

Warm Well Families: Rotherham Final Report

CRONIN DE CHAVEZ, Anna, TOD, Angela, HOMER, Catherine, NELSON, Pete, STOCKS, Amanda and POWELL-HOYLAND, Vanessa

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Warm Well Families: Rotherham Final Report

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A four letter word: cold.

A four letter word: warm.

I was told not to use four letter words.

But I am (four letter word).

I want to be (four letter word).

by Ian McMillan



Acknowledgements

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Fuel Poverty is:

- Sometimes the reason children don't attend school
- Sometimes the reason children are ill
- Sometimes the reason adults are physically and/or mentally unwell
- Sometimes the reason people are in debt
- Sometimes why people are socially isolated
- Sometimes why houses seem unkempt and not looked after.

Sue Barratt CEO, GROW

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Foreword

Living in a cold home harms the health of babies, children and teenagers. Growing up in a cold home can impact on weight gain, development and emotional wellbeing. Living in fuel poverty directly affects people's ability to afford decent food. The likelihood of suffering from respiratory illnesses such as asthma is more than doubled for children living in a cold home. Teenagers are more likely to participate in risk taking behaviours outside the home and their risk of developing multiple mental health problems is increased by cold homes. Educational achievement can be negatively affected as living in overcrowded or damp housing means children are more likely to miss school. Cold homes are also known to impact on resilience and emotional well-being which will ultimately worsen life chances. Ultimately growing up in cold damp homes will have a real effect on a child's health, learning and enjoyment of life.

The Warm Well Families research has added to our knowledge and understanding of the very real challenges families in Rotherham face on a day to day basis. It has explored the complex interaction of living in a cold home and the choices families have to make to protect their children's health. Through this increased insight into the experiences, attitudes, values and beliefs of adults living in households with children who suffer from asthma we can develop strategies and services to better support families to protect themselves from the harm caused by living in cold homes.

We have recognised how important reducing levels of cold homes are for Rotherham and we have prioritised fuel poverty in the Rotherham Health and Wellbeing Strategy. This research will help us further meet our aim of ensuring more of our residents achieve, keep safe and well by living in warmer homes.



Dr John Radford

Director of Public Health,



Joyce Thacker

*Strategic Director of Children and
Young Peoples Services*

Executive Summary

Introduction

This report presents emerging findings from a research project funded by Rotherham Public Health (previously NHS Rotherham). The Warm Well Families Project in Rotherham aimed to explore factors influencing the ability of households with children who have asthma to keep warm at home in winter and access help. We examined the experience, knowledge, beliefs and values of adults living in households with children who have asthma regarding keeping warm at home.

Background

For 2011 and using the low income high cost measure of fuel poverty around 2.39 million households in England were identified as fuel poor (DECC 2013), representing approximately 11% of the population. Fuel poverty rates for Rotherham are slightly higher at 10.1%. A safe household temperature is usually 21°C for the main living area, and 18°C for other occupied rooms. The key drivers behind fuel poverty are the energy efficiency of the property, the cost of energy and the income of the household.

Living in cold, damp housing is linked to health problems. Children living in cold homes are at increased risk of respiratory illness, colds and flu, mental health problems, low self esteem and confidence (Marmot Review Team, 2011, Department of Health 2013). Cold housing for children also lowers educational attainment, emotional well-being and resilience, has negative impacts on dietary opportunities, nutrition and food choices and increases risk of accidents and injuries in the home (Marmot Review Team, 2011). Asthma in particular is made worse by cold, damp homes. Poorly heated homes have more serious damp problems, leading to more allergens that worsen asthma symptoms and severity of attacks (Nibhanipudi et al 2009; Razzouk et al 1998; Somerville et al 2000). Cold temperatures also increase the number of respiratory infections and so exacerbate asthma.

The UK has one of the highest incidences of paediatric asthma in the world. The UK average for asthma prevalence is 5.9% (YHPHO 2012a & b). Rotherham has twice the national average for England for years of life lost due to asthma mortality (Healthy Ambitions 2011).

Despite the above indication of negative health impacts cold homes have on families and households with children, little is known about decision making and factors influencing heating behaviour in those homes. How do parents of children with chronic health conditions such as asthma manage with keeping a warm and mould free home? The focus of this current study is therefore on households with children with asthma. This is because of the direct health impact of cold weather on children (Marmot Review team 2011).

Design and methods

The study is an in-depth, qualitative exploration of factors influencing the decisions and behaviour of vulnerable households with children regarding keeping warm and well at home. Individual and group interviews have been used along with temperature measurement in homes, consultation methods and framework analysis techniques. The different methods used captured the views and experience of adults living in households with children who have been diagnosed as having asthma and also professionals working with families to ensure we obtained an accurate understanding of factors that influence keeping warm.

Research activity in the study is summarised below.

- Consultation with staff from a range of organisations including children's centres, Rotherham Foundation Trust, Rotherham Metropolitan Borough Council (RMBC), housing associations, financial inclusion and voluntary sector.
- 18 parents from households with at least one child who has asthma. One later withdrew leaving a household sample of 17. Recruitment was through local authority parent support workers, GROW (a local charity), education welfare officers, Childrens Centres, a fuel poverty project manager and the Integrated Youth Support Service from RMBC
- Temperature and humidity measurements were taken in two rooms in the house using Tiny Tag ultra 2 devices in the homes (the bedroom of the child with asthma and the main family living room) for two weeks prior to the interview
- In the period December 2012 to May 2013, 17 parents from households with children with asthma were interviewed in-depth
- 14 staff were interviewed from a range of health, social care and voluntary sector organisations who work with vulnerable families
- Two focus groups were held with a total of 14 front line staff participants from a range of health, social care and voluntary sector organisations who work with vulnerable families
- One focus group has been held with seven young people aged 18-20 years old, including some care leavers
- One focus group has been held with eight schoolchildren aged between 8-11 years.

Findings

The different data revealed a range of themes which explain the complex world within which families operate and the barriers they encounter in relation to keeping warm. Key themes were:

- Contextual factors e.g. type of home and income
- Social factors e.g. the nature and quality of social contact and support
- Behaviours e.g. the behaviours and coping strategies of families employed to keep warm and manage household budgets
- Attitudes and beliefs, including fear of debt, priorities and beliefs regarding asthma, cold and health
- Knowledge and awareness on cold temperatures, heating systems, getting help and trusted sources of information.

Household, parent and children

Factors relating to limited household income, fuel poverty and other variables all impacted upon asthma.

Households varied in terms of knowledge and behaviours regarding heating and health, as well as asthma. There was a variation in knowledge about safe temperatures and avoiding asthma triggers. Some parents were aware that condensation caused by drying laundry contributed to damp. However parents also acknowledged they were limited in their ability to reduce condensation. They had few alternatives to drying clothes indoors. Advice they received was not always helpful, and sometimes confusing or contradictory. Variations in home temperatures were identified across and within homes.

Fuel was prioritised as a household expenditure. Most participants limited their fuel use and prioritised times when the children were home. An on/off approach was adopted based on subjective feeling of hot or cold as thermostats or timers were not available. For some the temperature in the child's bedroom was very low and the humidity high. Those who reported damp did not always have very humid homes. In some cases the temperature was as low as 8.9° C and the majority of the homes had extensive periods of time below the recommended healthy temperatures.

Disconnection was something to be avoided at all costs. Most of the interviewees were on low income whether unemployed or on low wages. For all there was a pervasive fear of debt 'not managing', of 'getting behind'. High bills were to be avoided. For that reason a pre-payment card was often the desired method of payment despite the knowledge that it may be more expensive than other payment methods. Not facing a large unpredictable bill was important to participants in maintaining control when budgeting on a low income. Consequently disconnection by external agencies is avoided but self-disconnection becomes a regular feature of life, one to be managed in the same way as other life choices. The process can include degrees of self-disconnection, for example not heating particular rooms at all, not heating particular rooms at specific times and not heating the house at all. There would also be periods of total

self-disconnection where the family had no cash left and were awaiting their next salary or benefit payment. The requirements of managing finances lead to competing priorities and consequences with self-disconnection a key management tool.

Focusing on how families manage their heating also revealed conflicts of thermal comfort between different ages and genders. Mothers reported feeling cold the most but they also spent more time in an unheated house than partners or children. Children would want the heating turned off when they went to bed because they were too hot and parents would use blankets to stay warm in a cold living room downstairs. Teaching children about keeping warm and healthy through dressing and heating was also a process and children could sometimes, with or without permission, interfere with the parents' optimum energy choices of heating and lighting use.

The study revealed numerous ways that families navigated confusion or conflicting messages regarding their behaviour regarding home heating, preventing damp and mould or managing asthma. Sometimes advice between professionals differed. Other examples showed how family's knowledge and beliefs may oppose that of staff groups. This created a minefield for families in terms of knowing what the best course of action should be.

Staff

The findings from the staff interviews and focus groups indicate a range of comparable themes to the household interviews but there were differences in how family behaviours are understood and explained. One manifestation of this is in the complex interplay between low income, high fuel bills and household priorities. Some staff valued what was important is helping families budget appropriately, for others the structural restraints of government policy, rising fuel costs and payment methods and the consequent effect on expenditure and pattern of fuel use were more important influences. There was also much debate about how to help families living with damp caused by condensation.

Key messages

The research demonstrated very powerfully how parents were constantly assessing their family's needs against the resources available to them. Many of the parents interviewed displayed high levels of ability and skills in the way they controlled, managed and allocated limited budgets and planned ahead for expenditure. Evidence was seen of parents working their way through conflicting and confusing information or advice, negotiating with professionals and taking different approaches when faced with barriers in the way of what they wanted to achieve. Parents were also seen, not only to manage their own time and resources, but also provide help and support for extended family and friends. In return, they also turned to peers and family for support and advice.

In summary key messages are:

- Cold, damp and mould are seen as significant problems both by household members and by staff from a range of professions and over a range of service user groups
- Damp and mould are prevalent in cold poorly ventilated homes
- The temperature of the home has a reported impact on the wellbeing of the inhabitants
- Heating, temperature of the home and levels of humidity and damp are reported as affecting the health of children with asthma.
- There is a complex interplay between heating systems and equipment and patterns of heating use. Where there is no thermostatic control or timer it can be easier and cheaper not to use the heating at all or to engage in an inefficient stop start pattern.
- Fuel is prioritised as a household expenditure, but is one priority amongst many.
- For families on a low income paying for fuel and keeping the home warm is problematic.
- These families have a pervasive fear of debt, of getting behind and not managing.
- Management is a key concept for families - in particular managing the complex interplay between low income, high fuel bills, household priorities and child health and wellbeing.
- To solve the problem of providing a warm home and paying for fuel, families make use of a range of strategies. These include:
 - self-disconnection
 - a pragmatic heating pattern of peaks and troughs
 - wearing more clothes in the home
 - rigid budget management
 - choosing a method of paying for fuel which provides control and avoids large bills
 - being out of the house
 - seeking support from families and friends
- Families were reluctant to seek professional help irrespective of agency.
- The need to 'juggle' or manage priorities against resources often meant the parents were making 'trade-offs'. It is proposed that these trade-offs drive behaviour and, in conjunction with the parent's ability to take positive actions when faced with difficult circumstances or challenges, are ultimately the governing factors that will determine the level of vulnerability to illness for that child.

Considerations for Professionals

The focus group discussions indicated that vulnerable households need information that is easy to understand. There was a strong message that much existing information on how to manage and alleviate fuel poverty was not sufficiently accessible, useable or able to keep up with rapid changes in schemes. The notion of 'visual messages' was stressed where the benefits of taking a specific form of action could be clearly seen.

Families on low incomes are by necessity experts in budget management and to bring about changes in behaviour positive benefits must be clearly evidenced. We can learn from this data to develop clear messages regarding financial inclusion and household budgeting.

Many participants were concerned about "damp" properties and mould. Data from households, alongside that from staff and focus groups should inform the development of acceptable and assessable messages and interventions regarding preventing the build-up of condensation and mould.

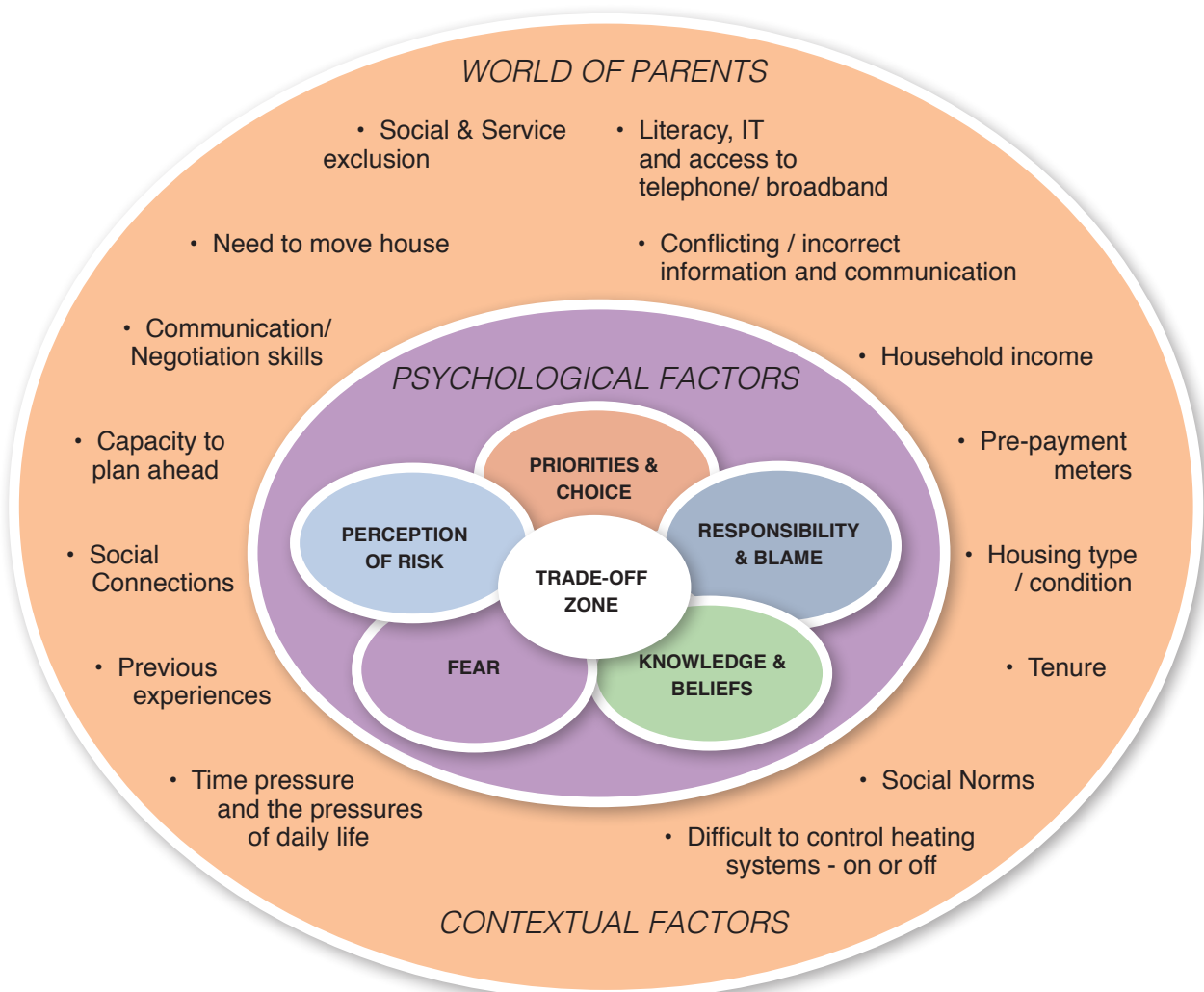


A Trade-off Zone

This research identifies a range of influences that may place a child being at risk of illness associated with living in a cold home, a home with fluctuating temperatures, damp conditions or mould. The need to 'juggle' or manage priorities against resources in this way often meant the parents were making 'trade-offs'. It is proposed that these trade-offs drive behaviour and, in conjunction with the parent's ability to take positive actions when faced with difficult circumstances or challenges, are ultimately the governing factors that will determine the level vulnerability to illness for that child.

The model (figure 6) below represents some of the contextual and psychological factors found in the research and help professionals understand how similar challenges may lead to different behaviour outcomes within different families.

To assist professionals to gain further understanding and therefore target interventions more effectively, a basic segmentation model has also been developed along with some pen-portraits. These can be used as an educational tool for staff working with vulnerable families.



