House of Lords Select Committee on National Policy for the Built Environment

Written evidence from the MRC Epidemiology Unit and the Centre for Diet and Activity Research (CEDAR)

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Executive Summary

- This submission principally addresses question 11 in the Call for Evidence – with regard to improving consideration of the impact of the built environment on those who live and work within it, particularly their physical and mental health.
- Changing health-related behaviours requires policy and interventions that act at the individual, social, community and environmental levels. The built environment, therefore, has an important role to play in promoting health and healthy behaviours.
- Interventions in the built environment can potentially target whole towns and communities. Such population-level prevention initiatives have the potential to be more cost-effective and equitable than those aimed only at high risk groups.
- Built environment interventions to improve health require multi-sectoral delivery, support from academia, and a clear mandate from national policy and government.
- The built environment can be an important 'nudge', driving behaviour change triggers that are outside conscious (or at least explicitly recognised) awareness.
- Creating supportive environments for physical activity is an important priority for local authorities in transport and town planning – and requires that national policy allows sufficient room for local innovation and evaluation.
- The neighbourhood food environment has a potentially powerful effect on diet choices. Whilst food availability is often related to use of existing buildings, new neighbourhoods also need to be planned with consideration of food availability and dietary health, particularly with regard to health inequalities.

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1. About the submitting organisations

1.1 The **MRC Epidemiology Unit** is a department at the University of Cambridge. It studies the genetic, developmental and environmental factors that cause obesity, type 2 diabetes and related metabolic disorders. The outcomes from these studies are then used to develop strategies for the prevention of these diseases in the general population. www.mrc-epid.cam.ac.uk

1.2 The **Centre for Diet and Activity Research (CEDAR)** is studying the factors that influence diet and physical activity behaviours, developing and shaping interventions, and helping shape public health policy and practice. It is led by the MRC Epidemiology Unit, and is a partnership between the University of Cambridge, the University of East Anglia and MRC Units in Cambridge. It is one of five Centres of Excellence in Public Health Research funded through the UK Clinical Research Collaboration. www.cedar.iph.cam.ac.uk

2. The impact of the built environment on health

2.1 The built environment can have direct effects on the health of individuals – from air pollution to housing conditions – and is also an important determinant of health-related behaviours such as physical activity[1] and diet. Interventions in the built environment aimed at improving mental and physical health occur in the context of the 'socio-ecological model': behaviours are influenced by a combination of factors related to the individual, their social relationships, community, wider society and the environment. Influences are shown to be context and behaviour specific – e.g. influences on walking to work differ from those on cycling to work or walking for leisure. Interventions in the built environment should not, therefore, be considered by policymakers in isolation. Strategies that target only a single aspect of the socio-ecological spectrum are unlikely to be successful: multiple barriers often need to be removed to achieve substantive change, and interventions need to be sustained rather than short term 'projects'. A better joining up of legislative areas that impact on the built environment is required, together with an approach of 'health in all policies'.

2.2 Interventions in the built environment have the potential to affect whole populations. Efforts that can shift the population distribution of health behaviours are likely to be more cost-effective overall, and strategies that involve changes in infrastructure and systems have the potential to reach large sections of the general population rather than just those at highest risk. Furthermore, by reshaping the poorest neighbourhoods, improving the built environment can also help tackle underlying factors affecting health inequalities.

2.3 Whilst continued research on the health impact of the built environment is required, current gaps in research should not be taken as an excuse for inaction. The interventions to be prioritised for piloting are those that appear promising based on existing evidence and theories. These interventions must then be properly evaluated so that best future practice and policy can be more readily identified. Whilst randomised controlled trials are rarely possible when changing the built environment, multiple and parallel developments across local authorities present a 'living laboratory' in which interventions can be tested. Local authorities, with their responsibilities for public health and influence over many aspects of the physical environment, are ideally placed to develop, implement and evaluate policy and practice in this area, supported by scientific evaluation of selected interventions in partnership with academia. Any national policy needs to both empower local authorities to act in this manner, and facilitate and collect learning at a national level.

