

Quantifying the social costs of health impacts from urban housing developments

Background

The link between the quality of urban environment and health has become better understood recently, but there remains a disconnect between research evidence and real world action. A key part of linking research with action lies in how we as a society value things.

As a key part of a 3-year pilot, we show how the social costs of these health outcomes can be defined in monetary terms using representative examples of large-scale urban developments in the UK.

Results

Characteristics of housing design

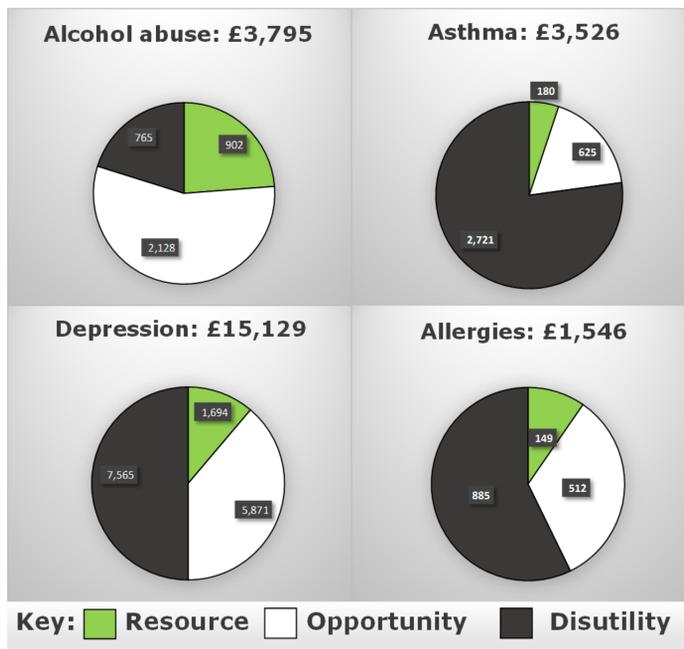
Based on evidence from case studies from a range of urban housing developments in the UK, we developed four different types of urban design context:

Urban Central (good), Urban Central (poor), Urban Fringe (good), Urban Fringe (poor).

These typologies include features from five main themes: Buildings, Neighbourhood Design, Natural Environment, Food and Transport. Within these themes we have grouped characteristics into several key features, such as walkability, air quality and access to green space.

Social cost of illness

Components of societal costs vary widely between individual health outcomes, but direct health costs are only a small percentage of the total cost. The pie charts below represent annual values per case as an example to indicate how the proportions of component differ for different conditions:



Annual costs per case of health outcomes associated with specific improvements in the built environment

Worked example: Open Space (Urban Fringe)

The following values represent the range of annual cost savings (per 1,000 residents) related to defined improvements in health which are likely to be seen in areas which have improved access or proximity to high quality green space.

Additional health benefits may also arise from increases in activity, cycling and life satisfaction.

The Value of Open Space:

Mortality:	£535,000 — £1,758,000
Diabetes:	£22,000 — £672,000
Mental health:	£21,000 — £514,000

Discussion

Transfer of values

The method uses values transferred from studies which investigate a link between the built environment and health outcomes across an international spread of contexts. These results were applied to a standard population of 1,000 people, based on average UK demographics and prevalence of disease.

It is recognised that the same results may not be repeated in every context. For example; green space in the heart of a large urban centre such as London may perform differently compared to a smaller urban centre such as Worcester.

Disutility

A significant proportion of the societal cost of illness is the disutility value; a measure of the value of the intangible cost of illness, or the pain and suffering associated with a disease. Unlike health care costs or productivity, disutility is primarily borne by the individual sufferer and their family. The challenge will be to help decision makers not just look at the direct costs of illness, but to recognise the wider impact of health.



Health outcomes associated with Open Space

Co-morbidity

Even in the example of Open Space alone we have found that many of the health outcomes identified have significant associations with each other. We have sought to value only the specific health outcome measured by the study, such as diabetes. We have not included associated diseases.

Where health outcomes include multiple elements (such as activity) the calculation has been adjusted to reflect that some elements of cost may overlap between illnesses.

Conclusion

We have shown an example value of just one aspect of the built environment (open space), but once the project is complete we aim to value around twenty characteristics of housing design for each of our four development typologies.

This represents a comprehensive and accessible method for valuing the impact of design features using a common metric, which will help to inform decision-making.

Although the costs of health do not necessarily fall directly onto those delivering our urban environments, the case for incorporating design elements which improve health is made clear.

This valuation work forms part of the UPSTREAM project, which is funded by the Wellcome Trust. The project aims to advance methods for moving health upstream into urban development decision-making. Results are expected in October 2018.

For more information about the project contact Ben Williams at the University of the West of England
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METHOD

ECONOMIC VALUATION: HEALTH

The number of changes in cases was forecast for a standard population, using results from studies on associations between health and housing design. The value to society of these changes in illness was then calculated.

HEALTH IMPACT

Studies on health and housing were taken from a systematic literature review. Findings from these studies were identified which describe an increase/ decrease in risk of having an illness, normally given as OR/RR (odds ratio or risk ratio). These findings were used to model the expected impact on disease prevalence in a standard population.

SOCIAL COST OF ILLNESS

The societal cost of each health outcome is made up of three components:
Resource Costs (Direct costs such as health care)
Opportunity Costs (Indirect costs such as lost productivity)
Disutility Costs (a value which monetises the cost of pain and suffering)



HEALTH IMPACT multiplied by the SOCIAL COST OF ILLNESS gives a value for the effect that housing has on health.

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