domains of sustainability.

# Consensus Statement on Sustainability in Mental Health

The Summit Consensus Statement on Sustainability in Mental Health (Box 1) was drafted and discussed at the Royal College of Psychiatrists Sustainability Summit on 1 October 2014. There was general agreement about the content of the statement, although different opinions remain about which areas deserve greater emphasis.

## Box 1 Summit Consensus Statement on Sustainability in Mental Health

**Sustainability in mental health is the ability to provide high value care now and in the future in the face of environmental, economic and social constraints.**

**Climate change presents an unprecedented and urgent threat to human health and survival. All health professionals have a duty to advocate for action at all levels to mitigate climate change. Mental health professionals have a particular duty to educate people about the mental health effects of climate change, and the psychology of climate change denial.**

**Sustainable care in mental health acts to:**

- 1. Prevent mental illness, build social capital and promote individual, social and community resilience and mental wellbeing**
- 2. Empower patients, staff and carers to manage their mental health**
- 3. Eliminate wasteful activity**
- 4. Make use of low-carbon alternatives**

**Reducing over-medication, adopting a recovery approach, exploiting the therapeutic value of natural settings and nurturing support networks are examples that can improve patient care while reducing economic and environmental costs.**

# Economic, environmental and social challenges

## Economic challenges for mental healthcare

The economic and social costs of mental ill health in England are estimated at around £105 billion per annum, including £21.3 billion in health and social care costs (Yarlagadda *et al*, 2014). It is estimated that these costs will double over the next 20 years (McCrone *et al*, 2008). However, there is unlikely to be an increase in the mental health budget to offset the rising demand (McCrone *et al*, 2008).

## Environmental challenges for mental healthcare

The World Health Organization has recognised climate change as the greatest threat to human health in the 21st century (Chan, 2008). Climate change is principally caused by human activity (Intergovernmental Panel on Climate Change, 2014) and the world's ecological systems are increasingly threatened by population growth. However, the health sector has been slow to recognise the impact of climate change upon health (McCoy & Montgomery, 2014). Changing patterns of disease and mortality will result from uncertainty over food and water supplies and extremes of climate (e.g. flooding, heatwaves, wildfires, tornados). Some communities will suffer directly, and the ensuing population migration will then affect many other regions, including the UK (Costello *et al*, 2009).

The NHS, with 25 million tonnes of carbon each year (Sustainable Development Unit, 2013a), is the single largest emitter of greenhouse gases in the UK public sector. Its emissions alone are equivalent to the total emissions of a medium-sized eastern European country (Rogers, 2012). Mental health services account for 1.47 million tonnes of this (7% of the total), the equivalent of burning 630000L of petrol per year (Carbon Trust, 2013). The average in-patient admission has a carbon footprint of 479kg (NHS Sustainable Development Unit, 2013). This is equivalent to the footprint from driving from Land's End to John o' Groats two and a half times. The Climate Change Act 2008

legislated an NHS carbon reduction target of 80% over 30 years. The government has, through the Carbon Reduction Commitment Scheme, made it a legal requirement for large healthcare organisations to reduce their emissions to avoid financial penalties. Some organisations are already facing these penalties.

The majority of the mental health service's impact on the environmental comes not from energy or transport, but from procurement of supplies. Buildings and energy use account for only 17% of the NHS's carbon footprint. Clinical factors account for the majority, including pharmaceuticals (22%), medical devices and equipment (13%) and travel (13%; Sustainable Development Unit, 2013a). A response from clinicians is therefore critical for the NHS to meet the Climate Change Act 2008 target. Every psychiatrist needs to review the sustainability of their clinical practice.

## Social challenges for mental healthcare

Poor mental health has substantial effects on the lives of individuals and their families, friends, carers and communities. It can affect relationships, employment status and housing issues and these factors can all, in turn, affect a person's mental health. Sustainably managing mental health conditions includes tackling these social determinants and restoring the social capital of individuals affected by mental illness as fully as possible.

Restoring social capital can help prevent mental illness and should be seen as a core responsibility of mental health services. It can be defined as either 'soft' or 'hard'. Soft social capital includes community connectedness, relationships and well-being, whereas hard social capital refers to employment, housing, education and financial security (Colantonio, 2009). People with mental health conditions often have lower educational attainment (Cornaglia *et al*, 2012), find it harder to obtain and stay in work (Meltzer *et al*, 2010), are more likely to be homeless (Rees, 2009), have lower incomes (McManus *et al*, 2009), and are more likely to live in areas of high social deprivation (Murali, 2004). They are more likely to have poor physical health with high rates of smoking, alcohol and substance misuse (Osborn, 2001), are more likely to be victims of violence and abuse, and die an average of 25 years earlier than the general population if they have a serious mental illness (Parks *et al*, 2006). To ensure optimal recovery, these social outcomes should be taken into account alongside symptom resolution when designing, delivering and evaluating interventions.

# Hotspots of resource use in mental healthcare

The main financial 'hotspot' is staffing. Staff costs account for 60–70% of total NHS expenditure (Casey, 2010). The top four carbon hotspots are pharmaceuticals, building energy (gas/electricity) use, business services (administration) and medical equipment (NHS Sustainable Development Unit, 2013; Fig. 2).

The specifics of a sustainable development strategy will differ according to specialty. For example, in nephrology, dialysis is a common intervention and very economically, environmentally and socially costly (Connor *et al*, 2010). A focus should therefore be to reduce dialysis rates and modify the dialysis intervention. Similarly, in respiratory medicine, metered-dose asthma inhalers, which use aerosol propellants, contribute an astounding 6% to the total NHS carbon footprint (Sustainable Development Unit, 2013a). Dry-powder inhalers are an equally efficacious alternative that, while having a similar financial cost, are far less environmentally damaging. Sustainable development here would involve changing all metered-dose inhalers to the dry-powder type.