Conclusion

This project has generated findings to help people working in public health, policy and practice understand the complex network of factors that influence how households make decisions regarding keeping warm at home. This project is one of few that examine the lives of families in relation to fuel poverty and affordable warmth. Whilst it does provide valuable insight, ongoing research is essential to examine the impact of fuel poverty, energy price rises and welfare reform on health of different segments of the population, as well as better understand the perspective of children and the influence of cold on people with clinical conditions that would make them vulnerable to the impact of cold homes.



Introduction

This report presents findings from a research project funded by Rotherham Public Health (previously NHS Rotherham). The Warm Well Families Project in Rotherham aimed to explore factors influencing the ability of households with children with asthma to keep warm at home in winter and access help. We examined the experience, knowledge, beliefs and values of adults living in households with children with asthma regarding keeping warm at home.

The project was conducted in partnership with the Warm Well Families Project in Doncaster, funded by NHS Doncaster and Consumer Futures. This report presents findings from the Rotherham site only. A second report will be produced with findings from Doncaster.

Following a brief overview of background and methods, a summary of the main findings is produced. Also included is a “trade-off” model to help understand the complex psychosocial and contextual influences at play for families with asthma, vulnerable to the cold. Recommendations for interventions and action to identify vulnerable families and reduce cold related risk and harm are presented at the end.

This project builds on the success of the Keeping Warm in Later Life project (KWILLT)(Tod et al 2012). KWILLT was funded by the National Institute of Health Research. It developed valuable insight into the factors influencing older people’s decisions and which conspire against older people being able to keep warm. Pen portraits, a DVD and e-learning materials were developed from KWILLT findings. (www.kwillt.org)

Background

Fuel poverty

In the UK a household was said to be in fuel poverty if it needs to spend more than 10% of its income on fuel to maintain a safe temperature (Marmot Review Team, 2011). This is usually 21°C for the main living area, and 18°C for other occupied rooms. The key drivers behind fuel poverty are:

- The energy efficiency of the property (and therefore, the energy required to heat and power the home)
- The cost of energy
- Household income

The government has recently set out a new definition of fuel poverty which it intends to adopt under the Low Income High Costs (LIHC) framework (DECC 2013a). Under the new definition, a household is said to be in fuel poverty if:

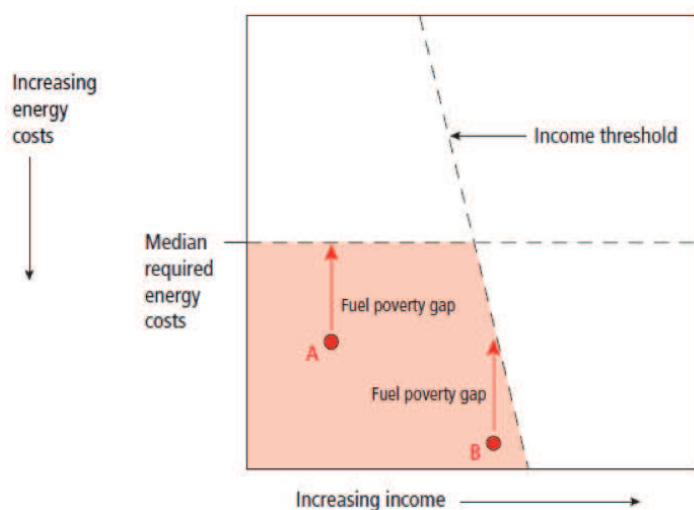
- They have required fuel costs that are above average (the national median level)
- Were they to spend that amount they would be left with a residual income below the official poverty line.

The low income high cost indicator consists of two parts:

- The number of households that have both low incomes and high fuel costs (the bottom left quadrant in the diagram below);
- The depth of fuel poverty amongst these households. This is measured in terms of a fuel poverty gap, which represents the difference between the modelled fuel bill for each household, and the reasonable cost threshold for the household. This is summed for all households that have both low income and high costs to give an aggregate fuel poverty gap.

Using the LIHC indicator, (see figure 1) fuel bills are now equalised by the number of people in the household, rather than the household composition (e.g. lone parent, couples with dependent children). This is to reflect the fact that different sizes of households will have a different required spend on fuel.

Figure 1: Representation of the Low Income High Costs indicator and fuel poverty gap



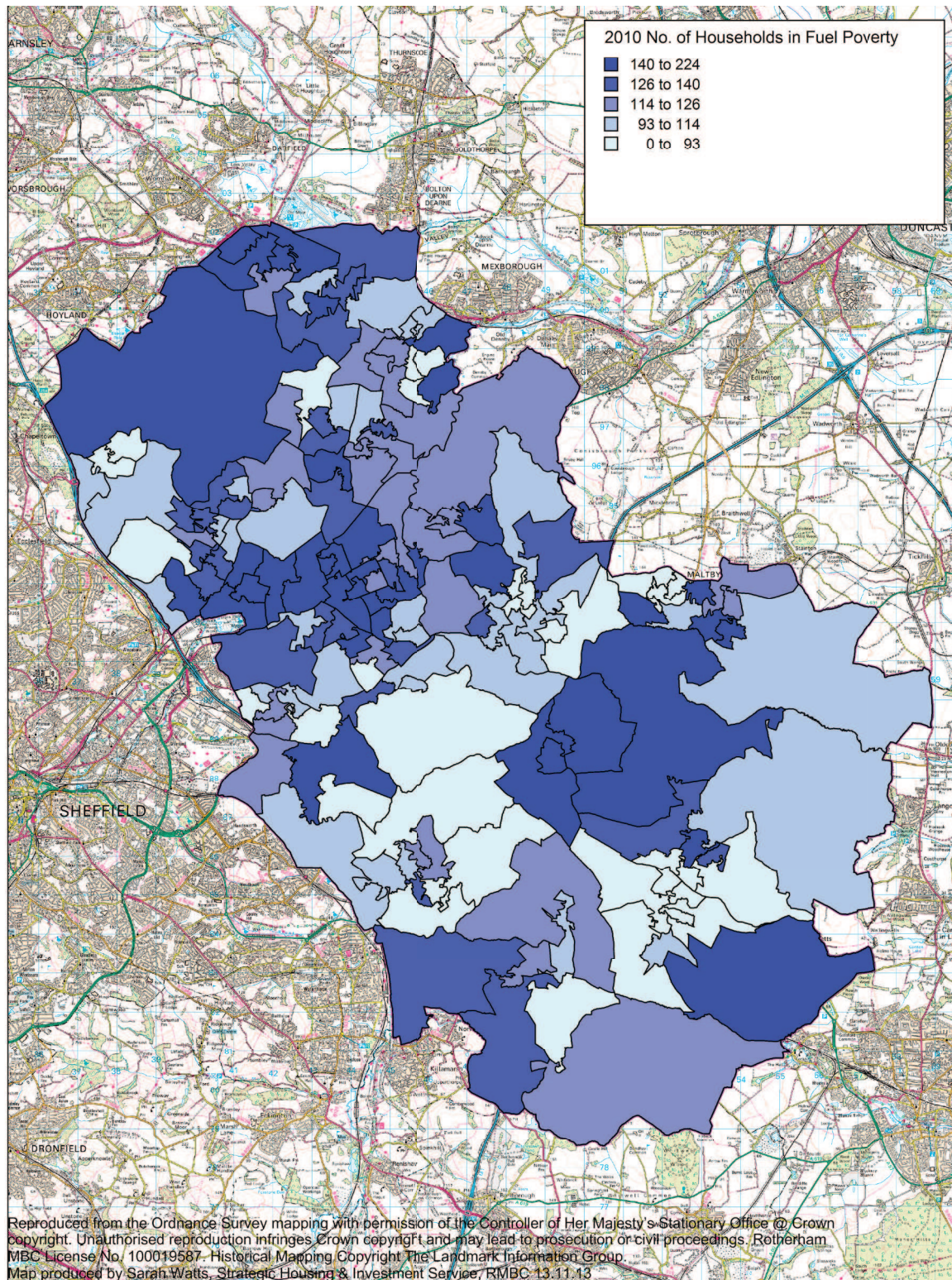
For 2011, around 2.39 million households in England were identified as fuel poor under the new proposed LIHC measure, representing approximately 11% of the overall population. Fuel poverty rates for Rotherham and the surrounding areas are indicated in Table 1 and Figure 2. Energy prices are predicted to rise so it is expected that numbers affected by fuel poverty will rise.

Table 1. Fuel poverty in South Yorkshire

From DECC (2013a) Sub-regional fuel poverty data: low income high costs indicator

Local Authority	All Households	Fuel Poor Households	Percentage Fuel Poor
Barnsley	102,298	11,175	10.9%
Doncaster	127,619	14,516	11.4%
Rotherham	110,636	11,160	10.1%
Sheffield	234,605	25,899	11.0%

Figure 2 Map of fuel poor households in Rotherham using the 10 per cent definition of fuel poverty



Cold and health

In terms of health it is necessary to consider why homes are cold, not just fuel poverty if we are to understand how to reduce cold-related harm. As found in the KWILLT study of older people and fuel poverty some people were not able to maintain warm homes for many reasons (Tod et al. 2012). These included factors influencing behaviours and decisions relating to use of heating, spending money, accessing cheaper tariffs, accessing benefits or asking for help. Barriers included poor knowledge and awareness, technology, disjointed systems and the invisibility of fuel and fuel payment. Adding non-income related barriers to maintaining a warm home potentially increases the number of people exposed to cold related harm. However, little attention has been paid to understanding the barriers families face in maintaining a warm home. Research is therefore needed to provide this insight. Living in cold, damp housing is linked to health problems, excess winter deaths and impaired quality of life in vulnerable households, including those with young children (National Children's Bureau, 2012; Department of Health 2013). Specifically, children living in cold homes are at increased risk of respiratory conditions, colds and flu, mental health problems, low self esteem and confidence (Marmot Review Team, 2011, Department of Health 2013). There is additional evidence of cold housing impacting upon infant's weight gain and the mental health of adolescents (National Children's Bureau, 2012; Marmot Review Team, 2011). Cold housing for children also lowers educational attainment, emotional well-being and resilience, has negative impacts on dietary opportunities, nutrition and food choices and increases risk of accidents and injuries in the home (Marmot Review Team, 2011). Asthma in particular is made worse by cold, damp homes. Poorly heated homes have more serious damp problems, leading to more allergens that worsen asthma symptoms and severity of attacks (Kreiger 2010; Liddell & Morris 2010; Somerville et al 2000). Cold temperatures also increase the number of respiratory infections and so exacerbate asthma.

Fuel poverty is a major contributor to the negative health impacts of cold weather. Strategies to address fuel poverty aim to increase household income (for example, unlocking benefits householders are eligible for but not currently claiming), reducing fuel costs (for example, accessing social tariffs for fuel) or improving the energy efficiency of the home (for example, accessing initiatives such as Warm Front and the Green Deal). However, there are concerns that those at most risk sometimes struggle to access such interventions (Stockton & Campbell 2011).

A UK longitudinal study of housing conditions and child health revealed some worrying indications of the health impact of cold homes (Liddell & Morris, 2010, Barnes et al. 2008). In relation to respiratory problems they were twice as prevalent in children that lived for three years or longer in homes that lacked affordable warmth (15%), compared with children who had never lived in homes that were hard to heat during the previous 5 years (7%). For children who had lived at least 3 years in homes that were cold and damp, 15% had respiratory problems compared with 6% of children that had never lived in homes that were cold and damp (Barnes et al., 2008).

After adjustment for covariates (including maternal education, income, multiple deprivation index, family composition, and ethnicity) the research indicated living in homes which lacked affordable warmth was significantly associated with "multiple mental health risk". This was defined as an adolescent manifesting four or more negative mental health symptoms (Barnes et al., 2008). Adolescents who had lived for long periods in homes that lacked affordable warmth were at a greater health risk than those in homes with affordable warmth. For example, 28% were classified as having a multiple mental health risk, compared with 4% of children who had always lived in homes that had affordable warmth. In addition 13% had truanted (compared with 3% in homes with affordable warmth), 10% had been expelled / excluded from schools (compared to 3% in homes with affordable warmth), 7% had been in trouble with the police (2%

in homes with affordable warmth), and 10% of the adolescents felt unhappy in their family compared with 2% in the group that had affordable warmth. Adolescents from cold homes were more than twice as likely to have run away from home (Barnes et al., 2008). 27% of teenagers from homes without affordable warmth were worried about bullying and mugging, compared with 15% of teenagers who lived in warmer homes (Barnes et al., 2008).

Explanations for these statistics may lie in teenager's response to the environment. For example they may seek time away from family members, either for solitude (Larsen, 1997), privacy or to spend private time with their peers. This is because fuel poor households can encounter what is referred to as "spatial shrink", where families cluster in certain rooms most of the time as heating is limited. (Lawlor et al., 2002, Farrell et al., 2008). This can place inter-generational relationships under strain during adolescence (Kwak, 2003). Seeking privacy and respite in public spaces such as parks and shopping centres may make adolescents more vulnerable to anti-social or high risk behaviour as well as other mental health risks (Wells et al, 2005).

It is therefore important to promote keeping warm at home to reduce the burden on individuals and health and social care the health service. This is especially true in households where residents are at high risk of being cold at home or at high risk of suffering the negative health consequences of being cold at home, for example households with children with asthma. Interventions to improve the energy efficiency and warmth of homes have delivered significant benefits and reduced the severity and frequency of children's asthmatic symptoms (Liddell and Morris 2010).

Asthma

The UK has one of the highest incidences of paediatric asthma in the world. Asthma accounts for 1 in 250 deaths worldwide and is the 25th leading cause of disability adjusted life years (DALYS) in the world in 2001 (Masoli et al., 2004). Within this global context of high asthma rates, Yorkshire and Humber have one of the highest rates for emergency hospital admissions for children in the UK. 2.5 years of life lost due to asthma in Yorkshire and Humber which is 25% higher than the national average. Worse still asthma prevalence and mortality in Rotherham is well above both Yorkshire and Humber and UK averages. The UK average for asthma prevalence is 5.9% and for Rotherham the average is 6.1% (YHPHO 2012a), there are several areas of Rotherham that have asthma prevalence of up to nine percent. Rotherham has twice the national average for England for years of life lost due to asthma mortality (Healthy Ambitions 2011).

Asthma accounts for a higher number emergency bed days and emergency admissions to hospital for children and young people than any other paediatric long term condition (YHPHO2012b). An estimated 75% of hospital admissions, and as many as 90% of deaths, from asthma are preventable. For hospital admissions alone in Yorkshire and Humber 75% of these preventable admissions represent £4.6 million across Yorkshire and Humber. Rotherham spends (2009-2010) £225,241 on emergency asthma admissions, of which £168,931 could be saved through prevention (Healthy Ambitions 2011). Triggers for asthma include: moulds and fungi; smoking; weather; wood and coal fires; air pollutants; cold and viral infections; and animals. Children living in accommodation with inadequate heating and poor conditions were twice as likely to suffer from respiratory conditions such as asthma and bronchitis (Barnes et al 2008). Adequate heating systems have been shown to improve asthma symptoms and reduce days off school from asthma and respiratory conditions by 80% (Somerville et al., 2000). A warm, damp free home is important in the prevention of asthma because this reduces allergens such as moulds, fungi and

dust mites. In addition bronchial spasm resulting from going from a warm to cold room can be prevented and incidence of respiratory infections can be reduced through reduction of cold indoor environments.

Warm Well Families

Despite the above indication of negative health impacts of cold homes on families and households with children, little is known about decision making and factors influencing heating behaviour in those homes. How do parents of children with chronic health conditions such as asthma manage with keeping a warm and dampfree home? The focus of this current study is therefore on households with children who have asthma.

Rotherham Health Summary

This study was conducted in the area of Rotherham. To provide some context a brief summary of the health of the Rotherham population is now provided. Rotherham is in South Yorkshire and has a population of 248,176 according to the 2011 census.

The health of people in Rotherham is significantly worse than the England average. Deprivation is higher than average and about 11,480 (23.1%) of children live in poverty.

The health of people in Rotherham is significantly worse than the England average. Deprivation is higher than average and about 11,480 (23.1%) of children live in poverty. Life expectancy for both men and women is lower than the England average. Life expectancy is 10.2 years lower for men and 6.4 years lower for women in the most deprived areas of Rotherham than the least deprived areas.

Over the last 10 years all cause mortality rates have fallen. The early death rate from heart disease and stroke has fallen and is worse than the England average. In year 6 20.5% of children were classified as obese. Levels of teenage pregnancy and breastfeeding are worse than the England average. Estimated levels of adult 'healthy eating' smoking and obesity are worse than the England average. Rates of sexually transmitted infections, smoking related deaths and hospital stays for alcohol related harm are worse than the England average. The rate of road injuries and deaths is better than the England average. the rates of statutory homelessness and violent crime are better than average. Further information on the health of Rotherham is available in appendix two.

