

Briefing Paper

Homes and ageing in England

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This Briefing Paper has been produced by the Building Research Establishment (BRE) on behalf of Public Health England. It builds on the work of the BRE Trust project 'The costs of poor housing to the NHS'. It aims to help the various professionals and academia working in the field of housing and/or health.

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Foreword - Public Health England

Good housing is essential to health and wellbeing. It also plays a crucial role in supporting other determinants of good health such as educational attainment, employment prospects and social interaction.

The recent changes to the health system, with local authorities now responsible for public health and with the establishment of Local Health and Wellbeing Boards, provide a great opportunity to build more integrated approaches to improvements in prevention and reductions in need for costly health care.

There is a strong case to be made for prevention through core housing improvements. This briefing note adds to our wider understanding of the close relationship between poor housing for older people and demands on NHS care. It builds on the previous publication by BRE (The cost of poor housing to the NHS) and provides much needed evidence that can be used by local government and health services in respect of older people. It is very relevant to the preparation of Joint Health and Wellbeing Strategies, through using this new information to help build a strong cross-agency housing dimension to health plans and for understanding the returns on investment that can be made across sectors.

Public Health England welcomes this publication by the BRE as a significant contribution to the understanding of the connections between housing and health. We hope that this will engender wider discussions around health and wellbeing, healthcare costs, prevention and the role which good housing plays in underpinning the health and wellbeing of older people.

Professor Kevin Fenton
National Director of Health and Wellbeing
Public Health England

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Overview

This paper uses English Housing Survey (EHS) data¹ and the research methodology used for the BRE Trust briefing paper on 'The costs of poor housing to the NHS'² to provide an overview of the housing conditions of older people, and to estimate the cost to the NHS in England, of the poor housing occupied by the older population. This older population is examined by four key age bands; 55 to 64 years, 65 to 74 years, 75 years and over and 80 years and over³.

It is hoped that this paper will be of interest to various professionals and academia working in the field of housing and/or health, for example,

- Health and Wellbeing Boards, local housing, public health, NHS and social care commissioners, to help inform integrated commissioning and service delivery
- Local and national providers of housing, health and care intended to improve the health and wellbeing of people as they age, such as Age Concern, Care and Repair England
- National policy makers involved in the development of housing, health and social care strategies, particularly those at the Department of Communities and Local Government and the Department of Health.

Key messages:

- Over one fifth of all older household groups (21-22%) lived in a home that failed to meet the Decent Homes standard in 2012. 815,000 households aged 55-64 lived in a non-decent home, as did 652,000 households aged 65-74 and 533,000 households aged over 75 (including 312,000 households aged over 80 years old).
- 780,000 households aged 55 years and over were in fuel poverty; 11% of households aged 55-64 years of age and 6% of all other older household groups were in fuel poverty.
- There were 1.3 million households aged 55 years and over who lived in a home with at least one Category 1 hazard, namely a home that did not meet the minimum standard for housing in England. Around 13-14% of each age band lived in a home with at least one of these serious hazards.
- BRE estimates that, for older households aged 55 years or more, the cost of poor housing to the NHS (for first year treatment costs) is £624 million with these costs dominated by excess cold hazards and those associated with falls (on stairs and on the level).
- The proportion of older households living in a home with all four accessibility features (level access, flush threshold, WC at entrance level and sufficiently wide doors and circulation space) was similar for all aged groups, ranging from 4% (aged 55-64 years) to 7% (aged 80 years or over). Around a fifth of homes occupied by all the age groups aged 65 years and over had none of these key features, and this proportion was higher for households aged 55-64 years (24%)

¹ EHS 2011+2012 combined years data has been used for the analysis

² <http://www.bre.co.uk/filelibrary/pdf/87741-Cost-of-Poor-Housing-Briefing-Paper-v3.pdf>

³ These age bands refer to the age of the household reference person (HRP) in the EHS

