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HOUSING STANDARDS AND NHS COSTS

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1 - ORIGINS OF THE RESEARCH – THE CEHI PROGRAMME

In 1993, following collaboration on a ‘Know How’ Housing Advisory Project in Bulgaria, a multi-disciplinary team of urban regeneration practitioners and academics decided to initiate a UK research programme that would explore both theoretically and empirically an issue that was perceived to be one of the gaps in our understanding - the nature, extent and monetary value of the ‘cross-sectoral’ costs to other services generated by poor housing conditions. The Cost-effectiveness in Housing Investment (CEHI) research programme was based first at the Centre for Urban and Regional Research at the University of Sussex and latterly at the Health and Social Policy Research Centre at the University of Brighton. The author has directed the programme since its inception. A Management Committee chaired by Stephen Hill of Capital Action Ltd (a Bulgarian Advisory Team member) has overseen the work.

The aims of the CEHI programme are as follows:

- to show that investment in more and better quality housing will produce more than commensurate reductions in ‘cross-sectoral’ costs falling on budgets other than housing
- to identify, systematise and where possible evaluate these cost savings
- to identify what forms of additional investment in housing quality will be most cost-effective
- to promote a more informed debate at all levels on these issues

A wide range of public, private and voluntary organisations, providers of social housing, some health agencies and professional institutions, including the Royal Institution of Chartered Surveyors, showed immediate interest in these aims and provided funding to initiate the work.

An early task was to define precisely what was meant by ‘better quality housing’. Following discussion a fully worked out definition was arrived at (Ambrose, 1996). A brief and cross-culturally acceptable version of this definition was found in a work by Seedhouse (1986):

‘A satisfactory housing standard is one that provides a foundation for, rather than being a barrier to, good physical and mental health, personal development and the fulfilment of life objectives.’

Poor quality living conditions and health

The interface between living conditions and health is a complex one and it was accepted from the beginning by the CEHI team that it would be futile to seek to demonstrate any simple ‘cause/effect’ relationships. Nevertheless evidence gathered from many studies shows clear patterns of association between poor conditions - for example cold, damp, infestation, noise, poor air quality and overcrowding - and an increased incidence of ill health (see Thomson et al. 2001 for a review of the literature). Whether these conditions derive from inadequate regulation of housing

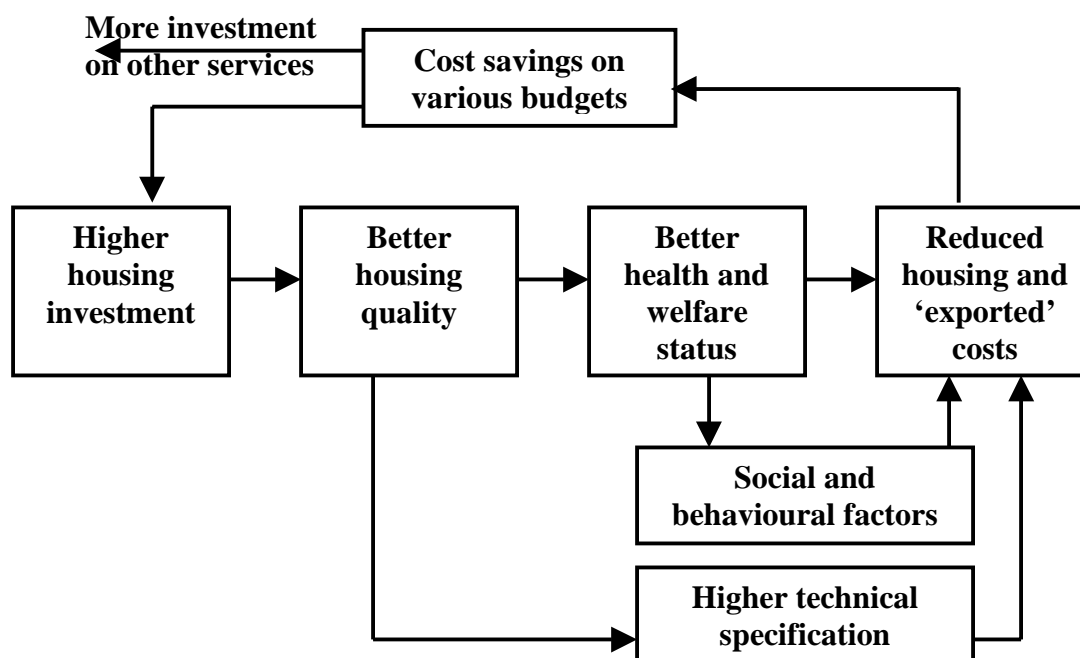
standards, poor construction, poor maintenance – all stemming from under-investment – or residents' 'lifestyle' (as argued by some) is not the immediate issue. This paper focuses on outcomes – on the associations between poor housing standards and poor health and on the increases in costs generated by poor health.