In mental healthcare, however, there is no obvious single change or innovation that could be adopted nationally that would significantly

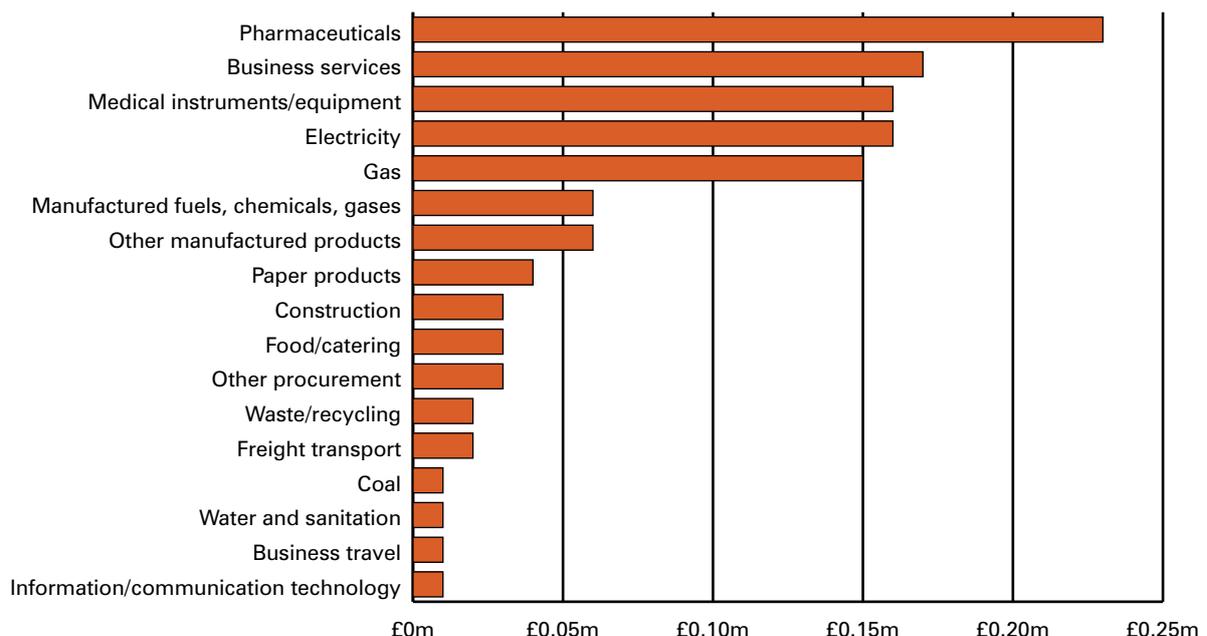


Fig. 2 The carbon hotspots in mental healthcare.

reduce economic and environmental costs. Improving sustainability within mental health will ultimately come down to each team and department embedding the principles of sustainable healthcare in their policies. In other words, a paradigm shift is needed.

One major opportunity for mental health services to reduce their resource usage has been identified: increasing the ability of patients to self-manage their care. Evidence suggests that educating a person about their mental health condition can improve outcomes, and that helping create new relationships that enhance their sense of care, support and belongingness also act to improve mental health and resilience (Kalra *et al*, 2012). Peer and carer support can improve care at home and reduce the need for mental health service involvement (Simpson & House, 2003; Sledge *et al*, 2011). Online and interactive symptom monitoring has the potential to educate and empower patients to self-manage their conditions (Miklowitz *et al*, 2012). Electronic cognitive-behavioural therapy (eCBT) is another tool that can be used by patients to improve self-management (McCrone *et al*, 2004).

# Principles of sustainable healthcare

When designing sustainable mental health services, it is necessary to have a good understanding of the resources needed for each intervention and to have an awareness of the effects of these interventions across economic, environmental and social domains. However, for most interventions, there is a lack of clarity about these resources and effects. For this reason, the Centre for Sustainable Healthcare has developed four principles of sustainable healthcare (Mortimer, 2010). Adoption of these principles across mental healthcare would lead to a less resource-intensive and more sustainable service:

- disease prevention and health promotion
- patient education and empowerment
- 'lean' service delivery
- preferential use of treatment options and medical technologies that have a lower impact on the environment (e.g. emails instead of letters, tele-health clinics instead of face-to-face contacts).

# Practical sustainability suggestions

## Planning an assessment:

- Can the assessment be performed remotely using web-based video technology instead of in person?
- If performing a home assessment, can you walk, cycle or use public transport?
- Do you need to print out the patient information or can you review it on a computer?
- Do you need to have artificial light or heating on?

## On assessment:

- Think about the context the patient is in: the community, family, occupational background.
- Gain an understanding of the patient's assets and abilities.
- Ask about personal and other factors that might be hindering the patient in leading an independent life.
- Get the patient to define their own treatment goals.
- Review physical health status.

## Management:

- Use the recovery approach for constructing the management plan.
- If prescribing medication, discuss adherence, to ensure no medications are wasted.
- Offer community interventions based on patient strengths and a peer support worker wherever possible.
- Help to find appropriate social networks for the patient.
- If psychotherapy is an option, consider offering a web-based psychotherapy program, if appropriate.
- Provide the patient with the ability to self-monitor their symptoms, preferably online.
- Ensure patients are aware of their risk factors and create a relapse management strategy.
- Refer to dietician, if appropriate.
- Support the patient in remaining in employment or encourage the patient into employment using individual placement and support.

# Sustainable models of care

This section seeks to provide an overview of what sustainable models of care might look like. It does not aim to be comprehensive, but provides examples of how different psychiatry subspecialties can become more sustainable. Some examples are case studies of good sustainable practice, and others provide a discussion about innovations that could reduce resource use within mental healthcare.