3. Evidence use in practice

3.1 The MRC Epidemiology Unit /CEDAR has brought academics together with professionals in public health, transport, urban planning and sustainability to explore the multi-sectoral policy response required to create health-promoting built environments. In local authorities in particular there is a tension between, on one hand, the new goal of delivering public health benefits across sectors, and on the other, pre-existing delineated roles and budgets, and the variety in scope and priorities across sectors. Multi-sectoral delivery requires individuals who can breach silo-working, can locate evidence from a variety of disciplines, and can find a common language to integrate such evidence clearly into business cases. Practitioners would welcome help from academia to translate evidence into actionable recommendations, and to evaluate

interventions. From national built environment policy they would welcome clearer mandates for health as a priority in all remits, which would strengthen their efforts to integrate health benefits in business cases and promote multi-sector cooperation.

4. The built environment and physical activity – walking and cycling

4.1 One prominent area in which the built environment relates to health is that of physical activity through travel. The myriad benefits of physical activity to health are covered in more depth elsewhere, but the scale of the possible health benefit from physical activity is exemplified by a study of over 330,000 individuals in the European Prospective Investigation into Cancer and Nutrition (EPIC), which indicated that doing exercise equivalent to just a 20 minute brisk walk each day would take an individual from the inactive to moderately inactive group and reduce their risk of premature death by between 16-30%. The impact was greatest amongst normal weight individuals, but even those with higher BMI saw a benefit.[2]

4.2 Given that the average journey to and from work in the UK takes 28 minutes each way,[3] a necessary level of gain in physical activity to improve health could easily be achieved by accommodating walking or cycling as at least part of the daily commute and other journeys. Emerging findings indicate on average 20% of the journey to work for those travelling by bus, park-and-walk or park-and-cycle, is spent in physical activity of at least moderate intensity.[4] Evidence from the *iConnect* study of Sustrans-led walking and cycle routes in Cardiff, Kenilworth and Southampton showed that adults whose active travel increased over the course of a year reported about two hours more physical activity per week on average, whereas those whose active travel decreased reported about two hours less.[5] Importantly, there was no evidence of a compensatory decrease in recreational physical activity.

4.3 Active travel specifically has been shown to be associated with reductions in body mass index[6], and improved subjective wellbeing.[7] Health impact modelling further demonstrates the potential of gains from increasing physical activity in travel. When considering active travel scenarios developed by the Visions 2030 project, even the most conservative scenarios produced reductions in a range of diseases, including reducing the burden of heart disease and stroke by over 7%, and dementia by 5%.[8] Population level benefits are greatest if activity can be maintained at older ages when disease risks are highest.[9]

4.4 Whilst the additional £214 million announced in 2014 for investment in cycling infrastructure is welcome, it stands in contrast to the £15 billion announced in the same year for road building. It is vital that these larger infrastructural changes support active travel as well as motor vehicles: for instance integrating bike lanes into new roads, improving walking routes when creating bypasses, and so on. Similarly, investment in the rail network must be accompanied by cycle provision. When changing or planning new neighbourhoods, it is important to consider distances and routes to work, school and local amenities, as well as the presence of green spaces.

5. The built environment as a driver of behaviour change

5.1 Improving the built environment for walking and cycling has clear potential to encourage physical activity if it reduces barriers to walking or cycling (such as actual and/or perceived danger from motor vehicles); or if it provides more direct, convenient or pleasant routes.[10] Proximity to infrastructure is also important, and its effects may

take some time to have an impact. Two years after the routes in Cardiff, Kenilworth and Southampton were developed, people living 1km (0.6 miles) from the routes had increased their time spent walking and cycling by an average of 45 minutes per week more than those living 4km (2.5 miles) away.[11] In terms of potential negative health effects of nearby infrastructure, a study of the M74 motorway in Glasgow is exploring whether living near a new motorway promotes car use, and reduces physical activity and mental wellbeing.[12]

5.2 Car parking provision may also have an important influence on travel behaviour. Research in Cambridge has shown that workplace parking charges are associated with a decreased likelihood of regular car commuting[13] and are particularly strongly associated with an increased likelihood of incorporating walking or cycling into a longer car commuting journey.[14] Depending on local factors, these findings suggest an intervention strategy could involve charging for on-site workplace parking while providing free off-site parking within walking or cycling distance.[15] As well as increasing physical activity for some people, approaches such as this could also help reduce urban traffic congestion and pollution, which could benefit everyone.