Non-housing outcomes and 'exported costs'

It is obvious that a high incidence of ill-health must, *inter alia*, generate increased costs for health services. These are already under increasing strain in Britain and other European countries as a result of various factors including ageing populations and user expectations (see the comprehensive collection of essays edited by BurrIDGE and Ormandy, 1993 and the pioneering work on the health costs costs issue by Boardman, 1991, Carr-Hill et al., 1993 and Lawson, 1997). But it was argued by the CEHI team that the issue is broader than this since poor living conditions can be expected to generate additional costs not only to health services but also to other key service providers including:

- the **education service** (because poor, overcrowded and noisy home conditions impede learning)
- the **police and judicial services** (because poor housing and environmental design and construction is associated with a higher incidence of some crimes)
- the **emergency services** (because poor housing conditions and 'secondary heating' increase accident and fire risks)
- the **energy supply services** (because poorly designed housing uses excess energy and produces ecological damage).

The CEHI team termed these costs '*exported costs*' because they are generated by under-investment in one sector (housing in this case) and then 'exported' to others. The logic can best be shown with a diagram showing how they can be reduced:



The literature search

Over three hundred research studies examining these issues were reviewed as an early part of the CEHI programme of work (Ambrose, Barlow, et al., 1996). A large literature was found on the housing/health relationship although, because of the lack of control groups and the problem of confounding variables, very few of these studies claim to demonstrate causal relationships in any fully evidenced way (the same point was noted in Phibbs 2000 in a very useful review of research findings). The literature on the relationship between housing conditions and the incidence of crime, particularly the levels of crime suffered in poorer areas, is a growing one. But once again the studies are much stronger on demonstrating patterns of association than causal mechanisms. Finally the literature linking home conditions with educational progress was found to be rather thin and underdeveloped. Interestingly it was found that a previous UK Health Minister had already argued the CEHI case in the early 1920s and had even set the Registrar General the task of putting figures on some of the effects (Addison 1922). It appears not to have happened since.

The CEHI programme had by this time reached the point when some empirical enquiry, and the development of some case study evidence, was required.

2 - THE STEPNEY HEALTH GAIN PROJECT 1995-2000

In view of the progress made in terms of theoretical development and literature coverage, the CEHI team was commissioned in 1995 by the London Borough of Tower Hamlets (in inner east London) to carry out a 'Health Gain' study to compare the health status of a population before and after a major urban improvement programme. The area to be improved was two estates in central Stepney, the Limehouse Fields and Ocean Estates. These have a largely Bangladeshi population living, at that time, in some of the worse housing in London. The intervention incorporated a tenure change in that the previous stock was council owned and managed and the new housing was developed by three housing associations. The programme was managed by the Stepney Housing and Development Agency (SHADA). A review of the various research projects is available (Ambrose 2002).

The regeneration was part of the Central Stepney Single Regeneration Budget (SRB) improvement programme. The Government's SRB policy marked a shift towards broader intentions in urban renewal and one explicit aim was to plan investment strategies to produce benefits not only to the built environment but also in social and economic conditions (Hill and Barlow, 1995). These broader intentions placed a premium on research, such as the CEHI work, which sought to evaluate the costs of *not* planning investment in a cross-departmental and holistic manner.