## Use of technology in mental healthcare

Advances in smartphone and internet technologies have given psychiatrists the opportunity to allow patients to not only manage their own notes online, but also learn more about their condition, monitor their own symptoms and look for appropriate support or treatment. As technology continues to advance, doctors need to be more in tune with changing patient expectations, abilities and behaviours, most of which are shaped to some degree by the internet. A move towards not just patient-accessible health records, but an online self-help platform, has the potential to engage and empower patients, and will promote independence, reduce reliance on services and help create a more sustainable healthcare system.

'True Colours' is an innovative service that allows people with mental health conditions to monitor their symptoms by texting their symptoms or inputting them directly via a website ([www.truecolours.nhs.uk](http://www.truecolours.nhs.uk); Miklowitz *et al*, 2012). Symptoms are scored according to a series of self-rated measures for the different symptom domains (e.g. mood, anxiety). A graphical representation of symptoms over time, with relevant life events included, is compiled and accessible online. This graph can be shared and discussed with a clinician. This simple intervention has the potential to transform the way mental health services are run. By empowering patients to take a more active role in the assessment and management of their mental health, the service creates a more patient-centred focus. In addition, appointments and admissions might be reduced, leading to reduced economic and environmental effects.

## Sustainable prescribing

The frequency with which long-acting injections (LAIs) are administered can vary between 1 and 5 weeks. **The Maudsley Prescribing Guidelines in Psychology** state that 'LAIs should be administered at the longest possible licensed interval' (Taylor *et al*, 2012). Despite this, LAIs are seldom administered at the maximum licensed interval. There is no evidence of clinical improvement for flupentixol decanoate doses higher than 50 mg every 4 weeks (Reed & Fanshawe, 2011), but reports suggest the average UK dose of this medication is 60 mg every 2 weeks (Taylor, 2009). This is more than double the dose at which the evidence suggests maximum benefit is realised. If prescribing patterns matched the recommendations, the patient benefits could include reduced pain from less frequent injections, reduced side-effect burden from over-medication, and less time spent in appointments. Administration of LAIs more frequently and at higher doses than required, which are not in line with current clinical best practice, additionally incur economic and environmental costs due to single-use syringes and needles, the requirement to open and maintain clinical facilities, and staff and patient travel.

## Sustainable psychotherapy

CBT has the potential to be a sustainable intervention. It is supported by good clinical evidence: it is as effective as drugs in the short term for anxiety and depression and even more effective in preventing relapse (National Institute for Health and Clinical Excellence, 2009). CBT is also cost-effective and potentially has a very low carbon footprint. The Improving Access to Psychological Therapies initiative is estimated to have paid for itself through reduced physical healthcare costs, increased employment and subsequent reduced disability benefits and extra tax receipts (Mukuria *et al*, 2013).

However, the carbon footprint of standard, face-to-face CBT (16 sessions and 2 follow-ups) is actually greater than that of antidepressant treatment with psychiatrist follow-up (1062 kg and 891 kg of carbon, respectively) (National Institute for Health and Clinical Excellence, 2009; [www.ukconversionfactorscarbonsmart.co.uk](http://www.ukconversionfactorscarbonsmart.co.uk)). This is because the carbon footprint for each session, including travel and the energy it takes to heat and light the room, outweighs the carbon footprint of the medication and review appointments. By contrast, estimates for the carbon footprint of video-linked CBT are far less, at 236 kg of carbon. Equally, phone-based CBT and eCBT also have low carbon footprints (235 kg and 105 kg of carbon, respectively). Given the significant differences in carbon footprint between these different options, further thought needs to be given to the method of delivery of psychotherapy.

## Use of natural spaces

The importance of interaction with the natural environment for achieving good mental health has been well recognized (Townsend & Weerasuriya, 2010). Physical activity can be an effective supplement to psychiatric treatment in mild and moderate depression and anxiety (National Institute for Health and Clinical Excellence, 2009). Access to green spaces can improve mental health by reducing depression, reducing admissions and reducing symptoms in young people with attention-deficit hyperactivity disorder (ADHD; Mitchell & Popham, 2008; Wheeler *et al*, 2008; Taylor *et al*, 2001; Faculty of Public Health, 2010).

Direct contact with nature leads to a greater sense of connectedness to the community (Sullivan & Kuo, 1996). Spending time in natural areas has been associated with speedier recovery from illness (Verderber & Reuman, 1987), stress reduction, alleviation of anxiety symptoms and reduction of psychotic symptoms (Ulrich, 1986; Ulrich *et al*, 1991). Children exposed to green settings feel less stressed, feel more relaxed, positive and able to cope, and have better cognitive functioning and social connectedness (Whitehouse *et al*, 2001; Wells & Evans, 2003). In adults, contact with nature has been shown to reduce aggressive behaviour (Kuo & Sullivan, 2001). Exposure to the natural environment is associated with decreased agitation and aggression in late-stage dementia patients (Whall *et al*, 1997). Clearly, green spaces have a positive effect on mental health.

## Ecotherapy

Ecotherapy is a term that has been used to convey the reciprocal and interdependent relationship between people and nature (Knapp *et al*, 2011). Ecotherapy interventions include:

- social and therapeutic horticulture
- equine therapy and other animal-assisted interventions
- care farming
- forest schools and woodland craft
- group therapy, therapeutic communities and enabling environments.

The recent EcoMinds programme supported by Mind and the Big Lottery includes this range of innovative care provision and has examples of patients returning to work and re-engaging with the community following their ecotherapy programme (Bragg *et al*, 2013).