5.3 It has been recognised that much behaviour is automatic, triggered outside of conscious awareness and cued by multiple influences.[16] Recent research has confirmed that the influence of the built environment may be more powerful in driving behaviour change than any explicit conscious change in perceptions of the physical and social environment. In analysis of the data from the *iConnect* study researchers found that although residents' perceptions of pleasantness, crime, lighting or safety improved over 2 years, these mostly didn't explain their changes in walking, cycling and physical activity. In fact the large majority of the changes could be explained by a simple causal pathway driven by the use of the new routes. This suggests that the physical improvement of the environment *itself* was the key to the effectiveness of the intervention.[17] Interviews with local authorities, cycling groups and building contractors suggested that the visibility, scale and design of the schemes and the contrast they presented with existing infrastructure may also have influenced their use.[18] Ultimately, even though its effect is powerful, infrastructure alone is unlikely to overcome all barriers to physical activity: a supportive environment is likely to be 'necessary but not sufficient', and many interventions to improve the environment for walking or cycling have been too tentative to have any effect.[19]

5.4 Active travel in children can be supported by many of the infrastructural interventions that favour adults. Furthermore, provision of safe streets or natural and challenging outdoor environments for children to engage in activity is associated with more physical activity. Whilst community playgrounds could form part of this environment, activity does not necessarily have to be formally organised: research using GPS data has found that children who spent more time outside the home were more active.[20] Children are more active in school if grounds are more supportive (playground markings, playground equipment, marked sports pitches and tracks, wildlife garden etc.)[21]

6. The built environment and diet

6.1 As with physical activity, greater consideration is required of the impact of the built environment on diet. Food availability is often related to how existing buildings are used, for example through licencing decisions. However, new buildings and neighbourhoods are planned with consideration of food availability, so it is important

that dietary health is taken into account by planners, particularly because of the potential effect on health inequalities

6.2 An example is the proliferation of takeaway food outlets. Over the past decade, consumption of food outside the home has increased by almost a third[22], and the rise in the number of takeaway food outlets has been greatest in areas of socioeconomic disadvantage. For instance, in Norfolk between 1990 and 2008, the number of takeaway food outlets rose by 45%, from 265 to 385 outlets, equating to an increase from 2.6 outlets to 3.8 outlets per 10,000 residents. The highest absolute increase in density of outlets was in areas of highest deprivation, which saw an increase from 4.6 outlets to 6.5 outlets per 10,000 residents (a 43% increase). This is in contrast to areas of least deprivation, which saw an increase from 1.6 to 2.1 per 10,000 residents over the time period (a 30% increase).[23]

6.3 Data from the MRC Fenland study reveals how the density of takeaway food outlets relates to health. Individuals in the dataset were exposed to an average of 32 takeaway food outlets (and as many as 165), with exposure greatest near workplaces. Those with the highest exposure consumed an additional 40g of calorific food per week (equivalent to half a small portion of takeaway French fries), relative to the least exposed. Those with the highest takeaway exposure were also almost twice as likely to be obese as those least exposed.[24] Data also showed that highest takeaway food outlet exposure was only significantly associated with likelihood of obesity among those least educated. This suggests that neighbourhood takeaway food environment modification may be particularly effective for groups of low socioeconomic status, which may help to reduce health inequalities.[25]

6.4 National Child Measurement Programme and ONS data also indicate that children living in areas surrounded by fast food outlets are more likely to be overweight or obese.[26]

6.5 Spatial distribution of supermarkets and other food stores does not disadvantage poor consumers overall in urban areas. However, some consumers (older, with limited mobility, without access to a car) remain disadvantaged.[27] The proliferation of supermarket convenience stores with more limited and expensive food ranges than out of town stores therefore requires examination for its impact on food choice.

6.6 This evidence all adds to the case for the role of both national and local action on shaping the food environment. The health-impact of takeaways is recognised by a number of policy bodies including the Greater London Authority[28], NICE[29] and Public Health England[30]. A number of Local Authorities, including Waltham Forest and Barking & Dagenham, are already regulating the proliferation of new takeaway food outlets. As with physical activity, a stronger national framework for consideration of dietary health within the built environment would be welcome.

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