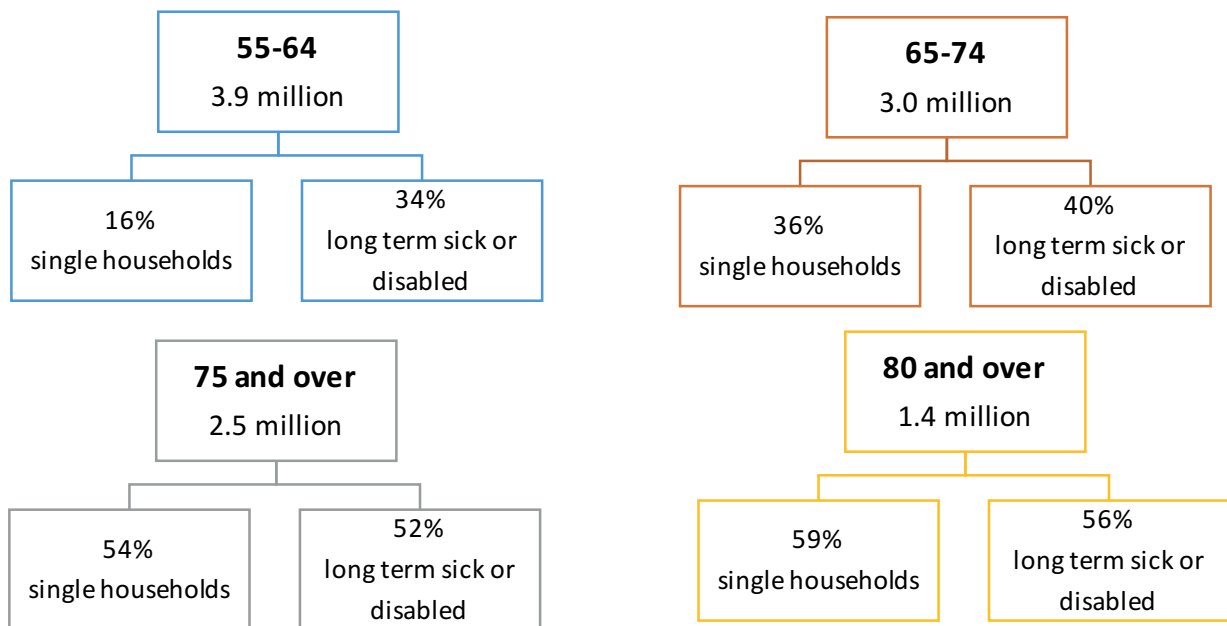
Household characteristics

In 2011, around 4% (337,000) of the population aged 65 years and over were living in communal residential establishments. About one in ten men and one in five women aged 85 and over lived in this type of home⁴. As the EHS does not include institutional residences this report excludes the housing circumstances of the minority of older households who lived in residential care homes.

In 2012, England comprised of around 21.9 million households. Of these, approximately 9.5 million (43%) were aged 55 years or over. This briefing paper examines these 9.5 million households by four key age bands in order to examine any notable differences among older households.

The number of households in each of the four key age bands is provided in Figure 1, together with the percentage of each group that lived alone and the percentage who indicated, from the EHS interview survey, that they (or a member of their household) had a long term illness or disability that reduced their ability to undertake daily activities.

Figure 1 – Age of household by household composition and long term illness, 2012

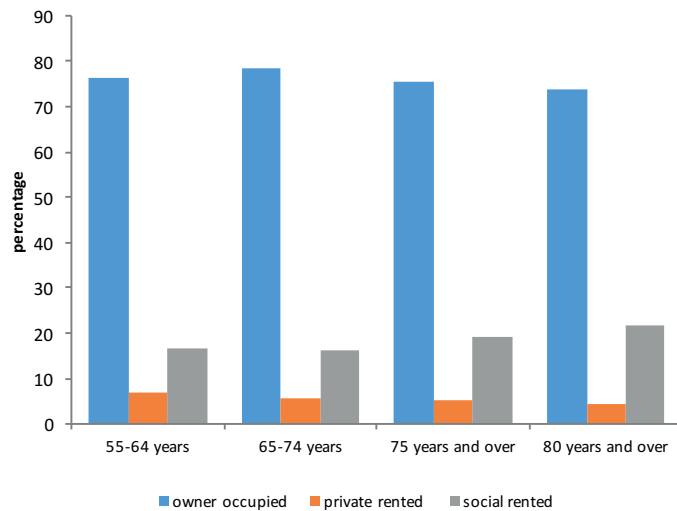


Dwelling characteristics

This section provides some background information on the tenure and types of homes occupied by older households as these dwelling characteristics may explain any disparity in housing circumstances experienced. Around three quarters of older households (in each of the

four age groups) were owner occupiers and the vast majority of renters occupied social sector homes. Only 5 to 7% of older households were privately renting.