## Reducing restraint episodes in in-patient care

The recent Department of Health (2014) *Closing the Gap* report stated an aim to 'radically reduce the use of all restrictive practices and take action to end the use of high risk restraint'. Evidence suggests that implementing a restraint-reduction initiative is associated with a reduction in the use of restraint, fewer injuries to patients and staff, and lower staff turnover (Lebel & Goldstein, 2005). Mersey Care NHS Trust has implemented a new restraint policy called No Force First. This policy has significantly reduced staff turnover. In the 20 months before the policy was introduced, 541 staff days were lost because of assault or injury following the use of restraint. In the 20 months after implementation, only 19 staff days were lost because of assault or injury following restraint. This initiative improved the social sustainability of the in-patient service by reducing staff sickness and improving morale on the ward (S. Parker, personal communication, 2015).

## Sustainable liaison psychiatry services

Liaison psychiatry services have the potential to reduce the duration of admission and improve health. The Rapid Assessment, Interface and Discharge (RAID) programme was launched in Birmingham City Hospital in 2009. Key features of this programme include a 24/7 service, a 1-hour emergency-department response time and 24 h-target for assessing referred patients on the wards. This service saved 14 500 bed-days, £3 million and 1.3 tonnes of carbon in 1 year (Tadros *et al*, 2013).

## Liaison and diversion services for forensic psychiatry

Mental disorders are remarkably common in prison populations, with an estimated prevalence of up to 90%, if personality disorder and substance abuse are included (Singleton *et al*, 1998). Custody can exacerbate mental ill health, heighten vulnerability and increase the risk of self-harm and suicide. Custodial sentences are an expensive intervention and ineffective at preventing reoffending. Appropriate liaison and diversion of offenders with mental disorders into mental health services is likely to reduce the risk of reoffending and enable them to access appropriate treatment (Sainsbury Centre for Mental Health, 2009).

The government-commissioned *Bradley Report* (Rt Hon Lord Bradley, 2009) recommended more frequent diversion of those with mental health problems and intellectual disabilities. However, the provision of

local services designed specifically for this purpose remains patchy (Knapp *et al*, 2013). The establishment of 'liaison and diversion' teams could improve the early identification and treatment of offenders with mental health difficulties. This could lead to the increased use of community sentences with conditions of psychiatric treatment attached to reduce the risk of future offending, instead of repeated, brief custodial sentences. These services have cost implications locally for NHS providers, but the establishment of such teams could reduce healthcare burden and resource use in a number of different areas in the criminal justice system.

## Challenges for child and adolescent mental health services

A multimedia psychoeducation package for adolescent depression is currently being developed at Cardiff University (Poole *et al*, 2012). This package integrates health with education, youth and social services. Individuals and families can access the package from home or school, either by themselves or with support. The package provides information about depression and promotes self-management of symptoms, adherence to medication treatment and greater collaboration between and support from family members and carers.

## Sustainable management of dementia

The annual mental healthcare costs of dementia are predicted to increase from around £20 billion now to around £35 billion by 2026 (McCrone *et al*, 2008). Managing dementia can be resource intensive, with medication, carers and sometimes residential or nursing homes needed. A sustainable approach to managing dementia would seek to prevent its occurrence and maximise independence for as long as possible. There is evidence that reducing modifiable risk factors can significantly reduce the risk of vascular dementia, and there is new evidence that it may also be possible to reduce the incidence of Alzheimer's by up to a third by addressing similar issues (e.g. physical inactivity, smoking, midlife hypertension, midlife obesity, and diabetes; Norton *et al*, 2014).

Maximising independence is a key issue in managing dementia. Anti-dementia medications (e.g. acetylcholinesterase inhibitors) are crucial, but a sustainable approach would also support a behavioural management approach wherever possible. Dementia-friendly communities are an important, sustainable development that help people with dementia find their way around, feel safe in their locality, access local facilities

and maintain their social networks. If successful, these communities could reduce the burden on healthcare by enabling dementia sufferers to live independently for longer (Crampton *et al*, 2012).

## Cycle-to-work schemes

Cycling is a great way to commute, get fit and feel good, as well as save money and carbon on fuel. NHS organisations often have cycle-to-work schemes in which members of staff sacrifice part of their salary in return for a bicycle and safety equipment. Staff can save between 30–40% (depending on tax bracket) on the retail price of the bike and equipment through tax and National Insurance exemptions. A sustainable improvement for any organisation would be to ensure the scheme is available and that cycle paths, sheltered bike racks, showers and changing rooms are available on all sites.

# Mental health and climate change

## The effects of climate change on mental health

Given that mental health problems will be the world's leading cause of disability by 2030 (Mathers *et al*, 2001), and given the extent of the threat posed to human health by climate change, psychiatrists need to be aware of the potential effects of climate change on mental health. These effects are likely to be difficult to detect because, most often, mental health effects come at the end of a long and complex chain of events. For example, climate-induced displacement or conflicts due to scarcity of resources can expose people to traumatic events and the loss of family, community and income-producing activity, provoking traumatic and other symptomatic responses (McMichael *et al*, 2010). Long-term drought can put pressure on the social and economic fabric of rural communities, with consequences for mental health (Berry *et al*, 2010).

There are direct links between climate change and mental health. Climate change increases the risk of acute weather-related disasters, such as major fires, floods and cyclones, that can all have specific mental health consequences (Morrissey & Reser, 2007; Stanke *et al*, 2012; Clemens *et al*, 2013). In addition, suicide rates have been noted to increase during extreme temperature changes (Page *et al*, 2007) and drought (Hanigan *et al*, 2012).

## Adaptation of mental health services for climate change

The Civil Contingencies Act 2004 requires organisations within the NHS to prepare for adverse events and incidents, such as those associated with climate change. Climate change will affect the prevalence of mental health conditions, rather than the nature of the conditions (Berry *et al*, 2010).