Further information on the health of Rotherham is available in appendix 2 and at

<http://www.apho.org.uk/resource/item.aspx?RID=126971>

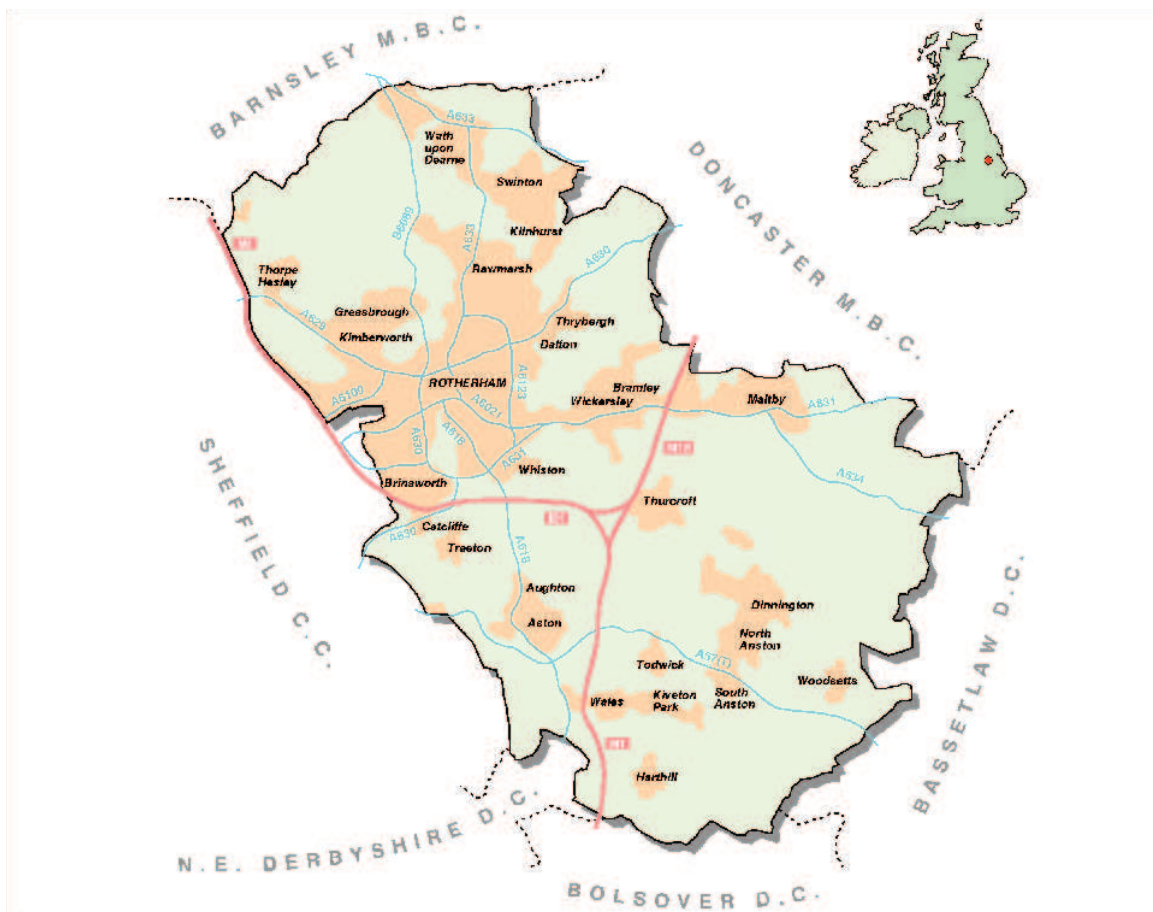
Methods

Design

The study is an in-depth, qualitative exploration of factors influencing the decisions and behaviour of vulnerable households with children regarding keeping warm and well at home. Individual and group interviews have been used, along with temperature measurements in homes, consultation methods and framework analysis techniques. The different methods used captured the views and experience of adults living in households with children who have been diagnosed as having asthma and also professionals working with families to ensure an accurate understanding of factors that influence keeping warm. We sought to undertake in-depth interviews with parents; record humidity and room temperature in the lounge and child’s bedroom; interview staff working with families and hold focus groups with staff from a range of organisations working with families and in housing. We also held focus groups with children and young adults.

Setting

Figure 3: Map of Rotherham



Rotherham has high levels of deprivation, fuel poverty, excess winter deaths, and childhood winter hospital admissions for respiratory complaints. This area has a demographic mix in terms of urban and rural populations, ethnicity and socio-economic status. By conducting the study in both locations of Rotherham and Doncaster we hope to eventually merge the findings which will ensure an additional breadth of participants and increase the transferability and rigour of the findings.

Detailed maps of of Rotherham social housing tenure, BME communities, child poverty and hospital admissions for asthma and lower respiratory tract infections are provided in appendices 3 and 6. These relate specifically to children living in poverty; the proportion of the community population from BME communities; the proportion of housing stock that is social housing; and emergency admissions for asthma and lower respiratory tract infections for 0-5 year olds for the winters of 2009/10 and 2010/11.

Activity summary - Rotherham

Research activity in the different stages of the study in Rotherham is summarised below.

- Consultation with staff from a range of organisations including health visitors, a GP, school nurse, asthma nurse, public health, parents support workers, local authority, housing associations, financial inclusion and voluntary sector
- 18 households were recruited with at least one child who has asthma. One later withdrew leaving a household sample of 17
- Temperature and humidity measurements were taken in two rooms in the house using Tiny Tag ultra 2 devices in the homes (the bedroom of the child with asthma and the main family living room) for two weeks prior to the interview.

A Tiny Tag Ultra Device

- In the period December 2012 to May 2013, 17 parents from households with children with asthma were interviewed in-depth
- Recruitment was through local authority parent support workers, GROW (a local charity), education welfare officers, children centres, a voluntary group fuel poverty project manager and the RMBC Integrated Youth Support Service
- Fourteen staff were interviewed from a range of health, social care and voluntary sector organisations who work with vulnerable families
- Two focus groups were held with a total of 14 front line staff participants from a range of health, social care and voluntary sector organisations who work with vulnerable families and housing
- One focus group has been held with seven young people aged 18-20 years old, including some care leavers
- One focus group has been held with eight schoolchildren aged between 9-11

Household interviews

Sampling

Sampling was conducted in a purposive manner to include a range in terms of key characteristics. These characteristics included: the size of family, health and disability, location, areas with high asthma rates, age of children, type and tenure of housing, ethnicity, substance misuse and severity of asthma. Sampling decisions were made with reference to routine demographic data (See appendices two-six). Families who have children using brown and purple inhalers only were recruited at first as this is a more certain indication of a true asthma diagnosis and parents will potentially be more aware of asthma triggers (see appendix seven for information on inhaler types) However, after a few weeks of recruitment via this method was low so recruitment of children on regular prescriptions of blue inhalers commenced.

Chart 1 - Recruitment flow chart



As a gesture of gratitude, participating households were given a 'Warm Pack' with a few simple items such as a fleece blanket, hand warmers, room thermometers etc alongside a £15 high street voucher. Parents were also signposted to organisations that might be help or advise them on fuel payments and housing repairs if required.

Interviews

Individual interviews took place with 17 parents living in households with children with asthma in Rotherham. Where required, an interpreter was offered. Hourly room temperature and humidity measurements were taken for the two rooms where the children spend most of the day and night using Tiny Tag Ultra 2 monitors. This was conducted for two weeks prior to the interview. This time period has been decided following the stakeholder consultation. Two weeks was considered long enough to allow participants to forget about the measurements. The risk that behaviour may be changed because they

are being measured is reduced. However in a household with young children the longer period increases the risk that the device would be lost or damaged e.g. through child play.

An interview with one or more adults in the household was conducted using an interview schedule devised following the pre-protocol consultation. Interviews were digitally recorded, transcribed and any identifying details removed. The Tiny Tag data was downloaded onto a computer using specific software for the devices and charts generated for each household.

Table 2. Characteristics of parents interviewed: Heating type

Participant	Type of heating	Switched supplier	Time with supplier	Method of payment
1	District heating - Gas CH	Yes	1 month	Pre-payment meter
2	Gas CH	No	18 years	Pre-payment meter
3	Withdrew	-	-	-
4	Gas CH	Yes	5 years	Phoned up to pay monthly
5	Gas CH	No	4 yrs 6 months	Pre-payment meter
6	Gas CH	Yes	3 years	Direct debit monthly
7	Gas CH	Yes	10 years	Pre-payment meter
8	Gas CH	Yes	2 years	Direct debit monthly
9	Gas CH	No	2 yrs 6 months	Post office quarterly
10	Gas CH	No	6 years	Direct debit quarterly
11	Gas CH	Yes	3 months	Pre-payment meter
12	Gas CH	Yes	2 years	Direct debit monthly
13	Gas CH	Yes	3 years	Direct debit monthly
14	Gas CH	No	1 year	Pre-payment meter
15	Gas CH	No	10 month	Pre-payment meter
16	Gas CH	Yes	2 years	Direct debit monthly
17	Gas CH	Yes	4 years	Direct debit monthly
18	Gas CH	Yes	1 year	Pre-payment meter

The number given to each participant relates to the anonymised code ascribed for purposes of data collection and analysis.

Interviews spread over a longer period than originally envisaged because of delays with recruitment. As a result some interviews were conducted in warmer weather. Tiny tag readings were therefore not undertaken for the final 6 of the overall 17 interviews.

Chart 2: Household interview sample characteristics

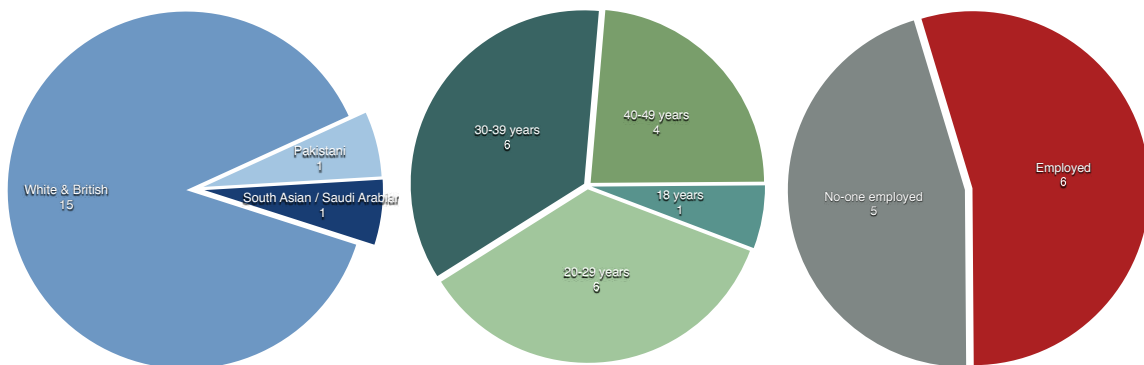
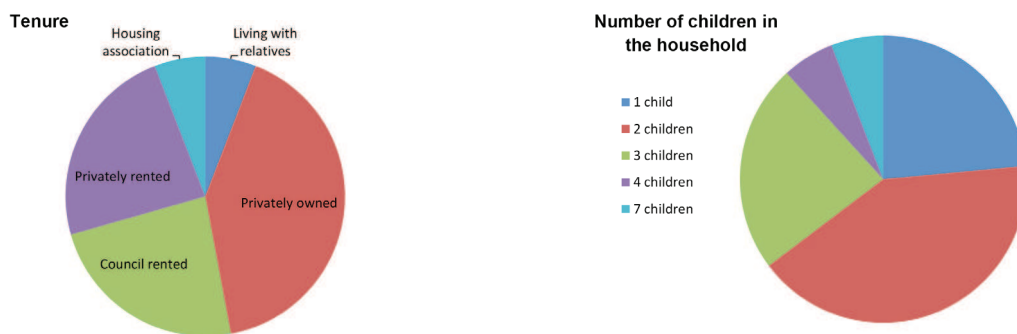


Chart 3: Household interview sample characteristics



Although parents were asked about their income many were not able to give a complete enough answer to allow for comparison in a table. Most households received some kind of benefit or received less than £2500 a month in income. Five homes were of single parents and five had no one in employment.

Interviews with staff who work with families

Fourteen staff were interviewed to explore their perceptions of the knowledge, beliefs and values of parents living in households with children with asthma regarding keeping warm at home. The sample included health, social care, education, housing, welfare and voluntary sector staff. Staff were recruited via email or telephone following initial contact from the relevant advisory group member. The staff groups were decided upon in the initial scoping stage.

Interviews were conducted in the workplace or location convenient to the participant or by telephone. Staff interviews were also digitally recorded, transcribed and any identifying details removed.

Staff interview characteristics

14 staff were recruited from a range of roles but we have grouped them into broad categories to make them non-identifiable. Staff interviewed included school and family support workers (4), emergency services (1), voluntary and community sector (6), local authority housing (1) and health professionals (2)

Focus Groups

Two focus group interviews were held in Rotherham with a total of 11 frontline staff. Staff focus groups included staff from school and family support workers (3), voluntary and community sector (1), local authority housing (6) and health professionals (1) from a range of health, housing, social care and voluntary sector organisations. This was to verify, challenge and expand upon findings from the individual interviews.

Focus group with children

One focus group has been held with eight school children aged between 8-11 years. The group was co-facilitated by a member of the research team and a member of school staff. The focus group took place within the children's school. The group was discussed with the school who assisted in identifying children for the study and facilitating permission to participate with parents. Consent forms were obtained from parents and the research was explained to the children in age appropriate language. The group discussion was initiated through the use of pre prepared and piloted drawing and writing materials. The discussion was recorded, and transcribed and all identifying information removed. Examples of the materials used and the information collected from the children through the use of drawing is included in appendix 8.

Focus group with young adults

One focus group was held with 8 young adults aged 18-20 years old. The group was co-facilitated by two members of the research team and took place within a community centre. Consent forms were obtained. The group discussion was initiated through the use of pre-prepared and piloted drawing and writing materials, and example of which is included in appendix 8. The discussion was recorded, and transcribed and all identifying information removed.

Social marketing consultation

A social marketing consultation with up to 50 lay and professional stakeholders took place in early autumn. This included representatives from local, regional and national organisations, including staff involved in the reference group, interviews and focus groups. The format and content of the consultation events was informed by the study findings which included some presentations and some interactive discussions and activity. The aim was to examine the findings and shape the study outputs to help adults living in households with young children keep their homes warm and families healthy.

Data analysis for all stages

Following anonymisation and transcription the data from all individual and group interviews were entered on to password protected computers in Microsoft Office Word. Framework Analysis methods were used to generate themes and issues that capture the experiences, views and perceptions of the sample. Framework Analysis has emerged from policy research and is a pragmatic approach to qualitative data analysis (Ritchie and Lewis 2003, Ritchie and Spencer, 1994). It involves a systematic process of sifting, charting and sorting the material into key issues and themes. It allows the integration of pre-existing themes into the emerging data analysis.

Tiny Tag specific software was used to generate charts of each participating household and analysed alongside participant transcripts.

The Tiny Tag data were used as an objective measure to examine if households perceptions of temperature were accurate. Funding available for this research project prohibited further detailed analysis

Results

Temperature and Humidity Measurements

The Tiny Tag temperature and humidity monitors provided us with hourly readings over two weeks. The results are summarised in the tables below, giving minimum, maximum and average temperature readings for the bedroom where the child with asthma slept and the living room for each participants' home.

Temperature

Table 3 Minimum, maximum and average temperature readings

Dark orange shading denotes colder than the recommended temperature for health and comfort (Bedroom 18°C and living room 21°C)

Participant	Bedroom			Living Room		
	Min °C	max °C	Average °C	Min °C	Max °C	Average °C
1	16.0	20.6	18.0	8.9	17.1	13.0
2	14.5	19.5	17.5	16.8	24.1	19.9
4	15.9	22.9	19.7	16.0	25.6	19.8
5	11.2	19.5	16.7	10.3	19.8	15.3
6	11.7	22.1	19.8	11.9	23.2	20.9
7	13.4	24.3	18.8	13.0	23.4	17.0
8	11.0	18.4	14.9	10.4	20.8	15.3
9	12.7	22.3	17.4	12.7	21.4	17.5
10	14.6	22.5	18.5	14.4	22.8	18.6
11	14.8	25.7	18.2	14.4	21.0	17.6

The readings across show that all bedrooms were below the minimum temperature for health at some point. The maximum temperature for four of the bedrooms were below 18°C and therefore never at a healthy temperature. For the living rooms all were below the minimum temperature for health (21°C) at some point and three were never at a healthy temperature. The average temperature for all the living rooms was below the minimum level.