The 'before' Health Gain survey in 1996

The 'before' element in the study was carried out over in the winter of 1995/6. A random 10% sample of households was selected (107 households with 525 residents) and these were interviewed using an intensive survey methodology. The technique was to collect data on the self-reported health of all household members, and a range of other issues, using a detailed interview schedule. The work was carried out by bilingual pairs of interviewers since 83% of the population spoke Sylheti as a mother

tongue. Each household was visited several times over a five month period. This facilitated a build up of trust between researchers and household members. The response rate was about 95%. The housing conditions encountered in this 'before' survey were extremely bad and a high incidence of ill-health was recorded (Ambrose, 1996):

- over 47% of the rooms were damp
- 69% of the population reported that the heating did not keep them warm enough
- over one third of households suffered from infestation from cockroaches and pharoah ants
- the room density was well over the legal limit at 1.43 people per room
- the 107 households reported 280 Illness Episodes over the survey period
- these Episodes produced 29,114 Illness Days, about 37% of the total person/days
- the main ill-health suffered was coughs and colds, aches and pains, asthma and bronchial problems, digestive disorders and depression.

The relationships between on the one hand (a) dampness, (b) lack of warmth and (c) accommodation needing repairs and, on the other, the incidence of coughs and colds were all significant at the 99% level. Damp households and cold households experienced over twice the rate of Illness Episodes than dry and warm households. Residents themselves, when specifically asked about the matter, overwhelmingly regarded Illness Episodes as 'Very closely related ' to housing conditions and especially to poor and expensive heating systems and damp penetration.

In order to explore the cost implications of these conditions, and to see to what extent residents' views on the housing/health link were substantiated by professionals, a round of interviews was carried out with over fifty local providers of health, education, law and order and other services in the area. Almost without exception both managers and frontline professionals in these services also considered that the poor conditions, especially cold and damp, poor repairs records and excessive noise, greatly increased the call on their services and/or reduced their capacity to deliver as good a service as they wished. Cost database limitations meant that few service agencies were yet in a position to give an accurate picture of by just how much their costs were increased for these reasons but all indicated that they would very much like to develop their Information and Communication Technology systems in order to ascertain this more accurately.

Indirect processes

These two 1996 surveys, one of residents and one of service providers, enabled the team to conclude that very direct associations existed between poor living conditions and a number of adverse outcomes and that there were good reasons to believe them to be causal. They also identified a number of 'indirect' processes that worked to compound the problem and further reduce the health status of populations in very poor and stress-laden environments. These included:

1. Lowered resistance to illness, and longer recovery times, related to long exposure to poor conditions

2. The adoption of health-threatening habits such as smoking sometimes as a means of coping with the stressful conditions rather than as a chosen life-style.
3. A reduction in self-organising capacity, for example in accessing health and other services and complying with courses of treatment, related to the continual stress of living in a poor environment and to limitations on mobility.
4. The unproductive diversion of specialist expertise and time (for example the time spent by doctors in writing 'housing letters' or by teachers in giving 'social work' support).

Cost comparisons with a comparator area - 1996

It was found that the increased use of primary care and hospital services in central Stepney appeared to be adding substantially to National Health Service (NHS) costs compared to those generated in a comparator area of recently improved housing in Paddington (an inner urban area of west London). Here, using identical survey methodology over almost the same period, but on a smaller and unmatched sample, the rate of Illness Days was about one seventh that in Stepney.

An exploratory assessment of the differences in costs generated carried out by the economists in the CEHI team (Barrow and Bachan, 1997) indicated that the annual healthcare costs per household (primary care plus some hospital costs) were £515 in the Stepney sample and £72 in the Paddington sample – *a difference by a factor of about 7*. Similarly the cost differences per household resulting from certain categories of crime were £380 in Stepney and £85 in Paddington – *a difference by a factor of about 4.5*. Part at least of these dramatic difference can be regarded as costs 'exported' from the housing sector to the NHS and Police budgets.