Blashki *et al* (2011) has suggested principles for health-system adaptation: flexibility, strategic allocation of resources and robustness of services. Mental health services will need to prioritise flexibility,

as there is substantial uncertainty about the specific nature, location and timing of climate-change effects. Acute weather events can have direct, immediate and sometimes widespread consequences that typically lead to peaks in rates of mental health conditions and, therefore, spikes in demand for services. Developing social capital, including social networks and community supports, has been noted as an important factor in planning resilience in the face of changing ecosystems and environmental stress (Kirmayer *et al*, 2009). Table 1 outlines acute weather events that have direct, immediate and widespread consequences that can affect mental health conditions.

<b>Table 1 Effects of weather events on mental health<sup>a</sup></b>		
<b>Effects on mental health</b>	<b>Acute weather event (major flood, hurricane, fire)</b>	<b>Sub-acute weather event (heatwave, drought)</b>
<b>Direct</b>	<b>More frequent exposure to physical danger due to storms or floods</b>	<b>More frequent exposure to chronic stress (e.g. from long periods of extremes of heat or lack of clean water)</b>
<b>Indirect</b>	<b>Elevated rates of acute anxiety disorders</b>	<b>Elevated rates of violence and aggression</b>
	<b>More frequent and/or severe damage to homes and physical infrastructure, such as schools</b>	<b>More frequent and/or severe physical health impacts and damage to livelihoods and soft social infrastructure (disruption of networks, lack of time to socialise)</b>
	<b>Physical injury to self or significant others</b> <b>Elevated rates of anxiety and mood disorders</b>	<b>Elevated rates of long-term mood disorders and suicide</b>

a. Source: Berry *et al* (2010)

# Social sustainability and personal recovery

## Social sustainability

A socially sustainable healthcare system ensures that the social capital within a community is maintained (Colantonio, 2009). Creating a mental health service that is socially sustainable involves promoting independence and resilience among individuals within the community it serves. Mental health problems can affect a person's ability to live a functionally independent life, and this relates to more than just symptoms. Social isolation and lack of control over work and home life, for instance, increase the chances of poor mental health (World Health Organization, 2013). By contrast, good social networks, employment, education and adequate housing can all lead to improvements in mental health and better resilience (Jetten *et al*, 2009; Knapp *et al*, 2013).

There is a complex relationship between the ability of an individual to live independently and the community context in which they live. The social model of disability recognises that health, personal and societal factors all affect a person's ability to function independently (Shakespeare, 2000). The principle is that nobody is inherently disabled, but it is their interaction with society that determines his or her level of functioning. An example is the current discrimination experienced by those with mental health conditions in the workplace. This discrimination can have a negative effect on a person with a mental health problem applying for a job (Brohan *et al*, 2012). See Table 2 for ways to manage these factors.

A socially sustainable mental health service recognises the effect of, and attempts to tackle, health, personal and societal factors in order to optimise the independence and health of individuals within a community. See Box 2 for an example that demonstrates this approach.

A socially sustainable mental health service creates a balance between health, personal and societal factors. This approach can improve social capital, enhance resilience within the community and reduce future healthcare resource use. Adopting a recovery approach in mental health services is fundamental to this.

**Table 2 Managing the different factors that affect social sustainability**

Factors affecting functioning, disability and independence	Approach	Intervention
Mental health factors (e.g. depression)	Traditional care models	Medication Psychotherapy
Personal factors (e.g. low self-esteem, poor motivation)	A recovery-oriented approach	Employment (individual placement and support) Peer support Family support Personal budgets Recovery colleges
Societal factors (e.g. stigma, lack of educational or occupational opportunities)	Community collaboration	Supported housing Community support programs Social prescribing for mental health (horticultural and art therapy groups) Welfare advice Education programmes Transition planning

## Using a recovery approach

Facilitating the development of hope, agency and opportunity is fundamental to the recovery approach. A central tenet to personal recovery is co-production; collaboration with patients ensures the direction and aims of recovery are defined in a patient's own terms. The Royal College of Psychiatrists supports the recovery approach and has been involved in several projects in this area. It has also issued a joint position statement (Care Services Improvement Partnership *et al*, 2007).

The term recovery can be used in many ways. For some clinicians it remains associated with the treatment of symptoms and the concept of a cure. But for many people with psychotic symptoms, cure is at best partial and often intermittent. Therefore, the term personal recovery has emerged to refer to the process of learning how to live a meaningful and rewarding life, with or without enduring symptoms or vulnerabilities. Personal recovery, in distinction to clinical recovery (the

### Box 2 An example of how health, personal and societal factors can be considered

Graham is a 36-year-old man with a diagnosis of schizophrenia. He has residual psychotic symptoms, low self-confidence and poor motivation and finds socialising difficult. He is currently unemployed, socially isolated and living in emergency housing. Focusing purely on his health is unlikely to lead to functional independence. A focus that includes personal and societal factors may prove more beneficial. The recovery-based approach is a framework for tackling personal factors such as confidence, motivation, obesity, smoking and socialisation. Partnership with his family and the local community is also needed to ensure that opportunities for joining groups, learning new skills, finding appropriate housing and obtaining employment are maximised.

resolution of symptoms), is defined by a set of ideas and principles and is concerned with 'living a life beyond illness' (Anthony, 1993). It is concerned with maintaining hope, finding meaning, gaining purpose and having a sense of control over the important life choices most valued by the individual. For some this can be more about discovery than recovery.

The challenge for mental health practitioners and mental health services is to develop ways of working that effectively support and facilitate personal recovery. This will require changes to individual practice, service delivery and the culture running through mental health services (Roberts & Boardman, 2013, 2014). Mental health organisations need to collaborate with communities to create structures that promote independence in those with long-term mental health conditions. Mental health professionals should be focused on facilitating personal recovery and the system as a whole should be focused on delivering social sustainability.

