



HEALTH AND NATURAL ENVIRONMENTS - An evidence based information pack

Why should the natural environment form an integral part of public health?

Context

Healthy Lives, Healthy People: Our strategy for public health in England, builds on Equity and Excellence: Liberating the NHS. It outlines the Governments' commitment to protecting our population from serious health threats and adopts the life course framework for tackling the wider social determinants of health. The environment (natural and built) is explicitly recognised as a determinant of health. It states that:

“The quality of the environment around us also affects any community. Pollution, air quality, noise, the availability of green and open spaces.”

“Local communities will be empowered to “design communities for active ageing and sustainability”. This will include protecting green spaces, volunteer led walk programmes, promoting community ownership of green spaces and improved access to land.”

The Natural Environment White Paper, The Natural Choice: securing the value of nature, outlines Defra's ambition and states that:

“From April 2013, Directors of Public Health will be employed within upper tier and unitary local authorities. They will be ideally placed to influence local services, for example joining up activity on rights of way, countryside access and green space management to improve public health by connecting people with nature.”

“Local Nature Partnerships and the Health and Wellbeing Boards should actively seek to engage each other in their work. Forthcoming guidance will make clear that the wider determinants of health, including the natural environment, will be a crucial consideration in developing joint strategic needs assessments and joint health and wellbeing strategies.”

The Public Health Outcomes Framework indicator 1.16 Utilisation of green space for exercise / health reasons, will be measured by Natural England's Monitoring of Engagement with the Natural Environment (MENE) survey.

The following pages contain six evidence based information sheets that outline the natural environment's contribution for improved health and wellbeing.

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Health inequalities - Greenspace benefits the health of everyone and benefits the least well off the most.

Current Problem

The gap in health outcomes between the rich and poor remains the same as in 1997 despite large investments¹.

The effect of the Natural Environment on Health Inequalities

In England the most deprived communities are 10 times less likely to live in the greenest areas² Understanding the relationship between proximity of green space and its impact on health is improving. A UK study found that income-related inequality in health is affected by exposure to green space³. It demonstrated that:

- those with close access to green space lived longer than those with no green space, even when adjusted for social class, employment, smoking etc and the impact was significantly greater amongst the least well off
- the survival of older people increases where there is more space for walking near their home, with nearby parks and tree-lined streets⁴
- children's physical activity levels are increased when they live closer to parks, playgrounds, and recreation areas⁵

How does it Work?

Urban life exposes people to many stressors, in the form of traffic noise, crowding, fear of crime, and often access to nature and greenspace is limited or of poor quality⁶. The type of nature close to where people live and work, in the form of parks, gardens, tree-lined streets, communal squares and allotments, is strategically important for the quality of life of urban dwellers and for the sustainability of towns and cities⁷.

Why is this important?

We know that those at risk of the worst health, often live in the worst environments, which contribute to chronic stress, low self esteem, obesity and physical inactivity. Overall better health is related to access to green space regardless of socio-economic status⁸ and highlights the importance of providing accessible green spaces to reduce socio-economic health inequalities. The long term conditions of obesity, diabetes, heart disease and dementia are much more prevalent in deprived communities which often have the least access to greenspace. However even when adjusted for lifestyle such as smoking, alcohol and inactivity there is still an unexplained gap. It is thought that the chronic stress of poverty and a hostile environment are contributory factors.

Cost effective - Greenspace benefits the health of everyone and demonstrates cost effective health outcomes.

Current problem

The natural environment has an important role to play in supporting healthy communities however the significance of having good quality and accessible greenspace can often be taken for granted. The most positive underlying health 'value' is derived from healthy natural environments and has the most beneficial impact when set within urban environments.

The economic case for supporting healthy natural environments

The economic and social costs of mental illness in England were estimated at £77.4 billion for the year 02/03⁹. A study of town dwellers¹⁰ found statistically significant relationships between the use of urban greenspace and self-reported levels of stress. The results showed that the more often a person visited greenspace the less they reported stress-related illnesses, and that distance to greenspace was crucial to the amount they were used. On the specific issue of children's cognitive functioning, a longitudinal study suggests objectively greener environments are linked to objectively measured improvements¹¹.

- It is estimated by 2050 60% of adult men, 50% of adult women and 25% of children under 16 could be obese and this would cost the NHS £10 billion a year and wider society £49.9 billion a year¹². Two-thirds of men and three-quarters of women report low activity levels which substantially increase their risk of contracting a broad range of chronic diseases¹³.
- Research suggests that when people have good access to greenspace (perceived or actual) they are 24% more likely to be physically active. Using this figure it is possible to generate an illustrative cost saving covering the hypothetical benefit of moving from a situation of nobody having access to greenspace to everybody having access to greenspace of £2.1 billion¹⁴.
- An illustrative cost benefit analysis of Natural England's Walking for Health Scheme found that it would deliver 2817 Quality Adjusted Life Years (QALYs) at a cost of £4008.98 per QALY. The scheme is estimated to save the NHS £81 million and have a cost benefit ratio of 1:7.18¹⁵.
- The most recent analysis¹⁶ has questioned the effectiveness of anti-depressants as significant for mild or moderate depression. Studies have concluded that access to green spaces has a positive effect on a persons' mental health¹⁷ and that there was further correlation of a dose-response effect for mood and self-esteem¹⁸.