Relative humidity

Table 4 Minimum, maximum and average relative humidity readings (%RH)

Participant	Bedroom			Living Room		
	Min %RH	max °RH	Average °RH	Min °RH	Max °RH	Average °RH
1 (reported damp)	59.2	87.7	72.6	71.6	100.0	97.6
2	46.5	76.3	63.2	37.7	84.5	55.2
4	26.1	57.6	44.7	33.3	68.6	46.9
5	31.9	95.4	53.2	30.1	95.3	48.2
6	38.8	82.2	49.9	39.2	81.0	46.4
7 (reported damp)	47.1	73.3	60.7	40.5	96.7	53.7
8 (reported damp)	39.4	91.4	75.7	55.3	84.9	67.2
9	45.0	57.7	50.5	42.6	63.2	51.3
10	43.3	100	74.5	32.2	78.0	49.8
11 (reported damp)	32.8	94.2	61.9	40.1	75.0	57.1

Dark orange shading denotes relative humidity is higher than recommended to reduce allergens such as mould and dust mites

Arlian et al (2001) state that a relative humidity of less than 50% is recommended for reducing allergens such as mould and dust mites in homes. The dark orange shaded data in the table above show where the relative humidity is higher than this. All homes had higher than recommended relative humidity for the maximum readings in both the bedrooms and living rooms. Eight homes had a higher than recommended relative humidity for the average readings in the child's bedroom and six for the living room. Four of these homes reported damp problems.

Findings from household and staff interviews and focus groups

In the following section findings are provided that summarise the main themes emerging from the staff and household qualitative data. This is given in the following form:

- A table of themes, and sub-themes from the household data interviews, and young adults and school focus groups (Table 5).
- Findings from the households, young adults and school focus groups using the main themes. Illustrative quotes are provided.
- Three case studies to illustrate how the influencing factors play out in the everyday life of families with children with asthma. The case studies include examples of the Tiny Tag data along with illustrative quotes. The case studies are three participants. They illustrate how influencing factors interact and impact upon the vulnerability of people with certain characteristics.
- A table listing themes, and sub-themes are listed along with descriptive commentary from the staff data interviews and focus groups (Table 6).
- For the staff data tables are also provided with illustrative examples that distinguish between where staff views were based on tangible experience as opposed to their perceptions.

These findings sections are followed by an integrated discussion which provides more in-depth reflections

of the meaning of the data along with qualitative data to illuminate household and staff findings.

Table 5. Themes from household interviews, young people and school focus groups

Themes	Sub themes	Commentary
Contextual factors	<ul style="list-style-type: none"> • House condition • Home type • Heating type • Home tenure • Household type • Damp 	<p>Parents do not always agree damp is caused by condensation and if they do are aware they are limited in what they can do about it. For example they may not have tumble dryers or be able to open windows for other reasons such as safety and external asthma triggers. Some solutions were found such as only partly drying on radiators, drying outside when it is cold but windy, but some wanted to move home due to an unresolved damp problem. Extra heat was also seen to bring on asthma symptoms and eczema that was common in families where there was a child with asthma.</p>
Social factors/ support	<ul style="list-style-type: none"> • Friends • Family • NHS professionals • Social Care • Community • Sure start/children centres • Barriers and restrictive factors 	<p>Families may be willing to help but parents can be reluctant to ask for money if they know the relative will say yes even though they don't have enough for themselves, or if it is too inconvenient. The internet is sometimes seen as a trusted source of information. A shared but overcrowded house worked in terms of sharing financial resources.</p>
Behaviours	<ul style="list-style-type: none"> • Times of heating • Rooms heated • Rooms used • Payment methods • Use of home space e.g. play, drying clothes • Experience of cold • Management of asthma • Budget management • Thermal comfort • Heating alternatives • Electricity used 	<p>Teaching children to keep warm and manage heating system and ventilation can be problematic. Almost all parents turn heating off when children are at school, even if they can afford the heating. Cold can be bad for accompanying conditions e.g. cerebral palsy. Prepayment meters were preferred by some parents because they could control and see how much they were spending and wouldn't get an unexpected bill, but others were unable to get them removed. Some parents preferred direct debit payments to ensure they had heat even if they had no money on that day. Direct debits could lead to errors where too much is taken out of a bank account and upset the parent's finances. Mothers complained more about feeling the cold than children or partners, if there was a disagreement of how warm the house should be the lower temperature would often win due to price. Heating alternatives such as clothing, bedding and body warmth may keep people warm but mean the house condition is not preserved.</p>

<p>Attitudes and beliefs (and influences on these)</p>	<ul style="list-style-type: none"> • Fear of debt • Beliefs about cold and health • Priorities • Beliefs about asthma 	<p>Debt was feared by some parents and seen as a sign of failure when attempting independent living by young adults. Many parents found their child's asthma to be worse in winter, antihistamines for hay fever were seen to help with asthma in the summer. Having a child with asthma is stressful for all family members because of trauma of hospital admissions, effort to maintain treatment, disturbed sleep, more severe coughs and colds and time off school. There is some confusion about who officially has asthma, children are now often not diagnosed with asthma until they are 6 years old so some are told it is an early diagnosis others that they have a condition 'like asthma'. Priorities were heating, rent/mortgage and food.</p>
<p>Knowledge and awareness</p>	<ul style="list-style-type: none"> • Supportive mechanisms • Management of heating system • Heating alternatives • Insulation • Cold and ill health • Getting help • Sources of (trusted) information 	<p>There are differences in how children are allowed to touch heating systems. Children finding they own ways to keeping warm may be high risk. Previous training in financial management can be applied through the life course in different challenging periods</p>

Contextual factors

- Damp • Household Type • House Condition
- Home Type • Home Tenure • Heating Type

Contextual factors that were identified from the data included the housing and conditions the families lived in, their household type, heating type and home tenure. Damp was a common theme among parents in all tenure types. Landlords often told parents the cause of the damp was condensation and therefore not the landlord's problem. Parents often did not accept this explanation.

"Then winter comes again and it all happens again isn't it? I mean, in winter, all wall in my bedroom will all be black mouldy again, wall in passage will all be black mouldy again, [daughter 1]'s will all be black mouldy again, but all you get off them is it's condensation. So you can't win." RP11

Where parent participants did recognise that condensation was the cause of damp, significant barriers to ventilating properties was identified. For example participants reported that they considered money was wasted if heat was released when windows were open. Others were not able to afford a tumble dryer meaning clothes were dried on radiators and added to the damp atmosphere.

"I haven't got a tumble dryer, be too expensive and I haven't room in kitchen." RP13

Parents were told by health professionals to keep windows shut to prevent other asthma triggers, pollution and asthma, entering the house.

"because it [pollen] clings to his bedding and that I've been told to keep his window .. shut. I've not even risked trying any other way because I don't want to risk leaving it ... open and it setting his asthma off, so I just leave it." RP04

Participants also reported safety risks to leaving windows open such as the risk of a child falling out or a burglary. Another problem in keeping a warm house was that heat was also seen to trigger asthma symptoms, and worsen accompanying allergic conditions such as eczema, so parents responded to how warm or cold the child was comfortable at.

"I don't think he likes it when it's too cold because it makes him wheezy, but then he doesn't like it when it's too hot because he gets tired and he's like struggling to breathe. So he likes it in the middle" RP10.

A warm home was seen by some participants as a risk because of sudden infant death syndrome

“ I don't want him [the baby] to get too hot, because even if he'd got that on I'd still put him a blanket on. So I think if he gets too hot I don't want him to overheat and I'm always panicking myself so.” RP18 (mother of 3, youngest 8 months old)

Where damp remained unresolved moving house was seen as an option, but letters of support from a medical professional were needed for a change in social housing.

“I'm only on general for a move so it could take anything. I think if you get a like medical priority and all that, it's quicker, but it's whether asthma nurse or doctor will you know like give me a letter or anything.” RP11

Energy efficiency improvements had commonly been made in some participants homes through grant schemes such as Warm Front. These were still running at the time of the interviews. However parents could not always remember who carried out the improvements or who funded it. All families had gas central heating but some also used additional heating such as electric radiators or gas fires. A few of the parents mentioned their gas fire had been condemned and either couldn't afford to get them fixed or had not found the time to arrange the repair.

Social factors/support

- *Social Care* • *Community* • *NHS Professionals*
- *Friends* • *Family* • *Sure Start Centres*
- *Barriers & Restrictive Factors*

Households reported differing levels and types of social support including family, friends, acquaintances (for example at school), and professional services. Social support and levels of social connection emerged as influential in keeping a home warm. For most participants family and friends were relied upon for support where available. In one very overcrowded house four family units were temporarily staying under one roof. This family found they could pool their resources quite effectively and help each other out with big payments or repairs.

“The thing is we all give my mum a bit of money towards bills, but like we’ll go out and we’ll all get different things. You know, like we’re going shopping, I’ll get a load of stuff, [sister in law] will get a load of stuff, my mum will get a load, and we just all share, do you know what I mean. But we’ve always done that even before we all moved back. If anyone needed help and someone had got it, then we bail each other out, don’t we?” RP02

In other cases parents felt they didn’t want to impose. One family who had moved in with parents when their heating had broken down felt they were imposing:

“Yeah, when we were stuck, yeah, we’ve got parents that we can move in with. When we had to go and stay with [husband]’s mum, she’s got the most pristine house and all her carpets are like white, cream, and then we invaded and [son 1] and [son 2] were being weaned at that time, so everything was like mush, you know, mashed down bright colours, carrots, peas, and they’d spit it out and bits were on the carpet and I’m thinking I just need to go home... Yeah, yeah, so, but she said it’s fine, it’s fine, I’m thinking it’s not fine, you’ve got the most lovely house and we’ve only been here a day and we’ve trashed it.” RP17.

Others thought they should not ask for help because their relatives and friends may agree despite also being short of money.

“I wouldn’t ask any of my friends. There’d only really be my mum I’d ask but like I say she’d lend it to me but she wouldn’t have any money herself so I wouldn’t ask her, I’d just try and sort it myself to be honest, I wouldn’t ask anybody” RP04

A young person who went to live alone as a teenager and found herself unable to cope with bills said pride was a factor in her not asking for help.

“It’s my pride, I moved out two weeks after my 16th birthday, and I never asked for help. I asked once, one of them food parcels on Christmas because I didn’t get paid for like, it

were a big, so that's how I paid my bills and everything, I had no money. And I went up for one of these food bags and I felt so embarrassed, because I'd just never asked for help. And I will never go back and ask for it again. [what would make you ask for help?] Nothing, I've sat there wind, rain and shine, I've sat there with like so much snow outside where it was bad, wrapped up, no gas, no electric, in a blanket, snuggled up on settee."
Young people's focus group

Some participants therefore, even where they had family nearby weren't able to access help for different reasons.

Behaviours

*Experience of Cold • Electricity Use • Rooms Used
• Payment Methods • Management of Asthma
• Use of space • Rooms heated • Times of heating*

Various behaviours and strategies were adopted by participants towards home heating. These included when and how to heat rooms in the home, how heating was paid for and how asthma was managed. In households, the mothers complained the most about feeling cold and were often in the house the longest. However, heating was prioritised for, the children. Despite the recommendation for homes to be well heated to prevent condensation and damp most families were not able to afford to have the heating on for so long and prioritised having the heating on only when the children were in from school.

"I think when the kids are home, I do have it on a proper temperature for them, you know, between 18 and 21, and when they're at school I turn it all off." RP09

Other parents had heating on for a limited time when kids are home. Participants described having the heating on only when their kids were home from school. However, this was not always the case as some parents thought it wasn't worth putting the heating on before school.

"On a cold day, I don't have it on while the kids are at school because it's costly and then we might put it on about six o'clock to about nine." RP11

In some homes where a family could have afforded to have the heating on while the children were at school and a parent was at home, the heating was still turned off because of the fear of a big fuel bill. Mothers reported not thinking it was worth heating the house just for them.

"No it's not on in the morning. Its freezing in the morning but it's not worth you know like having it on for the 10, 15 minutes they're up. The house wouldn't warm up in that time anyway. I just tell them to put more clothes on. [daughter] would say mum I'm cold but he'd [son] would run round naked if he could, he's not bothered. She wants to

get dressed with her dressing gown on and I tell her she has to take it off or she won't be able to get dressed." RP01

Some families would also not put the heating on straight after school for similar reasons.

"In the winter we can't turn the heating on until about six o'clock, so you've got to wear a jumper because it gets really cold." Primary school child

Keeping one room warm was sometimes a strategy for reducing fuel use.

"Get a blanket around me. Sit with blankets around them. Or we'll like shut the doors . and just have the fire on, you know, just to keep one warm room". RP11

Heating was also turned off once a child had gone to sleep. Radiators in children's bedrooms were turned off altogether in some participant's homes as children complained it was too hot upstairs and parents thought the heat could also bring on asthma:

"He doesn't have his radiator on in his bedroom. He has it on really low in winter just so that it's warm to touch. It's not hot, it's just aired. That's how he has to, if I have it on any more than that he's up all night, so you can't warm his bedroom properly, you have to keep it cool. Well, he'd try to go to sleep but because of him coughing he wouldn't be able to go, he wouldn't be able to settle long enough to drop off, he's up coughing until the house cools down, so I have to make sure that it goes cold for him to sleep. Like I say [son]'s radiator's practically switched off all year round." RP04

While the children were upstairs complaining of being too hot, mothers would sometimes be downstairs feeling too cold.

"I end up wrapped up with my slippers and a dressing gown and a blanket just so that he can settle, and obviously the longer you keep it on the more it costs as well but I do it mainly for him just so that he can go to sleep." RP04

Therefore, there seemed to be a mismatch between the child's and parents needs for thermal comfort.

"We find it colder downstairs than what it is upstairs. I don't know if anybody elses house is like that. But why does it do that? Looks like everybody will have to live upstairs then, the kids can come down and will go up" RP04

There was awareness that pre-payment meters were a more expensive form of fuel payment than direct debit. However, some parents still preferred them because they could pay for fuel as they went and not fear a large, unexpected bill. Having a meter was not always out of choice as some had been installed for a previous tenant or due to debt. Having a meter removed was seen as too expensive or parents were told they weren't allowed.

"Yes, I think it's about £250 per meter to change it. I mean I haven't got that sort of money." RP11

Not having cash available for the meter did mean that some families had to go into emergency credit on the meter and were at times cut off.

“But I don’t really like going into emergency credit because them obviously once you are in that it can suddenly go off and you can’t top it up again” RP18

This had meant families were not able to have heating, lighting, hot water for washing, phone or internet, cook hot meals, run a fridge or sterilise baby bottles. On some occasions this was for prolonged periods. There were examples from participants where gas had been disconnected when there was no money on the electricity meter.

“That’s what annoys me, because when your electric goes your gas goes, even if you’ve got money on your gas, when your electric has gone, you’re stuffed.” Young people’s focus group

Participants reported different forms of self-disconnection such as limiting the number of rooms heated, and the times of heating. Overall these heating patterns of times, meant that homes were not being heated for the prolonged periods each day and some rooms never heated at all. This research was done before the introduction of Universal Credit and benefits changes which could mean self-disconnection may become more prolonged.

Other parents preferred to know they could always have heat even for periods where they didn’t have money.

“Yeah, I’d rather know that I’ve always got it and if I couldn’t pay it at least I’ve still got it, whereas if you pay it on a meter if you haven’t got the money you haven’t got no gas and electric, so I’d rather do it other way.” RP04

In some cases children ignored parent’s instructions regarding heating. This resulted in higher fuel bills and was a matter of negotiation and reminding.

“If I’ve gone out then he’s [teenage son] gone out and I tell him turn the heating off I’ve come in and it’s on full blast; he’s not turned it off. Yeah I tell him. I explain to him all the time, I explain everything to him. He can be more bothered about going out and getting himself ready than, it’s like the lights, do you know what I mean?, I tell him all the time and I come in, it’s like Blackpool illuminations. His light’s on, the bathroom light’s on, this light’s on and they know, I have the same discussion withhim all the time and he does it every time.” RP08

Management of asthma was seen as difficult especially for parents of children were under six years old because it is now becoming less common for young children to receive a formal diagnosis of asthma at this young age.

“they’ve not said it’s asthma; they’ve said for both of them that it’s chronic lung disease, which they are more at risk of chest infections and of problems in the future. So they’ve treat it quite similar to asthma, that he’s got the inhaler, or they’ve both got that.” RP17

Participants reported that children with asthma could also have other health conditions affected by cold.