# Sustainability education

## Developing sustainability teaching programs

Education and training for psychiatrists on sustainability is crucial, as psychiatrists will play a direct and influential role in designing future models of care. The Sustainable Healthcare Education working group has recently drafted twelve 'priority learning outcomes' (Mortimer, 2013) and presented them to the General Medical Council. Currently, few medical schools have regular teaching on sustainability in healthcare.

Educational programs on the mental health effects of climate change could start at the earliest opportunity, during medical training. General concepts could be introduced at medical school through the use of either a problem- or case-based learning approach (Green *et al*, 2009). These could focus on the diverse interactions and inter-dependence between society, the environment and human health. For example, understanding that a healthy environment and an integrated community is crucial for maintaining health. The Enabling Environments project at the College Centre for Quality Improvement formally recognises this (Royal College of Psychiatrists, 2014).

Developing an understanding of how a phenomenon as complex as climate change can cause population-level mental health effects requires specialised psychiatric knowledge and an understanding of health and social policy. Listed below are suggested sustainability learning objectives for postgraduate psychiatric trainees (Maughan *et al*, 2014).

- Understand the existing and potential mental health effects of climate change in your country and internationally.
- Be aware of the mental health conditions that are likely to increase in prevalence following climate change (e.g. adjustment disorder).
- Be aware of characteristics that might make certain individuals or communities vulnerable to the mental health effects of climate change.

- Discuss how the duty of a psychiatrist to protect and promote health is shaped by the dependence of mental health on the local and global environment.
- Demonstrate the knowledge and skills needed to improve the environmental sustainability of mental health systems.

## Sustainability in postgraduate training

Given the regularity of job changes for trainees, and attendance requirements at mandatory training, travel is one of the largest avoidable economic and environmental costs to the trainee. Although travel expenses can be claimed, this only offsets personal costs; and the economic cost to the NHS and environmental costs are not considered. Encouragingly, commercial examination training courses and College teaching materials (the TrON initiative) are now distributed online, helping to reduce travel and the production of paper course materials. Further improvements to sustainability could include making locally delivered teaching, such as the mandatory MRCPsych course, available via online lectures or teleconferencing for trainees at other sites. In addition, more use could be made of the online portfolio (a recent development from the Royal College of Psychiatrists that allows a paperless training system).

# Stewardship of clinical resources

Stewardship is about reducing the wasteful use of clinical resources. Investigations, hospital beds, and medications are all clinical resources that psychiatrists use on a daily basis. Waste arises when these clinical resources are used inefficiently or unnecessarily. An example might be treating a patient who has a mild depressive illness with antidepressant medication, given that the evidence indicates antidepressants are not as effective for mild depression as support and psychoeducation (National Institute for Health and Clinical Excellence, 2009). In this example, antidepressant medication might not bring about the desired outcome and could potentially cause unwanted side-effects, as well as having financial and environmental costs. Stewardship here would involve avoiding the unnecessary use of resources while ensuring that the needs of the patient are met. Given that, in 2011, antidepressants had the largest increase in cost of any medication group (Prescribing and Primary Care Services & Health and Social Care Information Centre, 2013), this is potentially an area of concern. The NHS has a finite amount of resources. If this is spent on costly interventions that have little benefit, then the service we provide will be of little value and the resources we have will be wasted.

## A framework to reduce inappropriate resource use

Below is a set of questions that, if asked regularly, could help reduce inappropriate or excessive use of clinical resources such as blood tests, imaging, medications and in-patient beds.

- Will it aid diagnosis?
- Will it improve the care or treatment of the patient?
- Of the valid options available, is this the least invasive?
- Of the valid options available, is this the least costly?
- Have records been checked to ensure resources are not duplicated?

There can be inappropriate use of staff or patient time and waste in clinical processes (such as referral systems, ward rounds and clinics). The following questions can help determine whether your clinical processes are creating waste in the system.

- Is there a constraint in the system that impedes patient flow?
- Are there any duplications being created in patient information or tests?
- Are staff or patients experiencing excessive waiting at any point in the process?
- Is there any activity that is unnecessarily delaying discharge or referral?
- Have clinical activities been delayed because of waiting for a senior clinical opinion?

# Reducing waste: the 'lean' approach

'Lean' theory is one of the most widely used approaches to reducing waste in healthcare. The car manufacturer Toyota first developed the concept over 50 years ago with the aim of reducing costs and improving the rate of production. The lean approach has subsequently been implemented across many industries, including healthcare. Its use within the NHS has become widespread over the past decade (Young & McClean, 2008). In essence, the lean approach is about getting the right things to the right place, at the right time, in the right quantities, while minimising waste. It reduces waste by improving the flow of work in healthcare. Its methods focus on analysing care pathways, delivery systems and organisational processes across all healthcare settings.

According to the lean approach, there are seven different activities in healthcare that can lead to waste ([www.institute.nhs.uk](http://www.institute.nhs.uk)).

- 1 Overproduction (e.g. automatically requesting blood tests for pre-op assessments or duplicating patient information across different services or teams).
- 2 Inventory (e.g. inappropriately using in-patient beds for patients who are waiting for tests but could be discharged safely, or ordering excess medical equipment because the supply is unreliable).
- 3 Waiting (e.g. surgeons waiting for a theatre to become available).
- 4 Transportation (e.g. moving a patient to an in-patient bed for review at post-op ward round and then to another ward for discharge).
- 5 Defects or errors (e.g. an inaccurate patient history or the incorrect recording of a blood test).
- 6 Staff movement (e.g. separate sites for out-patient clinics or long distances between clinically related areas).
- 7 Unnecessary processing, or using complex equipment or processes to undertake simple tasks (e.g. a referral to a specialist service that involves having to be reviewed by several different people before acceptance).