Why is this important?

The NHS needs to make efficiency savings, encourage innovation and support preventative interventions. Greenspace plays an important role in delivering a cost effective and joined up service providing underlying support for fundamental determinants of health. At a population level, partnerships should consider the benefits of green spaces as part of preventative healthcare, to mitigate against the cost of prescribing budgets and care/support service provision.

Healthy communities - Greenspace helps to create healthy resilient communities and can also provide life supporting systems

Current Problem

Time spent in nature has a hugely positive impact on key social indicators. Over the last fifty years both our natural environment and people's connection with it has substantially deteriorated and we are now experiencing the consequences; with decreasing activity, burgeoning levels of obesity, diminishing social interaction and declining levels of mental wellbeing. In addition a healthy natural environment is a vital component for our existence and the health of our communities; providing us with essentials such as food, water, clean air, improved quality of life and enhanced local living environments.

The effect of the natural environment for healthier communities

Good quality green space can foster better community cohesion and promote social inclusion¹⁹. Community open space can enhance social ties, provide a sense of community and can promote social integration within disadvantaged communities²⁰.

Studies have shown that:

- green spaces improve air and noise quality in urban areas²¹,
- trees can cut particulate pollution by as much as 25 per cent²² and
- trees and vegetation help to reduce traffic noise by absorbing and deflecting sound²³.
- areas with higher levels of greenspace helps lower the risk of flooding
- urban green spaces with trees can give a localised cooling effect of 1°C - 2°C²⁴ in an area.

How does it work?

Socio-economic models of health and inequalities are widely used by Public Health practitioners. For example, Dahlgren and Whitehead²⁵ developed a framework that identifies how a range of different factors can impact on personal and community health. It sets out that the wider determinants of health (that includes natural environments) can effect the likelihood of a person developing a disease, or in dying prematurely. In addition climate change will contribute to decreasing air quality whilst natural green spaces with trees and vegetation (particularly in urban environments) provide micro climates that aid particulate removal for cleaner air helping to reduce chronic pulmonary obstructive disease such as bronchitis and asthma.

There is a lower risk of flooding in areas with high levels of green spaces which in turn helps to reduce post-flooding mental health problems. Flooding can increase psychological distress after the event by up to four-fold.^{26,27} Natural vegetation provides shade and shelter helping to mitigate against the impacts of increased temperature extremes (such as heat exhaustion and dehydration) that will be exacerbated by climate change. The 2003 heat wave is estimated to have accounted for 600 extra deaths in London²⁸ and vegetation can help protect urban dwellers who are especially vulnerable to heat waves, which are predicted to increase in frequency due to climate change.

Why is this important?

Natural green spaces (particularly in urban environments) provide services and systems that are vital for healthy lives and also help mitigate against the negative impacts resulting from climate change.

Active lifestyles - Greenspace benefits the health of everyone by creating venues for active lifestyle choices and physical challenge across the life course.

Current problem

Physical inactivity and obesity are one of the greatest public health challenges for UK governments for the foreseeable future. In 2009, almost a quarter of adults in England were classified as obese. In 2009/10, around one in ten pupils aged 4-5 years were classified as obese and around a fifth of pupils aged 10-11 years²⁹. The NHS costs attributable to overweight and obesity are projected to reach £9.7 billion by 2050, with wider costs to society estimated to reach £49.9 billion per year. The prevalence of obesity is predicted to affect 60% of adult men, 50% of adult women and 25% of children.³⁰

The effect of the natural environment on active lifestyle choices

Inactivity is a silent killer and the natural environment in both rural and urban settings provides local opportunity for increasing levels of physical activity into everyday lives. This can be through low carbon active travel choices, community based walking and cycling schemes, practical conservation volunteering, exploratory natural play, ranger and community led events, school visits and formal/informal outdoor games and sports.

- Increasing access to the natural environment can play a vital role in efforts to increase activity and reduce obesity. Overall it appears that access (perceived and actual) to green space has a role to play in determining levels of physical activity whilst constraining/promoting particular lifestyle choices³¹. Research shows evidence of a generalised effect but does not offer evidence of the causality.
- Being outdoors is the most powerful correlate of physical activity, particularly in pre-school children³² and improving levels of accessible urban green spaces is associated with increased amounts of play for local children³³.
- Increased five year survival of senior citizens was linked with increased space for walking, nearby parks and tree-lined streets near their residence. These effects were independent of socioeconomic status³⁴.