The 'after' Health Gain survey in 2000 - a seven-fold reduction in Illness Days

The 'after' household survey in the Central Stepney SRB area was carried out in early 2000 on households that had previously been interviewed in the 1996 'before' study and had been either rehoused, or had their existing housing conditions improved, under the SRB programme. All households re-interviewed had been in their new homes for at least one year so they could be regarded as fully settled in. As a result of imposing this 'qualifying period', the loss of some households to other areas and the dissolution of others over the four year intervening period only about half the households interviewed in 1996 were available for re-interview. The methods and interview schedule used were identical in both surveys. The second sample showed very similar demographic, benefit dependence and other characteristics to the first so the health changes recorded may be taken as real rather than as reflecting differences between the two samples.

The results of the 'after' survey indicate very clear and dramatic improvements in health standards (Ambrose 2000). The incidence of Illness Episodes was slightly higher, but far fewer of them resulted in a visit to the GP or medication. Since the average length of Illness Episodes was much shorter, and very few people said they

felt ill all the time, the rate of Illness Days per person/day fell from 0.37 (over one in three) to 0.05 (one in twenty) – a seven fold improvement.

Illness Days	1996	2000
Number of people in sample	525	227
Survey period in days	150	75
Person/days	78,750	17,025
Illness days	29,114	926
Illness Days per person/day	0.37	0.05

A seven-fold improvement in a significant health indicator may be regarded as inherently unlikely were it not that the ratio of Illness Days found in 1996 between Stepney (poor housing) and the comparator area of Paddington (improved housing) was also approximately seven to one – as was the ratio of health costs generated per household (Bachan and Barrow, 1997). Thus both the chronological and the synoptic study found much the same results.

The positive changes in health between 1996 and 2000 can clearly be associated with the improvements carried out under the SRB programme. Overcrowding is much reduced. Damp and cold conditions are much less prevalent, although they still affect around one third of the population. Infestation is less of a problem. Opinions on the repairs record and housing management services are generally much more positive. The list of improvements required by residents is much shorter than previously and some of the problems raised are transitional and will clearly be solved once the SRB programme is completed (see full results in Ambrose 2000).

Other benefits of the SRB Programme

The surveys included a range of questions on issues other than housing and health (for a fuller account of the outcomes see Ambrose 2000). Following the SRB improvements there is both a materially reduced fear of crime and improvements in children's progress at school:

How serious is local criminal activity? (%)	1996	2000
Very serious	31.8	28.0
Fairly serious	40.2	18.0
Not really serious	14.0	16.0
No problem	9.3	32.0
Don't know	4.7	6.0
Total	100.0	100.0

'Progressing as expected at school?' (%)	1996	2000
Yes fully	39.3	54.0
Rather less well than expected	14.0	14.0
No very poorly	1.9	2.0
No children at school	44.8	30.0
Total	100.0	100.0

The significant increase in the number of children doing fully as well as expected at school is encouraging. Those households not fully pleased with their children's progress were asked for reasons for the poor performance. In 1996 the reasons given were nearly all to do with conditions at home, especially the lack of space and peace and quiet to do homework. In the 2000 survey very few parents mentioned these problems. The most frequent reasons cited were now large class sizes, lack of teachers and the turnover of teachers.

It is reasonable to believe that the reduced fear of crime reflects a reduced incidence of crime and that this must be relieving pressures on police budgets. Similarly the higher satisfaction level with children's progress at school are to a degree reflecting the better home conditions and the result is a better return for educational expenditures. Unfortunately the time and resource constraints of the 2000 'After' survey precluded a round of interviews with service providers (as carried out in 1996) that could have thrown some light on these issues.

Continuing problems with 'mainstream' services

The 2000 'After' survey also revealed some continuing problems, primarily related to the quality of 'mainstream' services. Residents report poorer access to most health and hospital services, less ease of contact with the police and an increase in class sizes in schools. These all appear to derive from reductions in some areas of mainstream spending on health, education and law and order. It may well be that some of the health gain from the SRB Area-based Initiative is being undermined by reductions in the local quality of these key services. Another issue is the health effects that the apparent impoverishment of services might be having on residents elsewhere in Tower Hamlets who are *not* benefiting from the SRB programme (which covers only 10% of the Borough). These findings cast doubt on the more general effectiveness of 'area-based initiative' renewal strategies (see Ambrose 2000, sections 5-9 for a critique of these strategies).