# Measuring sustainability of mental health services

A standard sustainable development management plan is currently used by healthcare organisations to report on sustainability (Sustainable Development Unit, 2014). There is currently wide variability in the quality of the plans between healthcare organisations.

## Measuring economic sustainability

Economic data are perhaps the most straightforward of the metrics to measure, given the extent of financial reporting in the NHS. Local data are important, but there are also good national data-sets available that detail standard referencing costs for mental health units, including the Curtis Report (Curtis, 2013) and the Office of National Statistics ([www.ons.gov.uk](http://www.ons.gov.uk)). Providers and commissioners of adult specialist mental health services can also retrieve Mental Health Learning and Disabilities Data Set extracts covering their own services and the patients for whom they are responsible ([www.datadictionary.nhs.uk](http://www.datadictionary.nhs.uk)).

## Measuring environmental sustainability

The term carbon footprint refers to the greenhouse gas emissions resulting from the full life-cycle of a product or process. The Kyoto Protocol (United Nations, 1997) identified six gases with global-warming potential, although only three are commonly reported on: carbon dioxide, methane and nitrous oxide. Carbon dioxide is most commonly used as the reference gas, with the emissions of the other gases being expressed in the units of carbon dioxide equivalents.

The carbon footprint of the NHS has been extensively explored by the Sustainable Development Unit (2013a). Standard conversion factors for different elements of clinical care (e.g. out-patient appointment, admission, medications) provided by the Unit are currently the easiest carbon-footprinting method available. However, carbon-footprinting studies with varying methodological approaches and complexity are now being reported in the medical literature (Connor *et al*, 2010; Morris *et al*, 2013). A recent report reviewed the environmental analysis of

mental health services (Stancliffe, 2013). This report argued that the measurement of impact on the environment should be measured at a service-line level, rather than at a building energy-use level. This is because current methods do not measure the carbon efficiency of clinical pathways or services. This is important, as most of the carbon footprint of the NHS is related to clinical issues such as pharmaceuticals, travel and medical equipment (NHS Sustainable Development Unit, 2013).

## Measuring social sustainability

Measuring the social sustainability of a mental health organisation involves evaluating both social resource use and social effects. Social resources include the NHS staff who are required to provide the service. An essential part of ensuring a sustainable social resource is to review staff stress rates. Staff turnover rates are a recognised indicator for this, and staff satisfaction surveys can also be helpful. Other social resources include patients, carers and communities. Creating self-help groups and community support structures are good ways to help protect and maintain these social resources.

Assessment of the social effects of a mental healthcare organisation involves measuring social outcomes. This can be via simple measures, such as return to employment, engagement with education and living in appropriate housing, or via soft terms, such as community connectedness. Otherwise, a social return on investments analysis can be conducted to calculate the value of social outcomes that have been, or are to be, achieved. In many cases, social outcomes are not directly measurable in terms of their financial value; however, these analyses attempt to convey the value of these long-term social outcomes in financial terms. An example is the savings that can be achieved by a person coming off benefits into stable employment, or the savings that result from reduced arrest rates.

# Procurement considerations

The Public Services (Social Value) Act 2012 requires ‘all commissioners of public services to consider taking into account economic, social and environmental value, not just price, when buying goods and services’ (NHS Sustainable Development Unit, 2012). The NHS has substantial power as a purchaser – it spends about £11 billion a year on goods and services (Coote, 2002). Procurement is also the largest contributor in terms of the NHS’s carbon footprint (Sustainable Development Unit, 2013a). The NHS’s purchasing policy could be shaped to promote the choice of goods and methods of production and distribution that are likely to safeguard health and the environment.

NHS trusts and health boards have some choice over whether to buy from local or national suppliers, and whether to buy goods and equipment that are more or less sustainable in terms of their impact on the environment and on local communities. However, choices are also controlled by national contracts brokered by the central NHS Purchasing and Supply Agency. This does not necessarily present an insurmountable barrier to sustainable purchasing and can sometimes facilitate it (Coote, 2002). The P4CR (procuring for carbon reduction) report is designed to support procurers in the NHS and wider health and social care sector in reducing the environmental effects of procurement (NHS Sustainable Development Unit, n.d.).

# Reducing energy use in mental healthcare

The NHS estate accounts for around 22% of the total carbon dioxide emissions of the health service, emitting around 4.1 million tonnes of carbon a year. The inclusion of the NHS in the CRC Energy Efficiency Scheme has ensured that the issue of reducing energy efficiency is already on the agenda of estates and facilities departments. The scheme imposes fines based on pricing the emission of carbon dioxide at £15.60 per tonne, so as of 2010/11 the NHS's carbon use has cost it £32 million.

The UK's healthcare sector spends more than £400 million per year on energy, a significant proportion of which is wasted (Sustainable Development Unit, 2013a). There are many simple opportunities for hospitals to reduce their energy use. These will reduce financial and environmental costs and also create better conditions for patients and staff.

## Information technology

Information technology (IT) accounts for 10% of the total electricity use in hospitals. Switching off equipment or using timers can help to reduce energy usage. Going paperless is a complex process and can increase energy use and computer waste even while reducing consumption of paper and petroleum (Turley *et al*, 2011). In addition, built-in obsolescence in electrical devices can lead to continued cycles of cash and carbon investment. However, the British Computer Society supports 'Green IT', and the adoption of electronic health records are a sustainable improvement that all organisations should strive towards. Mental health organisations should also consider seeking accreditation for their data centres, as these can be highly energy intensive. One sustainable IT opportunity is in printing, where possible solutions include installing 'hollow' fonts that require only a third of the ink of traditional fonts to print (e.g. [www.ecofont.com](http://www.ecofont.com)) and saving documents as a type of pdf file that cannot be printed ([www.saveaswwf.com/en/home.html](http://www.saveaswwf.com/en/home.html)).