Figure 2 – Tenure by household age band, 2012



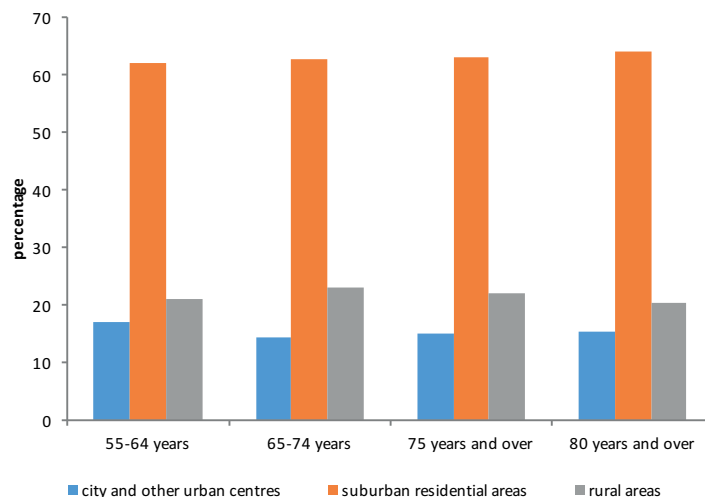
Around 19% of households aged 55-64 years and around 14% of the other older age groups lived in homes built before 1919 (see Appendix 1). These oldest homes are more likely to have aspects of poor housing, for example, higher levels of disrepair, poorer energy efficiency, and a greater likelihood of having one or more serious (Category 1) hazards under the Housing Health and Safety Rating System (HHSRS).

A similar proportion of older aged groups lived in a newer home built after 1980; ranging from 20% of households aged 55-64 to 18% of households aged 80 years or over (see Appendix 1).

Around 21% of households aged over 80 years lived in a flat (predominantly a purpose built low rise flat), but this proportion was lower (ranging from 14-17%) for other older households. There was a relationship between household age and living in a bungalow, often designed with older people in mind; some 10% of older households aged 55-64 years lived in this type of home and this proportion rose to 24% for households over 80 years of age (see Appendix 1).

Around a fifth (20-23%) of all older households lived in rural areas⁵. Generally speaking rural homes are older and so, for example, suffer from greater disrepair and poorer energy efficiency.

Figure 3 – Dwelling location by household age band, 2012



⁵ This compared to 14% of younger households under 55 years of age

Housing Conditions

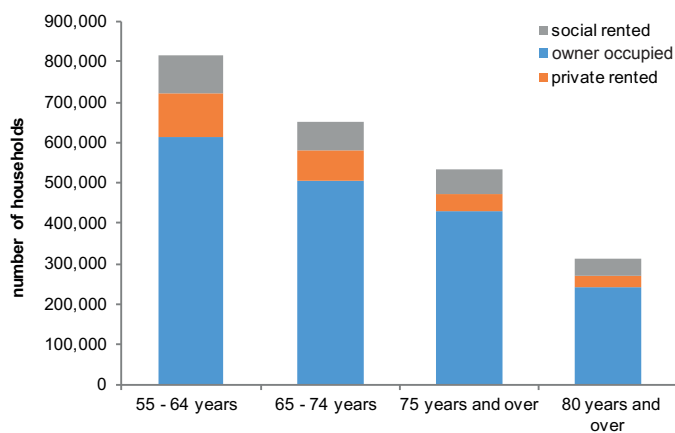
Many studies have investigated the relationship between housing and health but, because of the number of intervening factors, such as income or educational attainment, it is difficult to demonstrate clear and measurable 'cause and effect' relationships. Nevertheless, there is a

large and growing body of evidence linking adverse health effects with poor housing conditions. These include the effects of living in a cold home, the impact of noise and household accidents.

Decent Homes

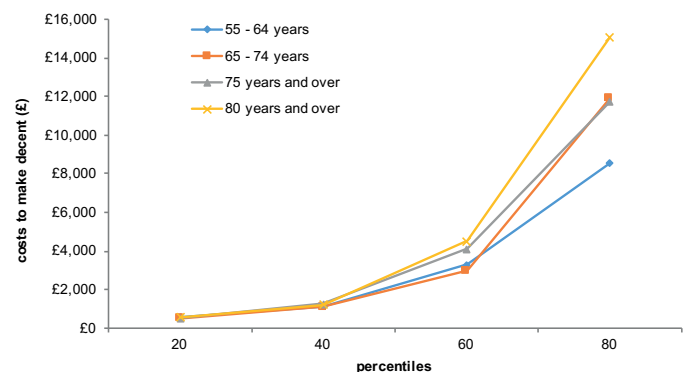
Over one fifth of all older household groups (21-22%) lived in a home that failed to meet the Decent Homes standard in 2012. The main reason was failure to meet the minimum standard for housing, that is, a home contained at least one Category 1 hazard under the HHSRS. Due to the predominance of home ownership among older households and the investment in social housing through Decent Homes' works, it is not surprising that the vast majority of non-decent homes were privately owned homes, Figure 4.