How does it work?

Healthy behaviours may be followed as a direct result of an individual's surrounding environment. The ability to access green settings has been demonstrated to encourage contact with nature and participation in physical activity, both of which encourage the adoption of other healthy lifestyle choices such as social engagement and consumption of healthy foods. The unhealthy behaviours encouraged by more modern urban environments are resulting in poor health and well-being. Although an individual may spend some time on a particular life pathway, it is possible to change behaviour and take an alternative pathway. Individuals may move to a more healthy pathway as a direct result of adopting healthy behaviours that require spending time outdoors³⁵.

Why is this important?

Seven in ten people do not take enough exercise to benefit their health. Physical activity can reduce the risk of developing Cardiovascular Disease and the associated risk factors, such as hypertension, high blood lipids and elevated blood pressure, and can also reduce the likelihood of developing Type 2 Diabetes³⁶. Contact with nature not only affects immediate health and well-being, but also health throughout life providing opportunity for active lifestyle choices.

Mental wellbeing - Greenspace benefits the health of everyone and contact with natural environments has a calming and restorative effect helping to improve mental wellbeing

Current problem

Mental ill health accounts for 13% of all lost years of healthy life globally, rising to 23% in high-income countries^{37 38}. It affects people across the whole life course. 10% of UK children have a diagnosable mental health condition³⁹. Severe depression is experienced by 13–16% of older people, and up to 50% of older people in residential care⁴⁰. One in 20 people over 65 in the UK has some form of dementia, rising to one in five people over 80⁴¹.

The calming and restorative effect of natural environments

Access to good quality urban green space is essential for good mental and physical health, childhood development, social cohesion and other important cultural services. Evidence shows us that natural environments have a beneficial impact on mental wellbeing.

- A correlation study showed a significant trend of reduced admissions for mental illness associated with increasing levels of greenspace. This trend was adjusted to take into account levels of deprivation and population density⁴².
- Recent reviews^{43 44 45} have cited studies showing that, at a neighbourhood level there is a positive relationship between the presence of trees and vegetation and residents' health, wellbeing and social safety, compared to areas with less green spaces. Using nature to build communities through participation in local nature activities has been shown to increase a sense of community strength and pride^{46 47}.
- Good quality green space can foster better community cohesion and promote social inclusion⁴⁸. Community open space can enhance social ties and provide a sense of community, promoting social integration within disadvantaged communities⁴⁹.
- There is growing evidence of the mental health benefits of access to the outdoors⁵⁰. In particular there are indications that exposure to contact with the outdoors can reduce stress and symptoms of depression, enhance concentration and mood, enhance self esteem, reduce psychosis and enhance substance misuse outcomes within residential rehabilitation programmes.

How does it work?

Modern lifestyles, rising noise levels and social isolation are significant contributors to increasing levels of stress, anxiety and depression. Natural greenspace provides areas of relative tranquillity and sensory environments for meditation and relaxation. Trees and vegetation reduce ambient noise, improve naturalness, provide calming views and convey a sense of place and belonging. Greenspace helps facilitate water, land and nature based hobbies and community or ranger led activities as well as creating social spaces and meeting places to help counteract the triggers for declining levels of mental wellbeing.

Why is this important?

Signs of stress reduction such as a fall in blood pressure and muscle tension are reduced after exposure to scenes of nature^{51.52}. Regular contact with and access to local natural greenspace (particularly in urban areas) can help provide long term and sustainable solutions for increasing social interaction, improving local living environments and quality of life.

Monitor of Engagement with the Natural Environment (MENE): The national survey on people and the natural environment is being used as a measure for the Public Health Outcomes Framework 1.16 utilisation of greenspace.

Background

Although there is a growing evidence base about the benefits that people derive from contact with the natural environment, there is a lack of information about how and why people currently engage with the natural environment. MENE used the definition for the natural environment to mean all green open spaces in and around towns and cities as well as the wider countryside and coastline. Natural England, Defra and the Forestry Commission therefore commissioned TNS Research International, to undertake a national survey on people and the natural environment, MENE, (Monitor of Engagement with the Natural Environment).

MENE is an ongoing, face-to-face, in-home omnibus survey of over 40,000 interviews per year (around 800 respondents every week). This survey provides the most comprehensive dataset yet available on people's use and enjoyment of the natural environment. It includes information on visits to the natural environment (including short, close to home visits) as well as other ways of using and enjoying the natural environment. In addition, MENE is the first survey of this type that has been conducted over consecutive years, allowing for greater confidence when tracking trends over time.