## Heating

Simple time switches can allow areas that are not used 24 h a day, such as out-patient clinics, to be heated only for the times they are used. A detailed review of the different ways to save and generate heat is beyond the scope of this paper, but hospitals should consider biomass heating and combined heat and power when replacing old systems. With combined heat and power, the heat generated when electricity is produced is used for space and water heating rather than being dissipated in cooling towers.

## Water

Water is a metered and controllable resource, so it is possible to save a significant amount by inexpensive means, such as tap restrictors, push taps, shower regulators and infrared controllers. Heat recovery systems for wastewater can also be installed. The use of solar water heating can also be cost-effective, especially in buildings with large south-facing roofs where the water supply tanks and plumbing can be located in the adjacent roof space. Grey water should be used to supply toilets.

## Ventilation and air conditioning

Natural ventilation should be used wherever possible. It is vital to have a balanced system that allows optimal but different temperatures in different areas. Air conditioning should be avoided unless necessary.

## Lighting

Lighting accounts for over 35% of electricity used in a typical hospital. Good lighting design and making staff responsible for switching off lights can significantly reduce lighting costs (Sustainable Development Unit, 2013b). Light switches should be labelled and fittings should be upgraded to low-energy bulbs. Occupancy sensors are useful in zoned or intermittently used areas.

## Building fabric

Two-thirds of heat from a hospital is lost through the building fabric and the remaining third through air filtration and ventilation. Considering the age and outdated design of many mental health buildings, it is not surprising that some are inefficient. Improving building fabric makes good sense on many levels: it saves money and improves the environment for patients and staff.

# Useful resources for improving sustainability

- 1 Mental health professionals interested in sustainability can join the College-endorsed network Psych Susnet ([www.sustainablehealthcare.org.uk/mental-health-susnet](http://www.sustainablehealthcare.org.uk/mental-health-susnet)). This network supports local projects and provides a forum for discussion. Useful resources are available here and advice or support available for any psychiatrists interested in promoting sustainable issues locally.
- 2 The Sustainable Action Planning website ([www.sap.sustainablehealthcare.org.uk](http://www.sap.sustainablehealthcare.org.uk)) provides tools and case studies.
- 3 The Sustainable Development Strategy for the Health, Public Health and Social Care System 2014–2020 ([www.sduhealth.org.uk/policy-strategy/engagement-resources.aspx](http://www.sduhealth.org.uk/policy-strategy/engagement-resources.aspx)) describes a vision for a sustainable health and care system by reducing carbon emissions, protecting natural resources, preparing communities for extreme weather events and promoting healthy lifestyles and environments.
- 4 An international initiative called Choosing Wisely has recently been started in response to the realisation that many interventions might be unnecessary or harmful ([www.choosingwisely.org](http://www.choosingwisely.org)). The initiative involves requesting medical organisations to identify and reassess the necessity of their common tests or procedures. This initiative aims to help patients choose care that is evidence-based, not duplicative, free from harm and truly necessary.
- 5 The Department of Health launched the Quality, Innovation, Productivity and Prevention (QIPP) programme, designed to support the NHS in improving care and lowering costs (Smith, 2012). The QIPP database has produced a large number of helpful case studies, many of which demonstrate how doctors have reduced waste in their clinical work.
- 6 The Department of Health has also launched the NHS Atlas of Variation. This documents variation between regions for various procedures and tests. One test or intervention might be much more frequently performed in one area compared with another. This information can be helpful for determining where waste might be present.
- 7 The 'do not do' database, an initiative from the National Institute for Health and Care Excellence, identifies clinical practices that

should be either discontinued completely or not used routinely ([www.nice.org.uk/savingsandproductivity/collection](http://www.nice.org.uk/savingsandproductivity/collection)). It is an excellent resource for doctors who question the value of particular clinical practices.

- 8 The Welsh Government has developed a sustainable development scheme, known as One Wales: One Planet. The Welsh Government has made it clear that it sees sustainable development as fundamental, stating that sustainable development will be 'the central organising principle of the Welsh Government and of the public sector in Wales' (Welsh Assembly Government, 2009).
- 9 The Scottish Government has undertaken to help public and private business capitalise on the opportunities associated with joined-up decision-making on health and environmental sustainability (this concept is at an early stage).
- 10 In Northern Ireland, the government has produced a paper on sustainable development, in which it promotes the concept of living within environmental limits while ensuring a strong, healthy and just society (Northern Ireland Executive, 2010).

# | Summary

Sustainable mental healthcare is not a utopian vision. It is directly linked to existing core principles, such as quality of care, patient safety, patient and staff experience, population well-being, risk management, organisational reputation, cost savings and community benefit. Developing a sustainable approach to our clinical practice is a crucial step in ensuring that mental health services will continue to provide high-quality care in the 21st century.

A step change in culture and practice is needed, one in which psychiatrists become critical assessors of the resources they use on a daily basis to determine whether they are bringing benefit to the patient and value to the system. Sustainable psychiatrists need to develop a further role of stewardship, not only of the resources they are using but of the NHS as a whole and the effects that the NHS has at large. Psychiatrists learn to develop two perspectives when assessing a patient: medical and psychoanalytic. The medical view diagnoses and treats, while the psychoanalytic view, for example, assesses the transference and counter-transference reactions occurring in the room. Sustainable psychiatry requires a wider perspective too, that of a steward of clinical resources (both human and material). Psychiatrists as stewards, because they have an eye firmly fixed on the future, have a good awareness about the economic, environmental and social effects of an intervention. This concept lies at the heart of sustainability in healthcare.

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