“And with [son], with the cerebral palsy, his movement, any cold weather he retracts and tenses up, so the warmer it is for him, the more movement he’s got, you know, that whenever he’s in a cold room, his hand goes straight back up and he tenses all his muscles and apparently that’s quite common. So we like to keep it warm so that he’s wearing less clothing, so that we can keep an eye on his movements and make sure he’s doing what he’s supposed to be physio wise, and he’s a lot freer.” RP17

The findings indicated that heating behaviour in families with differing needs for thermal comfort can be complex. This added to the complexities of payment methods, managing family finances and managing a child’s health condition. Confronted with competing priorities children’s comfort and health was prioritised where possible, often at the expense of the mothers’ thermal comfort and wellbeing. The short periods of time the homes are heated may mean that children are less exposed to cold homes when they are at home, but their health may be adversely affected if the lack of heating contributes to damp and worsens the condition of the house.

Attitudes and beliefs

- *Beliefs of Cold & Health* • *Fear of Debt*
- *Beliefs about Asthma* • *Priorities*
- *Experience of Asthma*

Participants discussed their attitudes and beliefs linked to home heating. They reported a fear of debt, what they chose to prioritise regarding spending, and their beliefs related to cold, health and asthma. There were different beliefs expressed by participants regarding cold and ill health and asthma. Differences included beliefs about how cold triggered asthma. There was a strong belief that asthma was more common in winter than summer.

“She suffers more in winter than summer time. She coughs like mad at night, its worse at the minute, she can’t sleep for coughing. She has to use her inhaler more in winter.” RP01. And more school absence was expected in winter “And he generally doesn’t go, if his asthma’s that bad he can’t go, because he needs to be with us. So over the winter he has had a couple of weeks off. He had a week off, a whole week off at one time because of his asthma, and he’s had a couple of odd days as well, just because it’s been too bad to send him.” RP06

One parent thought having antihistamines for hay fever relieved asthma in summer. Participants described how traumatic it was having a child with asthma.

“But when he was he used to be in hospital, he could have been in a week, two weeks in hospital and they used to, he’s been rushed in a couple of times in ambulance just because he’s stopped breathing and gone blue and it’s all through his asthma.” RP04

As discussed above there was a disagreement between ages and genders about what was a comfortable temperature, with women complaining especially of being cold.

“If anything I would say that it’s me that gets cold and I put jumpers on because [son 1] and [son 2] seem to take after their dad and he’s warm blooded. I mean winter he’s out in a T-shirt, he really doesn’t bother with his coat and that. So they are quite warm children”. RP13

Girls were said to feel the cold more than boys, but this was put down to them being less active

“Yes girls feel cold more than boys, you won’t get her running round the street with cold but he will. It’s because girls sit still all the time, he’s always active, he never has cold hands or feet. He won’t put a coat on or owt” RP01

But fashion can also lead them to wear less clothing than they are comfortable with

My daughter, she does feel cold but I think she’s doing it for fashion sense, with not wearing coats. She’s quite a cold person, she’s like my mum. She feels cold straightaway do you know what I mean?” RP08

Knowledge and awareness

*Support mechanisms • Cold & ill health • Insulation
• Heating alternatives • Sources of trusted information •
Getting help • Finances • Management of heating systems*

In relation to knowledge and awareness, participants talked about what they knew about cold, heating and asthma, but also who they know or didn't know might help them. They also described how they managed heating systems, what alternative heating strategies they employed and they managed finances. Often there was one adult in the house who would decide when heating was on and off and what temperature it should be set at. Children and young people therefore developed their own strategies for keeping warm, not all of them necessarily safe ones.

"I'd put my clothes on fire and I stopped doing that because I actually set a pair of jeans on fire by accident once and I nearly set the house on fire. So instead of telling my mum, I got that scared she were going to batter me, I chucked them behind the settee while still on fire. Luckily the settee didn't catch on fire, but luckily I didn't get burnt. But after that I started to get a hairdryer, shooting a hairdryer on my clothes for 10 minutes." Young people's focus group

Clothing and bedding were common alternatives to putting the heating on but could also have a negative health impact by promoting sedentary behaviour.

I'll put my onesie on and then I'll put a dressing gown on, and I'll put two hoods on and I'll like put my hands in my pockets. And I'm fine, I don't feel uncomfortable if I'm just sat watching TV, but as soon as I get up and move, then I hate it because then you get cold again" Young people's focus group

On the other hand children recognised that being active could help them be warm.

"I always run round the block Because sometimes it's actually a lot warmer outside than it is inside." School girl

Parents approached budgeting in different ways. Some focused on essentials.

Yes I make sure I have that [heating and electricity]. And I fill up my freezer with stuff . so I don't have to worry about that [food]. I can't help it if I can't pay can I?" RP01

Others found it hard to budget when there were unexpected costs or changed in benefits due to different working hours.

"We don't really budget, do we? We don't really in all fairness. If we've got it. Something always crops up and knocks you sideways, so we just muddle along the

best we can.” RP02

The internet was used to help with advice about money.

“I’d probably go on internet, the internet tells you about everything really doesn’t it?”
RP05

One parent reported a determined strategy of getting through to a useful customer service advisor.

“I just put the phone down on them and wait a bit and then ring back, speak to somebody else and then tell them, the person that I spoke to, I tell them about them and you do tend to get somewhere more often than not.” RP04

Another participant used skills learnt from a previous experience of debt when she got help from the Citizens Advice Bureau.

“Well, they helped me, so they helped me set up payment plans and pointed me in the right direction and juggled my money round so that I could pay things, so I think they help you. Only because when I was younger I went to Citizens Advice with all different stuff so I’ve learnt from what they’ve told me where I stand and stuff, so that’s why I’m not scared to ring them now. They can’t bully me into paying ..something that I haven’t got, so that’s fine now, I’m not scared.” RP04

Case Studies

These illustrative case studies have been compiled from individual participants’ interviews. The names have been changed to protect anonymity and any identifying data changed or removed.

Case Study 1

Sally is a 28 year old single mother of a daughter Bea who is 10 and son James who is 7. Bea has asthma and uses a preventer and a reliever type of inhaler. The family had been in the house for 10 months after being on a waiting list for a long time. The house was a 3 bedroom house rented from a social landlord. Sally pays for fuel by a prepayment meter but is a bit confused about whether she still has district heating or not as she knows some houses have now had this taken out. She had just gone onto emergency credit. When Sally gets a payment she first buys food then puts money on the gas and electricity meters. She has some debts and for the moment is not worrying about them as she has nothing to give anyone anyway. She intends to get round to sorting them out eventually. Sally has recently been put on incapacity benefit because of constant nausea, headaches and mental health problems. She finds it hard to apply for such benefits so her brother usually comes to help her with forms. She also has family support because her son has behavioural problems at school.

Bea has had asthma for a few years but suffers from it during the winter. When Sally took her for a flu vaccination at the GP surgery she was told her daughter couldn't have it because she hadn't been prescribed any inhalers over the summer. Sally had to persuade the health professionals that the asthma repeatedly appears in the winter and that her daughter should have the vaccination. Bea coughs a lot at night and Sally has to be up with her helping her to sleep by propping up her pillows. Sometimes this can make Bea too tired for school the next day.

Sally only has the heating on when the children are back from school. She does not turn it on in the morning as she thinks it is not worth paying for the small amount of time they are up in the morning. Her son doesn't mind but her daughter

finds it very cold and hard to get dressed in the morning. Sally says Bea feels the cold more than James, she thinks thin people feel the cold more.

"My friend says her daughter gets cold too but not her son. It also depends on how thin you are doesn't it? They keep telling me to put more meat on her [Bea], 'you need to change your butchers!'"

Sally feels freezing all the time and looks forward to when the children are in because then she can turn the heating on again. To stay warm when they are at school Sally sits on the sofa with blankets round her. But even then the sofa feels cold because it is damp to touch. The lounge has a large area of black mould along the bottom of one wall, under the window and in one corner of the ceiling. There is a gap round the window where water gets in when it rains. She doesn't use the light switch in the lounge because it is so damp. She has asked the landlord to fix the damp but they have told her it is condensation. She was told the sofa is damp because she hasn't got underlay under the carpet and told the solution to the mould on the walls was to use bleach to get it off and also to re-wallpaper.

"No I don't like using it [bleach]. Then you're embarrassed when people come round and see it. But I am going to redecorate, they told me to get that kind of wall paper they used to have like decades ago, its you know, like plastic stuff, they said that doesn't get the mould on it so bad. I've priced it up and it is £5 a roll for the kind of paper they were talking about".

Case Study 1

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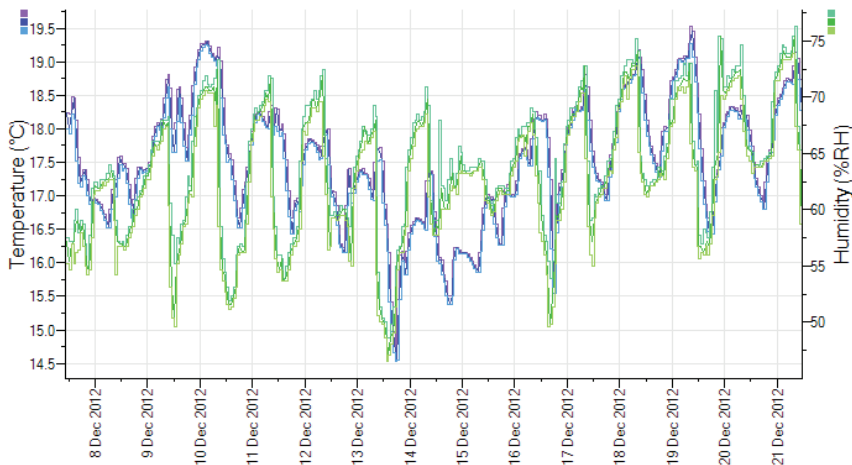
The curtains were ruined by damp and she would like to buy some new lined curtains to keep the heat in but doesn't see the point.

The children's bedrooms do not have mould, just Sally's bedroom and the living room. Both these rooms have two outside walls and flat roofs with no insulation, the children's bedrooms only have one external wall. The Tiny Tag readings show that the average temperature in Bea's bedroom was 18°C and in the lounge 13C (max 17.1°C). The average humidity in Bea's bedroom was 72.6% and in the lounge 97.6% (max 100%).

“Curtains are expensive even in a sale, especially those proper thick lined ones. But they'd just go black so it would be money down the drain”.

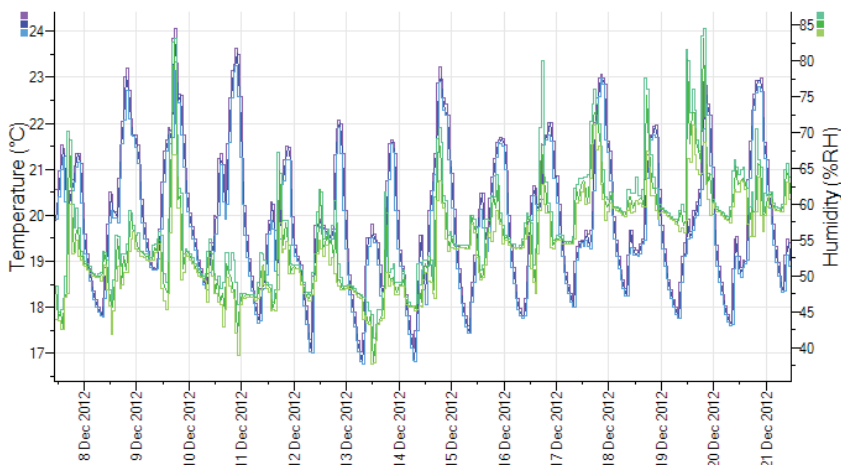
Case study 1 - Bedroom

- 565258 Maximum Temperature WWFR 4 Bedroom
- 565258 Temperature WWFR 4 Bedroom
- 565258 Minimum Temperature WWFR 4 Bedroom
- 565258 Maximum Humidity WWFR 4 Bedroom
- 565258 Humidity WWFR 4 Bedroom
- 565258 Minimum Humidity WWFR 4 Bedroom



Case study 1 - Lounge

- 565664 Maximum Temperature WWFR 3 Lounge
- 565664 Temperature WWFR 3 Lounge
- 565664 Minimum Temperature WWFR 3 Lounge
- 565664 Maximum Humidity WWFR 3 Lounge
- 565664 Humidity WWFR 3 Lounge
- 565664 Minimum Humidity WWFR 3 Lounge



Case Study 1

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Case Study 2

Pat is 33 and lives in a semi-detached private rented house with her partner Jo (44) who works in maintenance and their sons Ben (6) and Charlie (16). Pat says Ben used to be asthmatic but isn't any more. Charlie uses a preventer and reliever type of inhaler. At the end of the month someone is coming to install thicker loft insulation. Pat can't remember who asked her to do it or who is coming. She just knows it is free as part of a grant scheme. Pat finds the house quite cold and as she doesn't have the heating on when the kids are at school she feels cold so often spends the day at her mum's house where it is warm.

"Yeah, I go to my mum's, I don't know because I don't know if it's just different houses, I don't know. Because it does seem a lot warmer at my mum's than what it does here".

Even when the heating is on Pat finds the house cold. Her partner and sons tell her the house is hot and that there must be something wrong with her.

"It's like we can be freezing and then Ben and Charlie say it's like roasting, there's something wrong with you".

Her sons will often turn the heating off without telling her leaving her wondering why the house has gone so cold.

"No, they just turn it [the heating] off. It's like last night, it was like oh there's something wrong with the heating, no Charlie says oh I turned it off. I thought well it's not even been on that long. He said oh it just warmed and I just turned it off, it gets too hot".

Ben and Charlie don't like to wear much clothing round the house, not even socks, they say they are fine, but they do like the comfort of a fleece blanket. They play outside sometimes but the worse the weather, the more they want to go outside in it. For example if there is a downpour or blizzard they like to go out in it.

Pat's grandmother got a prepayment meter installed and had convinced her mum to get one too. Her mum then persuaded Pat to get one. Pat is happy with it because she feels she is able to tell how much heating she is using and doesn't have to fear a big, unexpected bill. She knows she is paying slightly more than if she was on a direct debit but still prefers the peace of mind.

"It's better than paying it do you know like, I know obviously you're still paying it weekly but you know what you're using and how much you're putting on".

Pat had been having some support for some mental health problems. She didn't know how much money with Jo's salary and other benefits. She managed the finances though as Jo was not good at it. There are no damp problems in the house. Pat dries a lot of the clothes in the dryer but says the dryer is no good for some things like bedding and towels. Charlie's bedroom has an average temperature of 16.7°C (max 19.5°C) and average relative humidity of 53.2% (max 95.4%). The living room has an average temperature of 15.3°C (max 19.8°C) and an average relative humidity of 48.2% (max 95.3%). With an average temperature of 15.3°C it is not surprising that Pat often felt cold as this is well below the recommended level for comfort or health. The minimum living room temperature was 10°C. The issue in this family about maintaining the house at the temperature we recorded was not so much to do with cost but that Jo, Ben and Charlie felt warm most of the time and didn't want it any

Case Study 2

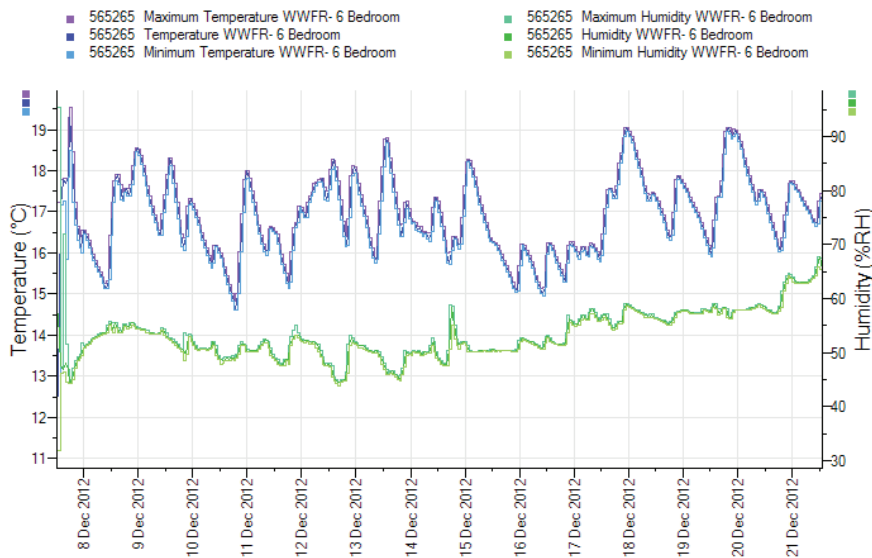
These illustrative case studies have been compiled from individual participants' interviews.