Figure 4 – Number of non-decent homes by household age band and by tenure, 2012



The EHS estimates that the average cost to make these homes decent for each aged household group was £5,585 (55-65 years), £6,592 (65-75 years), £6,131 (75 years and over) and £7,269 (80 years and over). However, for many of these older households the cost of bringing these homes up to the Decent Homes standard was relatively inexpensive, with 20% of homes requiring around £500-£600, Figure 5.

Figure 5 – Distribution of the costs to make decent by household age, 2012



BRE Trust research on the cost benefits to the NHS of the Decent Homes programme (Garrett et al. 2014) used the methodology from 'The real cost of poor housing' (Roys et al. 2010), to further demonstrate the financial benefits of housing investment. Case study 2 illustrating this is found later in this briefing note.

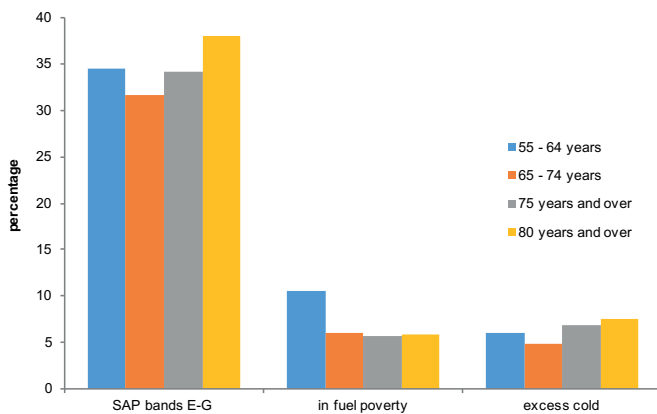
Living in a cold home

Living in a cold home can have a significant adverse effect on the physical and mental well-being of occupants. This section looks at three indicators that can measure how far older households can heat their homes to a suitable level of warmth; energy efficiency rating (SAP)⁶, HHSRS Category 1 cold hazard and fuel poverty⁷.

The average SAP rating for all homes in England was 59 in 2012. Figure 6 includes the proportion of older households, in each age band, that lived in homes with the poorest energy efficiency (SAP band E to G, rating 1 to 54). This ranged from 32% of households aged 65-74 to 38% of households aged 80 years and over⁸.

The EHS assesses HHSRS excess cold using modelled energy efficiency data and is categorised as a home where SAP is lower than 33.5⁹. The most vulnerable people at risk from excess cold are aged 65 year or over. Around 8% of households aged 80 years or over (106,000) lived in a home with a risk from excess cold.

Figure 6 – Cold homes indicators by household age, 2012

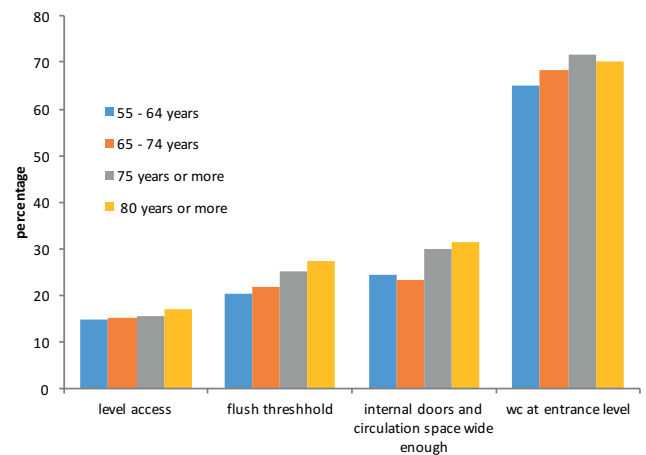


It is also important that older households can afford to heat their homes. In 2012 there were 2.3 million households in fuel poverty in England and 780,000 (34%) of these were aged over 55 years of age. Around 11% of households aged 55-64 years of age experienced fuel poverty but this proportion was lower (6%) for all other older household groups, Figure 6.