3 - THE STEPNEY HOUSEHOLD COSTS PROJECT 2000-2001

During the course of the 'After' survey it was noted that many households now rehoused to better standards in new RSL (housing association) properties reported steep increases in their rent, Council Tax (local property tax) and water charges. These increases would no doubt have been higher had it not been for the Stepney Charter – a document agreed by all parties to limit rent rises for the first five years in the first instance. The cost rise effects were also noted by SHADA and other frontline housing staff. If these extra household costs have the effect of driving more people deeper into the 'benefits trap' (thus increasing the problems of entering the labour market) and/or lead to households having less money to spend on items such as food then the positive health effects of the SRB programme could well be undermined. As a result SHADA and the Borough of Tower Hamlets commissioned research to assess the cost increase effects. The Stepney Household Costs Project was begun by the PPRU (Public Policy Research Unit) at Queen Mary University of London who were subsequently joined by the HSPRC (Health and Social Policy Research Centre) at Brighton University (for a full report see Ambrose and MacDonald 2001).

A survey of 131 households was carried out (Stage 1) followed by a much more intensive survey of 20 of these households (Stage 2). For the latter survey the fieldwork was carried out by the Limehouse Project, a local advice and information agency with multi-lingual capacity. Their team was briefed to act both as researchers and where necessary as advisors. The task was to collect the necessary detailed information on all aspects of household finances, to check that all appropriate benefits were being claimed and to ensure that all advantageous utilities tariffs were known about. The necessary steps were taken where this was not the case.

Key findings from the Household Costs Surveys

- Very few adults were in work and high benefit dependency impeded entry to work
- Other barriers to entering work included self-perceived shortcomings in training, etc.
- Households now enjoy much better space standards and improved housing quality
- Allowing for standardisation for space, and the effects of local rent inflation, rents for the Stage 2 survey households have risen by an average of 14.8%
- Most households have moved up the Council Tax banding
- 6 of the 20 Stage 2 households are now above the Council Tax Benefit cap (Band E)
- Water charges (now metered) have risen by £1.62 per week for the Stage 2 households
- Taking all costs together, the Stage 2 households are facing cost increases averaging nearly 27% (or £22.87 per week)
- Residents felt there should have been more advance information about cost increases
- 6 of the 20 Stage 2 households are having to economise on food and other spending.

When the aggregate weekly cost increase for the 20 Stage 2 households was analysed by category of cost it was found that the higher rents in the new RSL and other improved homes accounted for over 75% of the total increase:

Cost category	Aggregate weekly £ cost increase	% of combined increase (£499.64)
Council Tax	93.11	18.6
Rent	376.85	75.4
Gas/electricity	-42.21	-
Water	29.68	6.0
Total	£457.43	100.0

4 - DEVELOPING THE CEHI ARGUMENT

The evidence from the various case studies shows that the physical quality of the house or flat itself is but one factor among many that are likely to affect health status.

Certainly some basic ‘freedom froms...’ need to be ensured – for example freedom from:

cold and damp
fear and increased levels of personal risk
risk of accidents relating to poor design or maintenance
noise and other environmental irritants
poor indoor and outdoor air quality
overcrowding
stigmatisation and harassment, etc.

But these can be seen as *necessary but not sufficient conditions* for better health outcomes. Physical and mental health is also intimately related to social isolation, poor nutrition, lack of secure employment, unequal power relationships between residents and ‘gatekeepers’ (whether in housing or other fields) and debilitating levels of stress and frustration.

One of the products of empirical studies in Stepney and elsewhere was the development of a more thoroughly worked out matrix of about 40 cost categories and headings where the volume of costs felt was likely to be affected to some degree by the quality of the living environment. This systematisation is regarded as an essential step along the path to fuller quantification.

For reasons given earlier there is no assertion here of *direct causal relationships* between living conditions on the one hand and health and other outcomes on the other. Instead it is argued *that systematic and to a degree predictable patterns of association* exist between the quality of the built environment and the health status and other cost-generating outcomes observed.