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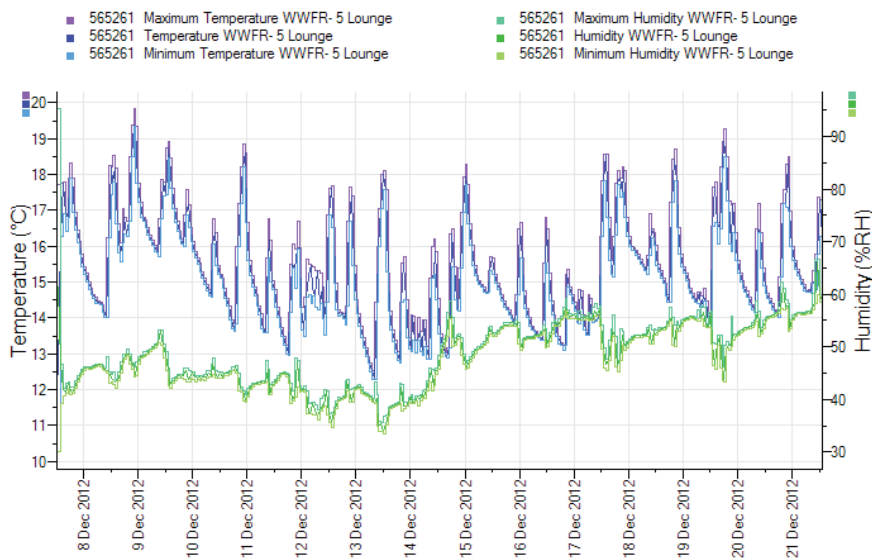
hotter, despite Pat saying she constantly felt cold. This shows that a household with a different make up of ages and genders can mean that it is hard to keep a house at a temperature that is suitable for everybody. The average relative humidity in the house was not high but there were times when it was very high as shown by the maximum readings. Looking at the Tiny Tag

charts below it can also be seen that the heating pattern had peaks and troughs and did not follow a steady temperature.

Case study 2 - Bedroom



Case study 2 - Lounge



Case Study 2

These illustrative case studies have been compiled from individual participants' interviews. The names have been changed to protect anonymity and any identifying data changed or removed.

Case Study 3

Kathleen is 40 and lives in an end-terrace house rented from a social landlord. She lives with her partner George (41) and her daughters Emily (12) and Amelia (14). Kathleen works part-time and George full-time, both on low wages. Emily has asthma and needs preventer and reliever inhalers. When Emily has had asthma attacks in the past she has had to be off school between four days and two weeks. To prevent her being off for so long Kathleen has written to school to say that Emily must not do outdoor P.E. in the winter as she believes that sets off her asthma. Kathleen has had the education welfare officer round recently because of Emily's repeated absence. Kathleen is also worried that the damp in the house is setting off Emily's asthma.

"Last time it did it, it was all my bedroom carpet and wardrobe and everything that all went mouldy. All my clothes in the wardrobe and everything went mouldy. And in Emily's bedroom were all the same. I had to replace all her bedding and a new mattress. Because you know the bed was up against the wall, it had sent it all like wet through and black and mouldy, so I had to replace all her bed and all her clothes".

The family pay for the fuel by pre-payment meter and in cold weeks can put on up to £10 a day to stay warm. Kathleen has asked her fuel company to take the meter out but was told there was a charge and they can't afford to pay that much. She has spent a few years trying to get the landlord to fix the damp in the house. The mould comes back every winter and the landlord has come to repaint the walls several times and have given her compensation for bedding, clothes and mattresses ruined by mould. The mould is in the kitchen and an upstairs bedroom on the wall

Kathleen says gets no sun and is cold because it is an external wall. She thinks the house next door must be a lot warmer because there are houses on either side. The landlord tells her the mould is caused by condensation but she doesn't think it is because she tries to dry most of her laundry outside.

"That's what they say. Every time they come out. I mean they had somebody out from Rentokil I think it was, supposedly he come to check it were damp. He never did a thing. He just looked round and said no it's not, it's condensation. So what do you do"?

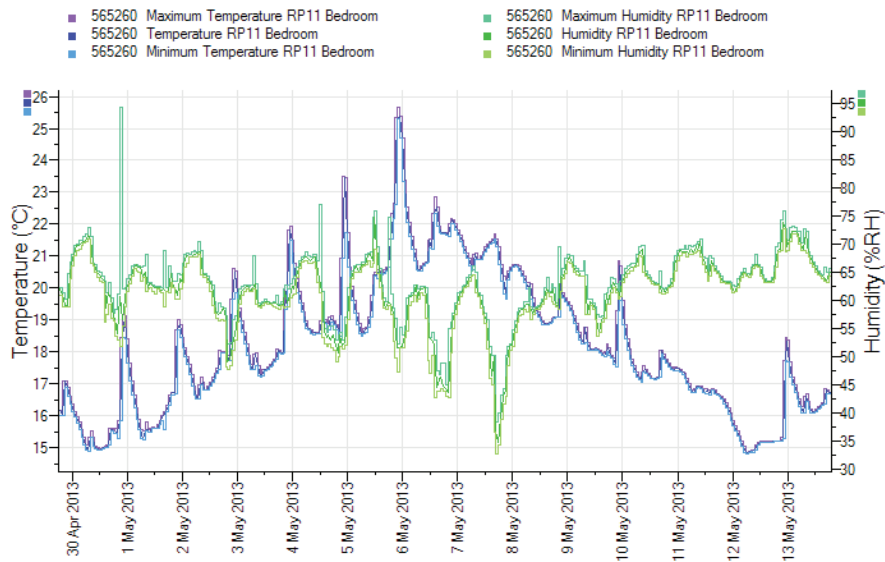
The research team offered to signpost the family to extra support to help resolve the damp problem but Kathleen has given up on the house and wants to move. She has applied to be re-housed but because she has no priority she thinks it will take too long to move house. The education welfare officer and a health professional are supporting her with letters to help her family down as a medical priority for an urgent move.

The average temperature in Emily's bedroom is 18.2°C and relative humidity 61.9%. In the living room the average temperature is 17.6°C (max 21.0°C) and relative humidity 57% (max 75.0%). Identifying causes and solutions for mould can be complex but it interesting that in this case, where Kathleen was told to was due to condensation the humidity readings are quite low, and lower than in case 2 where the humidity was quite high but no damp was reported.

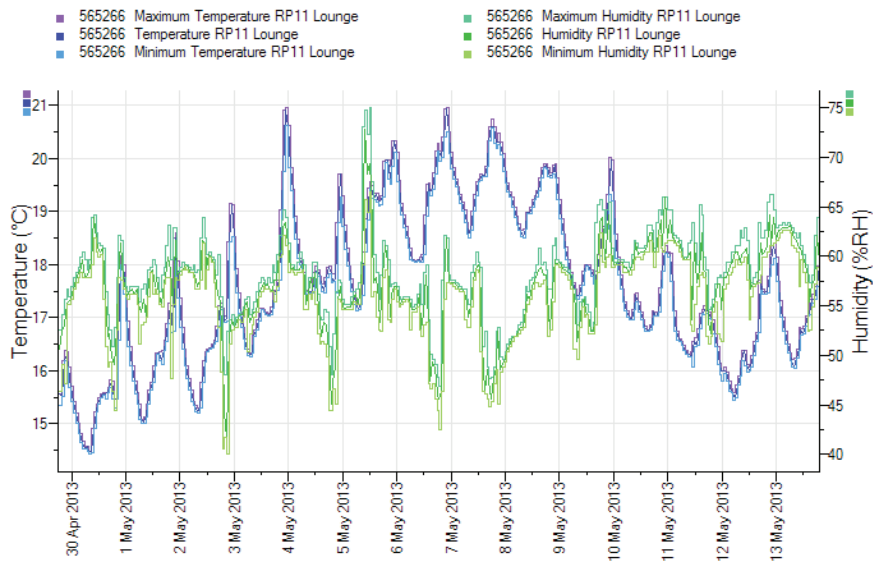
Case Study 3

These illustrative case studies have been compiled from individual participants' interviews. The names have been changed to protect anonymity and any identifying data changed or removed.

Case study 3 - Bedroom



Case study 3 - Lounge



Case Study 3

These illustrative case studies have been compiled from individual participants' interviews. The names have been changed to protect anonymity and any identifying data changed or removed.

Findings from staff interviews and focus group

Table 6. Findings from Staff Focus Groups & Interviews

Themes	Sub themes	Commentary
Contextual factors	<ul style="list-style-type: none"> • Cold • Damp • Types of heating • Low income • Areas of deprivation • Government policy • Rising cost of fuel • Transient housing • Repairs 	<p>There are different understandings of the causes and solutions for damp and the difficulties parents may have in addressing condensation such as cost of heating or ability to dry clothes. Condensation is partly attributed to 'wrapping' up of houses with no focus or funding attributed to ventilation. Parents can feel unable to insist a repair is done. Families can be quite transient for reasons of work, being offered more suitable housing, eviction, separation, and staff fear the 'bedroom tax' will make them even more transient. This causing problems in addressing housing conditions where there is a child at risk and accessing families. Advocacy if believed to be useful for families having problems with housing.</p>
Social factors/ support	<ul style="list-style-type: none"> • Friends and acquaintances at school • Family • Professionals • Social Care • Sure start/children centres • Children's educational attendance 	<p>Parents may rely on friends for advice but this may not always be the best advice. There is some fear of revealing financial and cold home problems to professionals such as social workers and education welfare officers where there is a fear of neglect being assumed. Parents may find professionals such as parent support advisors easier to open up to. Roma-Slovak families have a particular fear of social services due to rumours back home about children being stolen in the UK. Some parents find they are unable to reveal debt problems to family members. School attendance can be affected directly and indirectly from fuel poverty for example no cash for bus fares and school dinners, cold related illness, no dry uniform.</p>
Behaviours	<ul style="list-style-type: none"> • Priorities • Payment methods • Management of Asthma • Experience of cold • Budgeting • Changes in heating patterns. • Mental health • Fire risk • Self- disconnection • Empathy 	<p>Priorities can change day to day depending on demand as well as essential needs such as shelter, warmth and food. There can be an emotional attachment to lower priority spending where children are involved. Some parents are coping on a day to day basis and cannot budget or plan on a weekly or monthly basis. There is a concern about 'grounding errors' being more significant with monthly versus weekly payments with universal credit, especially among the disempowered and those with poor numeracy skills. Inactivity can be promoted by unheated homes where families use blankets for warmth in the day. Children in cold homes avoid going home to their own homes, or inviting friends home, finding friends' homes to go to instead. Cold homes put family mental health at risk and substituting gas central heating for electric radiators increases fire risk.</p>

Themes	Sub themes	Commentary
Attitudes and beliefs (and influences on these)	<ul style="list-style-type: none"> • Fear of debt • Priorities • Beliefs of Asthma 	There is a fear of debt as well as a fear of dealing with debt problems. Confusion around the steam to relieve asthma symptoms but also contribute to condensation.
Knowledge and awareness	<ul style="list-style-type: none"> • Training • Cold/ill health • Support mechanisms • Getting help • Sources of (trusted) information • Not accessing the most vulnerable clients. 	Need for staff to have access to training regarding finances and fuel poverty as it is complex and constantly changing so hard for staff to keep up with. Staff may need help with identifying those who are fuel poor but can find they can't do anything to help if they do find them. More help is needed than just food banks, help is needed with budgeting, getting work, managing debt, dealing with repairs and bills. There is a need for advocacy in some cases. The hard to access include those unable to open up to anyone about debt problems. Partnerships can be very useful but sometimes problematic with 'red tape'.

Illustrative staff findings

The staff interviews provided insight into the perceptions and experiences of those working with families who are at risk of being cold at home. Some of the staff data relates to staff perceptions. These were based more on their beliefs and attitudes rather than tangible examples and experiences that they came across in their daily practice. The following section is a brief summary of the staff perceptions and experiences from one-to-one interviews and focus groups using the themes from Table 6 as sub headings. Where staff views are based on experience, rather than perception, this is highlighted.

Contextual factors

Under the themes of contextual factors staff talked about issues around damp, being on a low income, families moving homes frequently and difficulties in getting repairs done. Damp was considered to be a condensation issue by housing workers and condensation cause by the families was believed to be a factor.

“But out of the bulk of the calls, 80%, 90% of them are condensation and as such it’s trying to educate the tenant that they do need to keep the heating on as background heat and they don’t need to put clothes on the radiators, they do need ventilation.”

Local Authority officer

There was however some concern retrofitting interventions have made condensation problems worse.

“Where we spend a lot of money as a council upgrading 21,000 council properties with double glazing and insulation etc. We’ve seen an exponential increase in complaints around damp, which is really condensation in reality, because we’ve sealed the building up now and people haven’t altered their lifestyle with more efficient heating, they choose to put towels etc, to dry on the heating. You’re just driving condensation in the property, and we get a lot of issues based round that.”

Local Authority officer

School and family support workers understood how hard it might be for families to avoid condensation.

“We work with parents that live now that it’s getting through each day at a time, and they’re thinking about right I’ve got this amount of money, what can I make for tea tonight to feed my six kids, not that if I put my heating on and I avoid a damp problem in so many years” School and family support worker

The transient nature of family accommodation means it could be difficult to target any particular vulnerable family just once over the child’s childhood. Moving home frequently is a particularly acute problem for asylum seekers.

“We have found it very difficult to keep track of them [asylum seekers] within the area. We can have, there’s nothing from going to family one month and going to see them again and they’ve moved. I’ve been to see families and they tell you if they’re moving tomorrow, and you can ask them where to and they’ll tell you they don’t know, and they obviously do not know.” Health professional

Families often need advocacy to improve their housing conditions where they do not feel their landlords are responding or they fear eviction for making a complaint.

“Yeah, and they think that if they’ve got a house they might not be able to get re-housed or what if the landlord evicts them because they’ve complained.”

Local authority officer

Social factors and support

Staff discussed where parents went to for support. Some staff were concerned that families fear potential actions or interference of social workers. Families therefore sometimes find other professionals easier to go to for support. In addition they thought families feel shame regarding debt and may not talk about it, even to close family members.

“depending on age group in families, some families will frown on debt, so they’re actually, depending on what their other family members are like and how they view debts and things, will depend on whether they approach them. Some will, but some definitely not. I think they’re more scared of their families some of them, than actually going for help, because it’s such a big thing in some families.”

Voluntary sector and community worker

For some communities who find it hard to talk about financial problems staff were concerned that ways should be found to help them access help before situations get worse. School attendance can be affected by cold homes and fuel poverty in several ways, for example not having a dry uniform, getting up in a cold home, no hot water for washing, money spent on fuel instead of bus fares to school or lunch money. Tiredness, hunger and illness were also found to affect school attendance and attainment:

“And I have my parents who choose between putting £10 on the gas meter or sending their children to school, and they choose to heat the house, so they don’t send their children to school. they’re not able to use the cooker either with no gas, so they’ll put the gas on rather than send the children to school with the bus fares and dinner monies. Yeah, and if you’ve got three or four children catching a bus and wanting school dinners, it’s the parents who work and don’t get the benefits for it who really do struggle, that’s what I see when I go out. A week before they get paid, because people tend to get paid monthly, so the week before they get paid, and you can see a clear pattern on, we use registration certificates, which is a legal document of the morning and afternoon registration of the children, and you can see the clear patterns, that it’s one week a month where the children are not coming into school”. School and family support worker

Getting support is therefore complex in terms of people feeling they are able to ask for help and in organisations supporting families when they frequently move home.

Behaviours

Staff discussed how behaviours regarding heating the home related to priorities, methods of paying for heating, and 'self-disconnection'. Their heating behaviour was also influenced by asthma management, families' experience of cold, how families budgeted, risks of cold such as fires and mental illness and the need for empathy with families. Household priorities were complex. Participants explained how need and emotional attachments make it difficult to decide on what is a financial priority.

"There's all sorts of emotional things where people are prioritised by and, you know, I mean there's a way we consider something about priority when we talk about debts, of how kind of industry and the courts, things like that that create a priority, like council tax is a priority because you can lose your liberty and what have you, it involves bailiffs, if something got county court judgement, is it attached to your home?, are you going to lose your home?, if you've got mortgage and things like that. And then there's a little bit more emotional and you owe money to family and friends. And there's a lot of emotion about prioritising things for the children." Voluntary and community sector worker

Maintaining a hierarchy of 'needs' is therefore difficult. It involves negotiating, prioritising and managing in a way that may seem illogical to others, but were explained by genuine difficulties in budgeting to make ends meet.

"So when they present us with a budget, either it's massively overspent or loads under spent, and I say well, where's your savings?, and it comes to like well we haven't got this. And then when you look at the energy, it's quite often priorities but . the impact is, that we can see it getting worse is energy in real terms is getting a lot more expensive and it's the basic stuff." Voluntary and community sector worker

Staff witnessed genuine hardships and how family life was affected when there was no heating. Blankets and coats were used indoors as alternatives that had associated with mental health and safety risks.