Accessibility

This section examines the ‘visitability’ of homes occupied by older households, based on four key accessibility features assessed for the EHS; level access, flush threshold, WC at entrance level and sufficiently wide doors and circulation space. Figure 7 shows the proportion of homes with each feature for the household groups. Whilst the presence of a WC at entrance level was present for over 68% of all older households, far fewer had level access (15-17%), a flush threshold (20-27%) or sufficiently wide doors and circulation space (23-32%) at their homes. Lack of these features may lead to an increase risk of a fall or lack of mobility around the home, owing to health difficulties.

Figure 7 – Accessibility features by household age, 2012



The proportion of older households living in a home with all four of these features was similar for all aged groups, ranging from 4% (aged 55-64 years) to 7% (aged 80 years or over). Around a fifth of homes occupied by all the age groups over 65 years had none of the key features, and this proportion was higher for households aged 55- 64 years (24%).

6 The energy cost rating as determined by Government’s Standard Assessment Procedure (SAP) and is used to monitor the energy efficiency of dwellings. It is an index based on calculated energy costs for a standard heating regime and is expressed on a scale of 1 (highly inefficient) to 100 (highly efficient with 100 representing zero energy cost).

7 The Hills definition of fuel poverty has been used for this analysis. This method takes account of housing costs and the depth of fuel poverty or the ‘fuel poverty gap’ (the difference between a household’s required fuel costs and what these costs would need to be for them not to be in fuel poverty).

8 The comparative figure for households below 55 years was 27%.

9 This cut-off for excess cold uses the SAP12 methodology

Poor housing as assessed by the HHSRS

Almost 3 million dwellings in England had at least one Category 1 hazard, and around 1.3 million of these were in homes occupied by households aged 55 years or more. Figure 8 provides information on the number of Category 1 hazards in homes occupied by each age group. The proportion of homes with at least one Category 1 hazard was similar across different aged households at around 14%, Figure 9.

The two most common Category 1 hazards were excess cold (Figure 6) and risks from falls, most commonly those associated with stairs (the most vulnerable people at risk from falls on stairs are those aged 60 years or over). Around 5% of households over 80 years of age lived in a home with a serious risk of a fall and this proportion was a little higher (7%) for those aged 55-64 years and 65-74 years. These findings are likely to reflect the different distributions of accommodation type among these older household groups. A higher proportion of the oldest households (those aged 75 years or over) lived in flats or bungalows, both of which are less likely to have serious falls hazards.

Figure 8 – Number of Category 1 hazards and any Category 1 falls hazard by household age, 2012

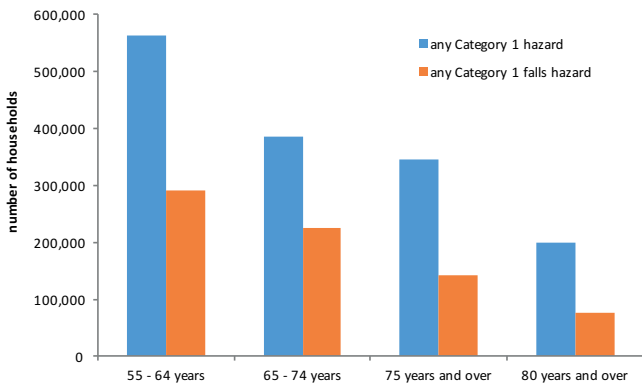
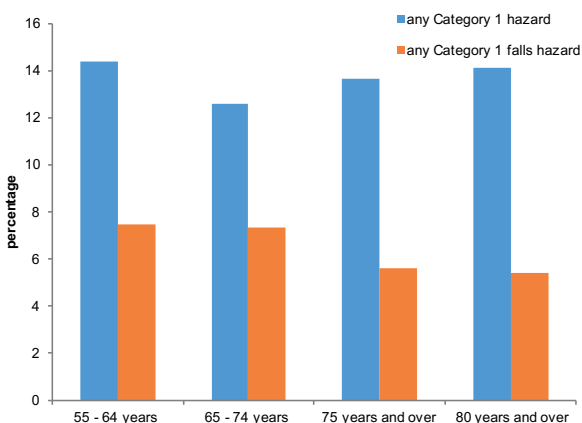


Figure 9 – Percentage of Category 1 hazards and any Category 1 falls hazard by household age, 2012



The costs to the NHS of poor housing among older households

Using NHS data and HHSRS data from the EHS, the 2010 BRE research into the total costs of poor housing in England estimated that it was costing the NHS some £600 million per annum in first year treatment costs to leave people living in the poorest housing in England. The modelling underpinning this report has been updated and details on the changes in methodology and early key findings can be found in the BRE briefing paper on 'The costs of poor housing to the NHS', which estimated the cost of poor housing to be £1.4 billion. For this briefing paper on homes and ageing, the model has been adapted to look at all households aged 55 years or more. As this model used EHS combined 2010+2011 data, the incidence of Category 1 hazards will be different to those given in the previous section.