The Costs Matrix

Some of the health and other service costs which might reasonably be expected to be higher in areas of poor living conditions are set out in the matrix below and categorized in different four ways. The categorising dimensions are:

1. **Capital Costs** versus **Revenue Costs**.
2. **Costs to Residents** felt on the personal finances of individuals versus **External Costs** felt by service providers of one kind or another (although some of the latter no doubt work through to the individual in the form of higher taxes and service charges).
3. **Systemic Costs** that impact regularly, and sometimes imperceptibly as life is lived versus **Formalised Costs** felt in more visible and formalised ways as in the annual bid for funds by a service whose funding formula recognises the high cost of service delivery in run-down areas or in the form of special response programmes in ‘run down’ areas.
4. **Degree of measurability** – costs can be tentatively ordered in terms of their susceptibility to accurate measurement. The categories adopted here are:

- H** **Hard** - costs that can be precisely quantified given adequate access to data
- M** **Medium** - costs that could be quantified given better cost datasets
- NQ** **Non-quantifiable** - costs that clearly exist but are currently non-quantifiable

A matrix of costs whose levels can be related to poor living conditions

	COSTS TO RESIDENTS	EXTERNAL COSTS
Systemic - Capital	high annual loss of asset value on owner-occupied property (H)	high annual loss of asset value for landlords of rented property (H)
Systemic - Revenue	poor physical health (H to M) poor mental health (M to NQ) social isolation (NQ) high home fuel bills (H) high insurance premiums (H) uninsured contents losses (H) spending on security devices (H) living with repairs needed (NQ) under-achievement at school (M) loss of future earnings (M) personal insecurity (NQ) more accidents (M) poor 'hygienic' conditions (NQ) costs of moving (H) adopting self-harming habits (M)	higher Health Service costs (H to NQ) ditto higher care services costs (M) high building heating costs (H) high insurance payments (H) spending on building security (H) high housing maintenance costs (H) extra costs on school budgets (H) homework classes at school (H) loss of talents to society (NQ) high policing costs (H to M) high emergency services costs (H) high Environmental Health costs (H) disruption to service providers (M) special health-care responses (H)
Formalised - Capital		Government and EU programmes, SRB, New Deal, etc. (H)
Formalised - Revenue		Local authority 'Statements of need' (H) Education, Police and NHS funding formulae (H) Fire and Ambulance services funding formulae (H) Housing Investment Programmes (H)

A systematisation of this nature not only illustrates the possible range of 'exported costs' but also prompts numerous questions which require further examination, for example:

- how is the cost of poor living conditions distributed between residents and service providing agencies?
- of those felt by the latter, which agencies bear most costs?
- which agencies might therefore save most as a result of increased investment in housing?

- which costs are currently poorly recorded or measured?
- how do revenue costs and capital costs compare in terms of 'weight'?
- what *forms* of increased investment in better housing might most reduce both housing costs-in-use and 'exported costs'?

By identifying a range of more measurable costs (H), the matrix also gives some guidance concerning the most promising ways to continue the task of evaluating 'exported costs'

5 - CONCLUSIONS

1. Both the synoptic and the chronological elements in the Central Stepney 'health gain' project demonstrated a clear positive association between housing conditions and health status.
2. The synoptic element gave clear indications that these differences in health status are reflected in differentials in per household costs generated for the NHS.
3. It follows that investment in sufficient housing of a quality to safeguard health should be seen as a preventative healthcare measure.
4. But quality alone is not enough - the household costs project assessed the increased costs faced by households following the improvements in housing quality and identified a number of ways in which these cost increases might begin to undermine the health gains.
5. It is entirely plausible that a wide range of other costs under health, education, policing and other budgets are increased as a consequence of poor housing conditions.
6. These possible cost consequences of inadequate housing provision require further research as a matter of urgency.
7. This research has not so far been undertaken because there is at present an insufficiently developed understanding of the ways in which housing, planning, healthcare, benefits, employment and regeneration policies inter-relate – in other words policy development is insufficiently holistic.

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