"They get into debt, and then when they get letters from people saying they owe money to them, they don't open letters, they either throw them away or put them in a drawer and they don't open them. And that spiral of depression just makes them go down and down and down. And it's like they can't get out of it, there don't seem any end of it, and this is what a lot of people don't realise. I think that they feel as though they're just getting crushed, and I've had clients and probably [colleague] has, who just say I'm suicidal, I'd just rather be dead, because the struggle's become that difficult for them they can't see a way out." Voluntary and community sector worker

Some staff tried to emphasise the importance of understanding what families are experiencing and why.

"I can't imagine how many families there are because I'm aware of, well, allegedly people with good jobs who are having financial difficulties. But it comes back to finger pointing as well and it's reinforced by the media. You know, cold home, well, if they

didn't smoke and if they didn't go down the pub they wouldn't have to have a cold home would they, I'm not helping them " School and family support worker

Attitudes and beliefs

Fear of debt was a common theme. Some staff believed parents knew of financial help in a crisis, available, for example from social services but were sometimes reluctant to use this source of help because it did not solve the debt problem.

"They don't want to go into the red, they want to just keep their head above water don't they? And the last thing they want to do is to get emergency loans from Social Services and all that kind of stuff, because that's a vicious circle in itself, because once you've taken the money next time when you get your payment you've got to give some of that money back. So now you've got to live on even less than you were .living on before, so where does it end kind of thing." Voluntary and social sector worker

Staff had experience of trying to help families resolve debt problems, with some families needing help to open letters regarding payments because the parents have been scared to face the problems.

"Nearly everything else has got some other elements to it that's either been a cause of, a regarding energy if a person's been in debt for a long time, what they tend to do is bury their head in sand. And I've seen people come here, as has [colleague], and they've got carrier bags. They've got a carrier bag of mail that's unopened for debts. And we have to sit there and open them all won't we? They're horrified, they're horrified, they're scared to death of what's coming because implications, or some of the worst implications, they can be evicted from their council house, or if they're in a mortgaged property then obviously bank or building society can go for repossession . and they're going to lose their home. And rather than think about that, they'd just rather put things in cupboard and forget about them." Voluntary and social sector worker

Support for families with debt problems is therefore useful for some families. Job losses and increased demand for access to this kind of support means it can be difficult to find help.

Knowledge and awareness

How staff manage to access the most vulnerable households was of particular concern for staff participants. They also discussed how people can get trusted information they can understand and act on. Food parcels were seen as a remedy to high fuel costs, as they allowed people to prioritise fuel payment and get food from food banks. They reported that more can and should be done to help people manage their finances better so that there is money for food, fuel and other essentials.

“And food parcels are not a remedy to anything, they’re just basically an emergency measure to put them on, and hopefully we’ll change things. They might need help with benefits, help with budgeting, help with getting work.” Voluntary and community sector worker

Which staff groups are best placed to access the most vulnerable to help them improve basic living conditions where families feel precarious needs careful consideration. Families who fear losing their homes and cannot afford to provide basics such as heat and food for their children may feel additionally threatened by professional groups associated with authority. Parent support workers, charities and fire officers were suggested to be non-threatening.

“parent support advisors are very handy to have because they don’t feel threatened by them. Social workers, you see I’m in a league with social workers, they don’t like me and they don’t like the social worker, and it’s just how it is, so anything we say, they feel like we’re getting at them, so it does have to be somebody else. So it could be a parent support advisor or a learning mentor in school, if they do a home visit, you know, because they’re not threatened by that.” School and family support worker (not a parent support worker)

Parents who were afraid to be open about financial difficulties were seen as particularly vulnerable but at the same time some of the most difficult to identify and help.

“I think that’s probably the hardest group to access, the ones who are in need but are hiding it. And the children will be probably going to school regularly, and they’ll do everything not to draw attention to themselves and just look like everything is okay on the surface.” School and family support worker

Staff in different sectors reported witnessing families with substantial need but who fear accessing help for many different reasons. At the same time trusted help with financial advice is becoming less available.

Interventions suggested by staff to help reduce fuel poverty and cold homes

Staff who were interviewed also suggested a range of solutions and interventions that could be employed in order to reduce or address families at risk of being cold at home. They suggested what they think could help families and also what would help them with their work to reduce fuel poverty in families. Below is a summary of some of the varied suggestions staff made during the interviews and focus groups. Interventions that were thought to help staff with their work in reducing fuel poverty included training for staff about fuel poverty including awareness, prevalence and signposted routes for referral.

“I think it’s exactly what would be useful for colleagues in school to know is awareness raising of how the issue, how prevalent it is and what actually there is out there that could be done to support, so the signposting routes. As you say with the changes in services happening, it’s difficult to say call this organisation and they’ll be able to help you because they might not be there in the current climate.”

They also included improving working practices such as networking, cutting bureaucracy in inter-agency work, including ventilation on energy efficiency agenda, making energy efficiency funding more accessible to local authorities and widening help for those referred to food banks to financial advice and help with cold homes.

Among interventions to directly help families were varied and demonstrated that many staff groups can assist families experiencing fuel poverty. The suggestions included education for families and supporting and advocating for families. In education for children they suggested materials for school assemblies, an input into the Eco Schools awards, teaching about keeping warm and health, and being involved with Age UK’s Bobble Day and Spread the Warmth campaign.

In terms of accessing parents, because of competing priorities on the school agenda, tagging fuel poverty messages onto other activities was seen as practical:

“if it’s a quick general awareness raise and off and signpost, then there’s more chance for that. Or as you say if they’re aware of it and tagging it on like the eye checks, tag it on to just the health that’s already talked about. But the main point is if you’re raising awareness then so what, there needs to be some self-help things.”

Health professionals were seen as useful to deliver damp prevention messages for families because they were seen by parents as independent. Maths literacy in higher education for parents was also seen as vital for families being able to manage their finances. They also suggested adding information about warm homes to existing public and voluntary sector parent support websites to provide self-help for families.

Another suggestions for reducing the impact of cold weather on vulnerable families was to use ‘Snow Angel’ schemes to involve the community.

Regarding supporting families in achieving warmer, damp free homes some simple interventions such as warm packs and onesie giveaways were suggested. The provision of warm packs through the short term

Warm Homes Healthy People funded project were found to be useful in helping staff access families and engage with them for other help with fuel poverty as well as other issues. Debt advice and support was seen as vital and something families often needed one to one support with:

“They want to address it but they’re scared to address it. They’re scared of that, oh I’m in debt stigma as well. Like I’ve had people and I’ve said don’t worry about it, we deal with debt every day. We don’t look at anybody any different because it’s just how society is, and we treat everybody equally. And you’ll get people coming and they look absolutely dire when they come in, and they’ll go out with a smile on their face because they’ve had a bit of advice and we might have said well don’t worry about that debt because it’s got no actions on it at the moment, so you’re not going to lose this or you’re not going to lose that. And it’s just that initial help that they need.”

Support for managing finances could come through staff best places to understand the family’s situation such as an education welfare officer, not just traditional debt management organisations:

“I’ll talk to them about money and about managing their money and about, you know, are they able to put the money on the meters, have they got meters or do they pay by direct debit, you know, and do they need any support with that, do they need any help with that”

One to one support through advocacy was also seen as vital where a family was struggling to negotiate and maintain healthy living conditions or avoid eviction:

“A lot of the time he [housing advocate] will ring a landlord up for them and remind them they’re breaking the law. And it’s only two weeks ago I were with him visiting another family. He got a phone call from this landlord who were trying to evict this family this week at the weekend. They’d not provided a notice that you’re planning to evict them or anything, they’re just saying they were going to kick them out. So he basically has to try and remind them that they are breaking the law doing what they’re doing... make sure the family knew what their rights were, because we have had times where landlords have turned up with heavies demanding money. We have had families, landlords turn up with three or four family members to try and force money out of family.”

And also general help with sorting out the multiple problems that can to a cold damp home

“In an ideal world, if I had a magic wand, would be like a housing champion, and we do have housing champions, but for a very different reason. But somebody who I could say oh I’ll ask such and such to come and have a chat with you, and someone who could take that role on to go out and say right, this is what we can do, and almost hold their hand and do it with them, or teach them how to keep the house warm, do you know what I mean.”

Children with asthma have specific needs for housing conditions that reduce allergens such as mould and cold temperatures that can lead to more respiratory infections. Forced Pressure Ventilation was proposed as an intervention with clinical evidence (see Edwards et al 2011) to support a reduction in asthma symptoms where there was an issue with damp and condensation. In this sense staff saw families where there was a child with asthma as needing additional help. Suggestions included early intervention work, involving the fire service with vulnerable families living in cold homes, accessing support for families where asthma is affecting school attendance and attainment, and advocating for resolution of housing condition problems by health professionals. One health professional was concerned that asthma and mould did not become a single issue but that reducing asthma should be part of a wider health agenda as asthma can be affected by general healthy living.

“Yes it would definitely be good to do more work on creating healthier home environments with less allergens but its not something that we should focus on solely with a child with asthma. There should be an emphasis on the household and all aspects of health because asthma is better where health is improved”

The above suggestions for interventions are extensive, however they are only taken from the data collected so there is potential for more and better developed interventions.

Recommendations

Staff suggested a range of interventions that could help families stay warm and well. These included training for staff, education with families, supporting families through advocacy and finding solutions and financial advice. With food banks becoming common place staff suggested that more complex solutions are needed to help families not only afford the fuel they need but address all aspects of family finance and living conditions. Suggested interventions include educating children and families about cold related harm and different ways support can be found to reduce fuel poverty. Advocacy for families experiencing unresolved or harmful housing conditions is also advised along with improved working practices for staff to offer specific help for families where there is a child with asthma. Evidence based interventions such as forced pressure ventilation could be considered.

A good example of how family support staff not traditionally involved in fuel poverty interventions was the Rotherham Warm Home Healthy People Project (RMBC 2013). In this project staff from the family charity ‘GROW’ found the distribution of Warm packs helped them engage with families at risk of cold related harm who might have otherwise been hard to access:

The full evaluation of this project can be accessed on the Winter Warmth England website, another project set up to facilitate fuel poverty reduction in Yorkshire and the Humber (www.winterwarmthengland.co.uk).

Discussion

This study provides a unique insight into the experience of families in how they try to keep their homes warm and damp free. Previously little attention has been paid to the experience of families as the focus has been on older people. The focus on older people can be partly explained because the majority of cold related deaths occur in the older age group. However, when the attention is shifted to cold related mortality, cold related harm and families becomes important. This section will include a brief summary of key messages and some recommendations

Establishing who is in fuel poverty is complex and numbers change depending on definition used. In addition, this study reveals that householders who may not be included in either fuel poverty definition are unable to afford or keep a warm home for a variety of reasons such as fear of debt, problems with heating repairs, lack of knowledge about safe heating levels, and differing levels of thermal comfort. Several risks to health and wellbeing for families living in a cold home have been identified including risks to mental health, respiratory conditions, asthma, house fires and reduced school attendance.

In this study damp was found to be a major issue among the participants, which created problems for them in terms of heating the home. Condensation was identified as being the main cause of damp but parents and professionals did not always agree on the cause or the solution. Housing staff were concerned that increased condensation could be a side effect of the major energy efficiency schemes that have 'wrapped up' houses and encouraged tenants to increase ventilation in their homes through opening windows and using vents. Some parents disputed that condensation was the cause of the mould in their house and blamed it on particularly cold outside walls.

Most participants were however not opposed to the recommendation of keeping their homes well ventilated but did not always find it practical. Opening windows could let expensive heat out but parents of asthmatic children has also been told not to open windows to avoid letting other allergens into the house such as pollution and pollen in the house. Drying laundry outside or in tumble dryers was acceptable to parents in theory but not always practical or affordable. Drying outside was not seen as effective in winter and tumble dryers were expensive to run. Some parents didn't have room for a tumble dryer in their homes and not all items could be dried in tumble dryers. Drying laundry on a radiator was seen by housing staff as a significant contributor to condensation but where parents were faced with the short term necessity of drying school uniform so a child could go to school the next day, the long term effects on the condition of the house were secondary considerations. Electric vents were unpopular with parents because they were noisy and air bricks made the house draughty, but positive pressure ventilation could be a cost effective solution. This intervention has been evaluated and found to be a cost-effective solution. It successfully reduced symptoms of asthma in the trial and was not noisy or draughty.

Keeping the house warm to reduce condensation was costly for participants but again there was a contradiction for families with asthmatic children as a heat was also believed to exacerbate asthma symptoms. Children with asthma and their siblings commonly had other allergic conditions such as eczema which was aggravated by heat and another reasons to keep a home cool.

Some parents in this study were bombarded with contradictions from different professionals with messages regarding their family's wellbeing. In addition the parents own beliefs were not always aligned

with the advice they were given. For example, cold was seen to be bad for asthma because breathing cold air could trigger it, but too much heat could also bring on asthma symptoms. Condensation was seen as bad for asthma because it contributed to mould growth but steam was recommended to relieve asthmatic symptoms and croup. Participants did not appreciate the difference between condensation, steam and damp. Dry air was also seen as a trigger for asthma and some parents had heard putting a wet towel on a radiator was good for asthma. They were told that windows should be open to allow the house to be well ventilated (even though external humidity can be higher than internal) but also told that windows should also be cold to keep the heat in and prevent pollen and pollution getting in and setting off the child's asthma. Exercise was seen to be good for asthma by professionals because it helps improve the lungs. However, parents experienced exercise being bad for asthma if the child is outdoors as that seems to set off asthma.

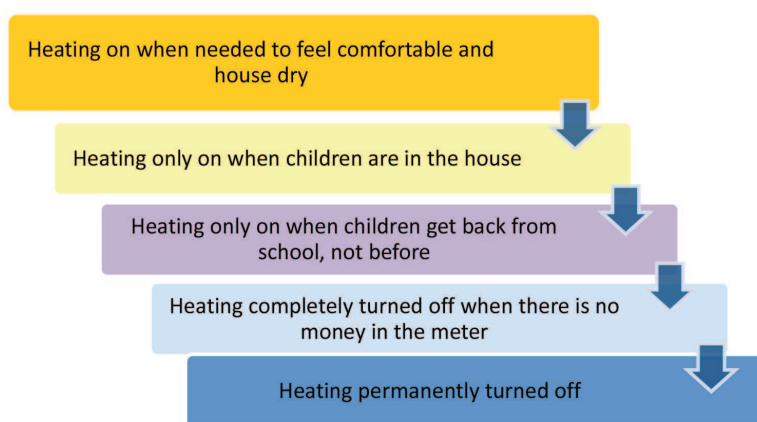
Another key finding relates to the times of heating within the home. Almost all parents only turned the heating on when the children were back from school. Another contradiction parents struggled with was who had asthma. Some were told that their child would not receive a formal diagnosis of asthma until they were about six years old when it was possible to distinguish asthma from other respiratory conditions. Parents of young children were sometimes told their child had an 'asthma like condition' whilst others that their child wasn't supposed to be diagnosed with asthma at such a young age but were given the diagnosis anyway. This led to a situation where children with identical conditions are receiving differing diagnosis and so struggled to know how best to manage their children's condition and the home temperature. It has been suggested in the past that reliever inhalers are handed out too readily and often for viral conditions leading parents to mistakenly think their child was asthmatic. On the other hand, as asthma is known to be associated with poor housing and damp among educational, housing and social care professionals, a formal diagnosis could be an advantage for the family where these professionals are advocating for improved housing conditions on their behalf. With this recent change in diagnosis policy it would be interesting to explore how these non-health professionals view an 'asthma like condition' in respect to priority for improving a family's living conditions.

A well cited 'healthy' temperature for a home is 21°C for the living room and 18°C for other rooms (Marmot Review Team, 2010), however the findings of this study raises a question regarding the appropriateness of such a one-size-fits-all approach. Families in particular have complex heating needs because their homes are made up of different genders, ages, and health conditions. This means the right temperature and level of ventilation for thermal comfort and health will vary from individual to another and there may be no way of optimising the thermal environment for each occupant. In this study cost and children's health are prioritised, possibly at the expense of the adults' health and comfort. In addition what may be best for the occupants may not be best for the condition of the house. A warm well ventilated house may be the solution to prevent condensation but at the same time exacerbate asthma symptoms and the cost put the family under damaging financial stress.