It is estimated that the cost to the NHS, in first year treatment costs, of the poorest housing among older households is £624m (Table 1). The total cost of remedial is around £4.3 billion, a huge sum, but one which would pay for itself in around seven years.

The most common Category 1 hazards found in homes of older people were excess cold (690,000) and falls on stairs (467,000), which together accounted for around 80% of these hazards. Undertaking all the work to reduce the risks of excess cold is the most expensive, almost £3 billion, and comprises 70% of the total repair costs to address all of the poorest housing. Nonetheless, mitigating the risks of excess cold would also result in the highest NHS savings of £440 million, around 70% of the total estimated savings, and the work would pay for itself in around seven years.

Repair work to remedy the Category 1 hazards from falls on stairs and falls on the level will also have a notable impact on estimated

health expenditure savings. The average cost of repair work for these two hazards is estimated to be £982 and £792 respectively. Some of work can, however, be relatively inexpensive (£200-£500) for example, providing additional lighting, repairing or installing handrails to reduce the risk of falls on stairs. Repairing floors and paths to reduce the risk of falls on level surfaces can also be undertaken at relatively low cost. Conversely, redesigning internal or communal staircases to flats or redesigning a large area of external pathway will be more expensive. Overall, work to remedy these Category 1 hazards would pay for itself in around 6.5 years and 4.5 years respectively.

The model assumes that all the repairs are conducted 'up front' to eliminate poor housing. The benefits to the NHS from the suggested repair work are cumulative over time. That is to say the benefit in mitigating poor housing to the NHS is an annual benefit, and this will continue into the next year and the year following that, provided that the repair continues to mitigate the additional risk; it is not possible to provide a time period on the expected longevity of the repair work for each hazard as this will vary considerably. Similarly, the cost of doing nothing is cumulative with time; those dwellings where no repairs are conducted will continue to cost the NHS in subsequent years until repairs are made.

In summary, therefore, if we could find monetary investment now to improve the 1.4 million 'poor' homes occupied by older households in England, this would save the NHS £624 million in first year treatment costs alone. It is estimated that such an investment would pay for itself in just under seven years and then continue to accrue benefits into the future.

Table 1: The cost and benefits to the NHS, of reducing HHSRS Category 1 hazards to an acceptable level for households aged 55 or more

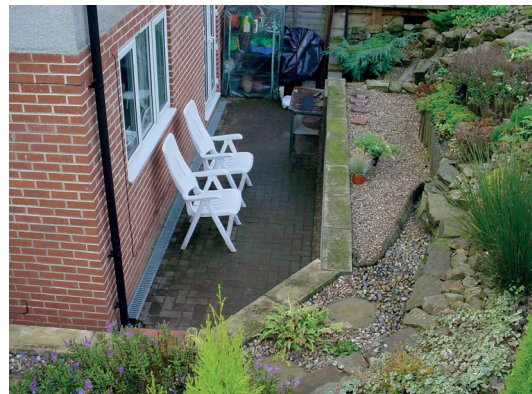
Hazard	Number of Category 1 Hazards	Average repair cost per dwelling	Total cost to repair	Savings to the NHS per annum if hazard fixed	Payback (years)
Excess cold	689,666	£4,344	£2,995,907,903	£441,564,353	6.78
Falls on stairs	467,776	£989	£462,535,027	£71,609,794	6.46
Falls on the level	197,177	£792	£156,129,838	£34,700,172	4.50
Falls between levels	93,723	£1,134	£106,290,746	£17,519,361	6.07
Fire	33,325	£4,115	£137,132,934	£12,725,126	10.78
Collision and entrapment	27,664	£592	£16,369,553	£5,898,263	2.78
Falls - baths	36,013	£486	£17,487,933	£7,254,790	2.41
Dampness	11,385	£7,523	£85,653,060	£3,325,961	25.75
Hot surfaces	55,985	£1,871	£104,731,366	£7,868,316	13.31
Lead	41,927	£1,677	£70,306,239	£5,194,893	13.53
Entry by intruders	11,576	£1,180	£13,665,167	£3,226,578	4.24
Radon	63,518	£1,127	£71,568,454	£5,329,649	13.43
Sanitation (Personal hygiene)	20,138	£1,119	£22,539,641	£2,336,281	9.65
Food safety	15,373	£961	£14,781,003	£1,782,264	8.29
Pests (Domestic hygiene)	13,442	£709	£9,531,479	£1,612,639	5.91
Overcrowding	509	£16,748	£8,524,561	£48,943	174.17
Noise	1,230	£1,137	£1,398,960	£349,771	4.00
Carbon monoxide	3,751	£508	£1,907,042	£364,193	5.24
Structural collapse	1,169	£288	£336,667	£100,569	3.35
Electrical problems	2,692	£2,111	£5,681,466	£360,016	15.78
Ergonomics	3,288	£470	£1,544,131	£395,108	3.91
Un-combusted fuel gas	2,246	£523	£1,175,477	£212,525	5.53
Lighting	0	£0	£0	£0	0.00
Water supply	0	£0	£0	£0	0.00
Excess heat	0	£0	£0	£0	0.00
Explosions	0	£0	£0	£0	0.00
All dwellings with a Category 1 hazard	1,431,482	£2,990	£4,279,628,929	£623,779,566	6.86