The first annual report was published in September 2010 and the second in June 2011 with the third year's data being released monthly. The fieldwork survey started in March 2009, using a quota sampling method to ensure that respondents are representative of the adult population (16 years and over) of England.

Summary of year 2 findings

From March 2010 to February 2011, 41.7 million adults resident in England took a total of 2.49 billion visits to the natural environment⁵³ with 0.92 billion of these visits to green spaces within a town or city. Just over half (53 per cent) stated that they normally visited the natural environment at least once a week with 11 per cent of those claiming to visit on a daily basis

The destination of these visits

Visits from those living in the most deprived neighbourhoods, and the BME population were more likely to be to urban destinations and places closer to home with 46% of visits (for DE social grades) being within one mile of their starting point, a significantly larger proportion than recorded amongst the more affluent AB social grades (38 %)

85% of all visits were taken within five miles of the starting point with the majority (66%) being taken within two miles, highlighting the importance of accessible green space close to home.

Socio-economic profile by frequency of participation in visits to the natural environment

Analysis of participation using the Index of Multiple Deprivation 2007 reveals an association between levels of deprivation and propensity to visit the natural environment. Nineteen per cent of those in the bottom ten per cent IMD grouping never visit the outdoors, compared to five per cent of those in the top ten per cent.

From the most deprived areas visits were more likely to be to urban destinations and to places closer to home with 46% of visits (DE social grades) being within one mile of their starting point (a significantly larger proportion than recorded amongst the more affluent AB social grades (38 %)).

Associations between frequency of visits to the outdoors and levels of physical exercise

49% of those who visited the natural environment frequently took part in at least 30 minutes of physical activity at least three times a week, compared to just 22% of those who never visit the natural environment.

More detailed analysis of 2009-11 MENE data focusing on visits to local greenspace in towns and cities within two miles of the starting point.

Further analysis of two years MENE data (2009-11) helps to provide us with a bit more information about the demographics, motivators, types of activities undertaken and some of the outcomes of people who visited greenspace (in towns and cities) within two miles of their starting point. Within the context of MENE, by greenspace we mean a park or other open space in a town or city, an allotment or community garden, children's playground, playing field or other recreation area.

Reason for visit to greenspace within two miles of the starting point

When respondents were asked to rank the order of eleven motivators for their visit 'health and exercise' was ranked as the second highest (652,621 visits) and 'to relax and unwind' the third highest (468,412 visits).

Who visited greenspace within two miles of the starting point

69% of the bottom 10% IMD visited greenspace within 2 miles of their starting point as opposed to 32% of top 10%

There was a propensity for younger age groups to visit greenspace in towns and cities within two miles of their starting point (when compared to seaside or countryside visits) with 58% of visits (218,350) for the 16-24 age group and 55% for the 25-34 age group (274,821). Though visits to greenspace (within two miles) by older age groups is still significant with 218,557 visits (55-64 age group) and 224,255 visits (65+).

Respondents from BME communities were twice as likely to visit greenspace within two miles of their starting point compared to respondents from white communities.

251,276 (17%) of people who visited greenspace within two miles of their starting point consider themselves to be disabled or to have a longstanding illness

Activities undertaken during visits to greenspace within two miles of the starting point

Walking with a dog was the top activity within two miles (738,677) compared to 113,674 of visits of more than two miles from the starting point. Walking without a dog was second within two miles (414,450) compared to 174,846 of visits more than two miles from the starting point

Combining walking with and without a dog was an activity for 1,153,127 of visits less than two miles compared with 288,520 of visits more than two miles from the starting point.

Playing with children less than two miles from home was 170,967 compared to 64,571 visits more than two miles.

Outcomes from visits to greenspace within two miles of the starting point

86% of respondents visiting greenspace within two miles strongly agreed or agreed that their visit had made them feel calm and relaxed

83% of respondents visiting greenspace within 2 miles either strongly agreed or agreed that their visit had made them feel refreshed and revitalized.

67% of respondents visiting greenspace within 2 miles either strongly agreed or agreed that it had made them feel close to nature.

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Reports can be downloaded from: www.naturalengland.org.uk/ourwork/enjoying/research/monitor.

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- ⁹ The Sainsbury Centre for Mental Health, 2003 This includes direct costs of healthcare of £8.4 billion, non-employment costs of £9.4 billion and sickness absence of £3.9 billion. Note that the £77.4 billion figures is an economic value estimate and so cannot be compared to GDP figures. The approach taken includes valuing unpaid work and also quality of life year's lost and therefore must be regarded as a best estimate, and in future could be improved upon in terms of methodology and data availability. However the approach taken is appropriate and conservative. The other figures I have pulled out of the analysis are economic impact figures, and can appropriately be compared to GDP.
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