Note: The total number of dwellings with a Category 1 hazard is different to that provided in the 'Poor housing as assessed by the HHSRS' section. The above cost of poor housing model uses EHS 2010+2011 data.

Case studies

Case study 1

Cost-benefit of remedying a Category 1 fall on stairs hazard



This is a modern, owner occupied, semi-detached property in a suburban area. It has a Category 1 hazard due to falls on stairs. It is occupied by an retired couple aged 68 years that have lived in the property since it was built in the early 1990s. The rear garden is on a slope, with access in the form of steep steps including those at the side of the property.

The property needs additional external lighting and the installation of handrails and balustrades in order to remedy the Category 1 hazard.

Cost to repair (Category 1 fall on stairs) =£533

Savings to the NHS=£153

Payback period= 3.48

Case study 2

Decent Homes' improvements- Three bedroom mid-terrace local authority home with solid walls (Category 1 excess cold hazard)

This home, occupied by a couple over 60 years of age, was classed as 'hard to treat' due to its solid walls. It was very energy inefficient and assessed as a Category 1 excess cold hazard. As part of Decent Homes works, it benefitted from internal solid wall insulation, additional loft insulation, double glazing, a heating upgrade (including upgraded heating controls), and electrical rewiring, as well as a new kitchen and bathroom. The cost of the Decent Homes work alone was in the region of £7,600 and additional government funding allowed for the insulation of the solid walls.



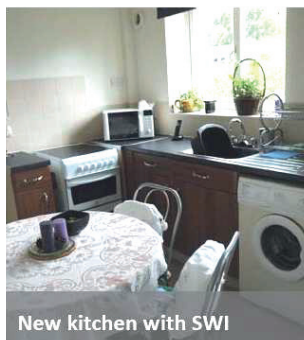
Kitchen before work started



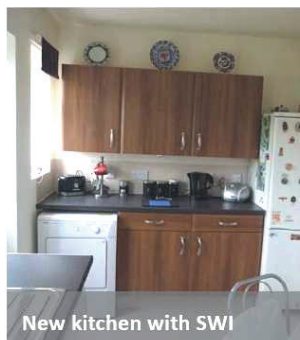
Kitchen before work started



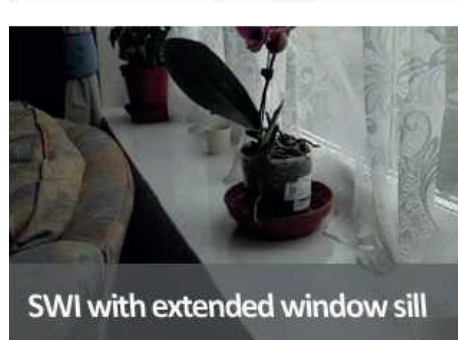
New bathroom with SWI



New kitchen with SWI



New kitchen with SWI



SWI with extended window sill

Before Decent Homes works:

- SAP = 20
- Annual fuel cost = £1,332
- HHSRS Band = A

After Decent Homes works:

- SAP = 77
- Annual fuel cost = £533
- HHSRS Band G

Cost savings to NHS pa = £676

Payback to NHS = 11.2 years

Accumulated cost savings to NHS 2005-2010 = £3,380

Accumulated fuel cost savings to occupiers 2005-2010 = £3,995

References

DCLG (2014) English Housing Survey 2012

<https://www.gov.uk/government/collections/english-housing-survey>

Garrett M, Davidson M, Roys M, Nicol S and Mason, V (2014) Quantifying the health benefits of the Decent Homes programme. BRE FB 64. Bracknell, IHS BRE Press

Nicol S, Roys M, Garrett H (2014) The cost of poor housing to the NHS.

<https://www.bre.co.uk/filelibrary/pdf/87741-Cost-of-Poor-Housing-Briefing-Paper-v3.pdf>

Roys M, Davidson M, Nicol S, Ormandy D and Ambrose P (2010) The real cost of poor housing. BRE FB 23. Bracknell, IHS BRE Press

Appendix 1

Dwelling age, dwelling type and area by different age bands, 2012

	under 55 years	55-64 years	65-74 years	75 years and over	80 years and over	all households
<i>thousands of households</i>						
dwelling age						
pre 1919	2,750	734	438	363	203	4,286
1919-44	2,163	639	496	385	206	3,683
1945-64	2,272	767	673	709	411	4,421
1965-80	2,131	982	873	600	329	4,587
1981-90	971	359	321	218	136	1,869
post 1990	2,157	418	262	253	114	3,090
dwelling type						
small terraced house	1,543	236	194	139	79	2,111
medium/large terraced house	2,664	655	441	289	147	4,049
semi detached	3,246	1,100	769	588	301	5,703
detached	1,787	929	700	443	253	3,858
bungalow	363	404	518	631	329	1,916
converted flat	654	84	57	62	37	857
purpose built flat, low rise	1,921	431	357	348	236	3,057
purpose built flat, high rise	268	61	27	28	17	385
dwelling area						
city and other urban centres	2,943	669	438	379	217	4,429
suburban residential areas	7,803	2,414	1,920	1,594	896	13,732
rural areas	1,699	816	704	555	286	3,774
all dwellings	12,445	3,899	3,063	2,528	1,399	21,935
<i>percentages</i>						
dwelling age						
pre 1919	22.1	18.8	14.3	14.4	14.5	19.5
1919-44	17.4	16.4	16.2	15.2	14.7	16.8
1945-64	18.3	19.7	22.0	28.1	29.4	20.2
1965-80	17.1	25.2	28.5	23.7	23.5	20.9
1981-90	7.8	9.2	10.5	8.6	9.7	8.5
post 1990	17.3	10.7	8.6	10.0	8.2	14.1
dwelling type						
small terraced house	12.4	6.0	6.3	5.5	5.7	9.6
medium/large terraced house	21.4	16.8	14.4	11.4	10.5	18.5
semi detached	26.1	28.2	25.1	23.3	21.5	26.0
detached	14.4	23.8	22.9	17.5	18.1	17.6
bungalow	2.9	10.4	16.9	25.0	23.5	8.7
converted flat	5.3	2.2	1.8	2.4	2.6	3.9
purpose built flat, low rise	15.4	11.1	11.7	13.8	16.9	13.9
purpose built flat, high rise	2.2	1.6	0.9	1.1	1.2	1.8
dwelling area						
city and other urban centres	23.6	17.2	14.3	15.0	15.5	20.2
suburban residential areas	62.7	61.9	62.7	63.0	64.0	62.6
rural areas	13.6	20.9	23.0	22.0	20.5	17.2
all dwellings	100.0	100.0	100.0	100.0	100.0	100.0

Source: English Housing Survey, household sub sample

Appendix 2

Any Category 1 hazards and any Category 1 falls by household age, 2012

	under 55 years	55-64 years	65-74 years	75 years and over	80 years and over	all households
	<i>thousands of households</i>					
HHSRS						
any Cat 1 hazard	1,700	562	385	345	197	2,992
any Cat 1 falls hazard	1,120	291	226	142	75	1,779
	<i>percentages</i>					
HHSRS						
any Cat 1 hazard	13.7	14.4	12.6	13.7	14.1	13.6
any Cat 1 falls hazard	9.0	7.5	7.4	5.6	5.4	8.1

Source: English Housing Survey, household sub sample

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BRE Trust

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