In the UK energy companies do not have the authority to cut customers off from fuel, but the Warm Well Families study indicates that families in houses with pre-payment meters are at regular risk of 'self-disconnection'. This is through not being able to top up the meter once the emergency credit has been used up (Consumer Focus 2010). This has significant health impacts including hypothermia, not being able to eat hot meals, have use of a phone to ring emergency services, house fires through accidents from naked flames and mental health of children impacted through isolation and fears of living in a dark environment. With increasing stress on incomes, change to monthly payments and increasing fuel prices these periods of self-disconnection are expected to increase and present a significant risk to families. However there are situations where families choose to, or are unable to maintain sufficient heating in

their homes to provide for health and thermal comfort. In the model below the first box represents the ideal scenario where families are able to provide the heat they need for their families to be healthy. The next box represents where parents prioritise their children's needs and not their own. These parents only have the heating on when the children are in. Some families cannot afford that so choose certain times of the day, such as a couple of hours in the evening. We identified examples where families may be cut off for days at a time where there is no money to put in a meter, and where financial problems become even more significant this 'self-disconnection' could be seen as permanent. There is a need to monitor how families are able to provide heat using the model below and to identify which families are most at risk of not having enough heating to maintain health, especially where there is a family member with a health condition affected by cold.

Chart 4: Degrees of Self-disconnection



This leads on to the question of who should be targeted for the reduction of fuel poverty? This study has shown that families with financial difficulties may face substantial barriers to being able to talk to people about debt and money management so may in this sense be 'hard to reach'. Also identifying families through fuel poverty characteristics alone does not capture those who may be actually living in cold homes and it must be remembered that 'fuel poor' can include a wider sector of the population than those on benefits who have been traditionally targeted for energy efficiency interventions. In addition certain health conditions that are exacerbated by cold need prioritising. However the transient nature of family housing means that it is not possible to identify say a child with a particular cold related condition such as asthma and intervene to provide healthy housing because within a year or two that family may move on and the improvements may need funding all over again.

Key messages

The research demonstrated very powerfully how parents were constantly assessing their family's needs against the resources available to them. Many of the parents interviewed displayed high levels of ability and skills in the way they controlled, managed and allocated limited budgets and planned ahead for expenditure. Evidence was seen of parents working their way through conflicting and confusing information or advice, negotiating with professionals and taking different approaches when faced with barriers in the way of what they wanted to achieve. Parents were also seen, not only to manage their own time and resources, but also provide help and support for extended family and friends. In return, they also turned to peers and family for support and advice.

In summary key messages are:

- Cold, damp and mould are seen as significant problems both by household members and by staff from a range of professions and over a range of service user groups
- Damp and mould are prevalent in cold poorly ventilated homes
- The temperature of the home has a reported impact on the wellbeing of the inhabitants
- Heating, temperature of the home and levels of humidity and damp are reported as affecting the health of children with asthma.
- There is a complex interplay between heating systems and equipment and patterns of heating use. Where there is no thermostatic control or timer it can be easier and cheaper not to use the heating at all or to engage in an inefficient stop start pattern.
- Fuel is prioritised as a household expenditure, but is one priority amongst many.
- For families on a low income paying for fuel and keeping the home warm is problematic.
- These families have a pervasive fear of debt, of getting behind and not managing.
- Management is a key concept for families - in particular managing the complex interplay between low income, high fuel bills, household priorities and child health and wellbeing.
- To solve the problem of providing a warm home and paying for fuel, families make use of a range of strategies. These include:
 - self-disconnection
 - a pragmatic heating pattern of peaks and troughs
 - wearing more clothes in the home
 - rigid budget management
 - choosing a method of paying for fuel which provides control and avoids large bills
 - being out of the house
 - seeking support from families and friends
- Families were reluctant to seek professional help irrespective of agency.
- The need to 'juggle' or manage priorities against resources often meant the parents were making 'trade-offs'. It is proposed that these trade-offs drive behaviour and, in conjunction with the parent's ability to take positive actions when faced with difficult circumstances or challenges, are ultimately the governing factors that will determine the level of vulnerability to illness for that child.

Considerations for Professionals

The focus group discussions indicated that vulnerable households need information that is easy to understand. There was a strong message that much existing information on how to manage and alleviate fuel poverty was not sufficiently accessible, useable or able to keep up with rapid changes in schemes. The notion of 'visual messages' was stressed where the benefits of taking a specific form of action could be clearly seen.

Families on low incomes are by necessity experts in budget management and to bring about changes in behaviour positive benefits must be clearly evidenced. We can learn from this data to develop clear messages regarding financial inclusion and household budgeting.

Many participants were concerned about "damp" properties and mould. Data from households, alongside that from staff and focus groups should inform the development of acceptable and assessable messages and interventions regarding preventing the build-up of condensation and mould.

Using the findings in practice

This report has discussed the many factors, drawn from the research that may influence a child being at risk of illness associated with living in a cold home, a home with fluctuating temperatures, damp conditions or mould.

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What do we mean by trade-offs?

Used within this report we describe trade-offs as the way the parent's choices (and therefore ultimately behaviour) is governed by the interplay of both contextual and psychological factors. The families in our research all had a common factor; a child with asthma/respiratory problems. However, as we have seen from the research findings, not everyone has the same sets of circumstances ('contextual factors' - financial, type of housing tenure, energy efficiency of home, social relationships) and not everyone thinks or feels the same way about things. ('psychological factors' - attitudes, knowledge and beliefs).

The contextual factors are often things that are circumstantial such as the family living in a privately rented property, having old and difficult to control heating systems or the need to move house to accommodate a new family member, be nearer to family support or reduce rent costs. Some factors described as contextual may be easy to define such as things like tenure. Others are not so easy to understand; for example 'social-norms'. However, as these could be described as external forces influencing the parent's behaviour, they have been included within contextual factors.

A norm is a group-held belief about how members should behave, feel or react in a given context. Within the research we saw evidence of social norms around how people coped with managing money by using meters, turning to friends and family and helping each other to cope. This in the world of the parents we interviewed was 'the norm'.

Figure 4. The contextual factors - a word cloud



Figure 5. The psychological factors

Perception Of Risk	Fear	Priorities & Choice	Knowledge & Beliefs	Responsibility & Blame
<p><i>Child becoming ill</i> <i>Losing Home</i> <i>Getting into Debt</i></p>	<ul style="list-style-type: none"> • <i>Loosing home</i> • <i>Debt</i> • <i>Child becoming ill</i> • <i>Blame</i> • <i>Shame or embarrassment/ stigma/loss of privacy</i> • <i>Being judged</i> • <i>Losing control</i> 	<ul style="list-style-type: none"> • <i>Heat: luxury or need?</i> • <i>Needs of family members</i> • <i>Roof over head</i> • <i>Paying the bills/ balancing the budget</i> • <i>Food/heating regime</i> • <i>Safety of family/ possessions</i> 	<ul style="list-style-type: none"> • <i>Causes of asthma</i> • <i>Causes of mould/ damp</i> • <i>Cost heating and energy saving measures</i> • <i>Preventative action</i> • <i>Who can help</i> • <i>Who to trust and not trust</i> • <i>They have no choice sometimes</i> 	<ul style="list-style-type: none"> • <i>Child's health</i> • <i>Damp/ condensation/ mould</i> • <i>Condition of house</i> • <i>Heating regime/ equipment</i>

Pen Portraits

In order to bring the research to life and help gain a deeper understanding of the factors that influence the behaviour of the parents, we have developed a set of 'pen portraits'. These are not real stories or people however, they are built using the research findings and real life observations and a 'portrait' of possible family scenarios has been created using a descriptive narrative. The quotes used are actual quotes from the research and used to illustrate the constructed pen portraits.

Paula and Steve

Paula and Steve are in their late thirties and have 2 children; a boy and a girl. Their son is at school but their little girl only 2 years old. Both of their children have asthma. They all live in a 1950s 3 bedroom semi-detached house which Paula and Steve bought 3 years ago just before their youngest child was born. Steve works full time as a delivery driver for a national transport company and Paula works part-time at a local children's centre.

Money is sometimes tight but Steve gets overtime most months and they budget as best they can and save money where possible. They make a good team but Paula tends to manage the budget and is proud that they have a pretty decent life and pay all the bills on time. Paula's mum and dad have a caravan at the coast so they get a family holiday every year and the kids always get a bit spoilt at Christmas time.

There have been challenges though as the house was pretty damp when they moved in and their daughter developed asthma as a baby. She has been in hospital a couple of times which was very upsetting for the family. The GP and the health visitor gave the family information about how damp and allergens such as pollen can

"No. I don't have his window open in summer because of the pollen... Yeah because it clings to his bedding and that I've been told to keep his window shut. It was a couple of years ago that the doctor told me to do that with it and it does help, but obviously because it's that long ago now I don't know whether I still have to do that with him because I've not even risked trying any other way because I don't want to risk leaving it open and it setting his asthma off, so I just leave it."

trigger asthma attacks. Paula sometimes didn't know the right thing to do and whose advice to take.

Paula had been advised to keep the house warm for her daughter but the heating was costing a lot of money and other bills wouldn't get paid if it all went on the heating. Keeping the windows closed saved money on heating and stopped the pollution and allergens getting into the house. However, this meant the house got damp and that caused mould on the walls; which could also cause asthma. Sometimes there were so many different things to think about it was difficult to know what to do for the best.

"The internet tells you about everything really doesn't it?"

Paula decided she would do some research on line about the mould and also try and get the heating bills reduce by swapping tariffs and seeing if they could get help with better insulation. At first their attempts to get rid of the mould didn't work very well but she found some better advice and a much more useful website.

Tackling the energy companies about the bills and swapping tariffs was quite daunting at first. The bills were hard to understand and she wasn't sure what was available in terms of better deals. The energy companies didn't seem very helpful but she kept on trying and called a number of different people. She also got advice from a colleague at the children's centre that put her in touch with someone at the local authority. They told her about a few schemes running locally to get free insulation and also what kind of questions to ask the energy companies.

Paula says it wasn't easy sometimes to navigate through all the advice or even know where to get the advice but she got there in the end.

"Like I said this is my hump with (supplier) because there is a lot of people that work for (supplier) that will try bullying you into stuff but I just, like I say I just, if I'm not getting nowhere, I put the phone down and ring back when I do get someone, just keep trying to speak to somebody that will pass me onto somebody to get me somewhere."

The house is easier to keep warm and they are able to tackle the damp and the mould now. Their daughter's asthma seems much better and they are hoping that she will not have any more attacks this winter.

Considerations for professionals when developing interventions or engagement strategies.

Although Paula and Steve are both working and own their own home, they still find it hard to make ends meet and cover the fuel bills. Sometimes the advice seemed conflicting and Paula had to be determined and resourceful to find the answers and advice she needed. However, she is pretty confident when dealing with people and she had access to the internet, a land-line and advice from health professionals and colleagues at the children's centre. Not everyone will have these skills, perseverance or resources.



Michelle and Ryan

Michelle and Ryan both work very hard and are proud that they are achieving their priorities of paying their bills, looking after their three children and putting a decent roof over their heads.

"I don't know, it's like I just make sure that I've got my gas and electric and food to feed my kids, and you've got a roof over your head"

They live in a privately rented end terrace property with their children who are all school age. The house is over three stories, a good size for the rent they pay and quite near the school their children attend which really helps with the school run. They also needed to live very close to Ryan's parents who provide wrap-around child care both before and after school sometimes as both Michelle and Ryan work shifts. They both work fulltime; Michelle at the local Tesco and Ryan in a large distribution warehouse, so juggling day to day life can be a challenge. This can often be made more difficult as their son, the middle child, suffers from asthma and has even had to go to hospital a couple of times when it has got really bad.

Their practice nurse, who provides the asthma clinic at the GP surgery, advised them that the cold could trigger his asthma and that mould and damp could make it worse too.

There are a few problems with the house such as damp and being quite difficult to keep warm due to the old boiler and radiators. With 3 children and school uniforms to keep clean, this also makes drying washing difficult in winter and Michelle puts clothes over the radiator. It does seem to make the house a bit damp sometimes. The hospital had advised that sometimes the steam and humidity from things like a hot bath can help and it did seem to make

his chest easier. Besides, moving house would be a problem due to their shift work, children's school and child care needs. Although they could ask the land lord to make improvements to the house, he has refused to do things in the past and they are nervous of the rent being increased or even being asked to leave if they make too much fuss about it all. Anyway, they don't like to get into any arguments with anyone or cause any trouble so they have tried to tackle the problems themselves.

"They did that like, they come round once and asked, but yeah, the landlord won't do it, it'll only be if we can get it done ourselves. No, he'll not. It'll only be one of these do you know like when they go round, the like government scheme things that they do, yeah. Yeah, no, my husband fixed that [a leak], yeah. The landlord didn't do it, yeah."

They had both also seen lots of news coverage on the TV and in the newspapers about cold weather being bad for your health and the rising cost of fuel bills so they asked family and friends what they did. Some said they had swapped providers to get cheaper fuel tariffs but some colleagues had told them about bad experiences when it went wrong. Ryan's Dad has also helped with putting some draft proofing measures around doors and windows and Michelle's Mum has lined the curtains for them. They were very worried about the black mould that kept coming back on walls of the bathroom and some of the bedrooms.

“No, yeah, it’s [the damp] lower down in the corner. Now I’ve just changed his bedroom actually, it’s not very big, because I had a box there with toys and I thought maybe it’s because it’s not getting air circulated or something, so I’ve now popped his bed there, but I just pull it forward a bit so that I don’t know if that’ll make a difference.”

moved. They have tried to address the problems themselves but sometimes find it hard to navigate the information. Parents have helped to try and make some improvements to their home and they have now stopped the mould growing by using the chemical spray. They are pleased with this and they now believe that this must mean the damp has improved too. However, measurements for damp in the house are likely to show very high levels of damp indeed.

They tried a couple of things and eventually found a spray that worked and it hasn’t really been coming back since so they are happy they are doing their best to sort the problems.

“We try and make sure the house is warm enough and damp free. Our income is enough for us to pay for the improvements on the house but we have done nearly everything we can on it now.”

Considerations for professionals when developing interventions or engagement strategies

Michelle and Ryan are proud of how they work hard and take care of their children. They know there are problems with the house and it is hard to keep warm and free from mould and damp but they have to make compromises due to child care and the potential higher rent if they



Claire

Claire lives with her 5 year old son in a housing association flat on a large estate just outside the town centre. This is quite convenient for work and she manages to work the full 16 hours a week she is allowed before it affects her benefits. Money is tight but it is for most people she knows and they all get by somehow. Claire manages to keep bills down where she can and she doesn't put the heating on when her son isn't in. It can get very cold in winter especially and when it was really bad this winter, she went to bed in the day time to keep warm. Often though she will go out through the day to work or visit a friends' house so she keeps warm there.

"Yeah, I go to my mum's, I don't know because I don't know if it's just different houses, I don't know. Because it does seem a lot warmer at my mum's than what it does here."

She tries to manage each week by making sure she has money for the essentials like food, bus fares to work and to feed the pre-payment meter for the gas and electricity. That is getting more expensive all the time and she is starting to feel stressed and anxious about making ends meet. She hopes the winter isn't too cold this year as her son gets a very bad chest sometimes and he struggles to breathe properly.

Although the GP prescribed an inhaler for her son, he wasn't actually diagnosed with asthma, so when she sees the advice on leaflets and posters, she isn't always sure if it applies to them.

A colleague suggested doing a bit of research on the intranet but Claire has no computer, only a mobile phone and can only afford a small amount of credit each week. The GP did say though

"they've not said it's asthma; they've said for both of them that it's chronic lung disease, which they are more at risk of chest infections and of problems in the future. So they've treat it quite similar to asthma, that he's got the inhaler, or they've both got that."

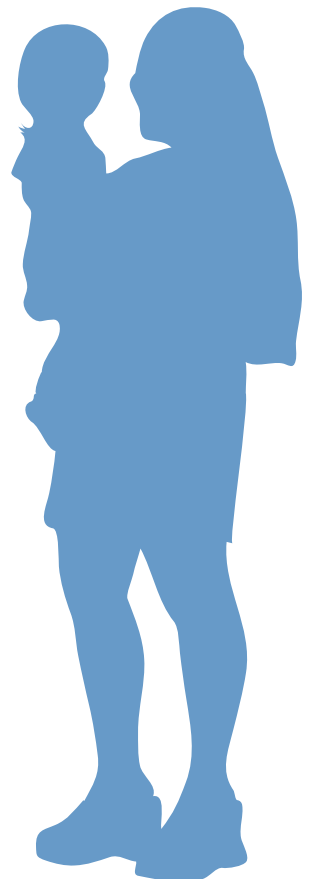
that damp and mould could make things worse so she called the housing people when black mould spots started appearing on the walls and the windows had condensation on them. Claire thought that there must be something wrong with the house and some treatments or repairs would need to be done as it could affect her son's health. The housing officer visited but said it was because Claire didn't open the windows to ventilate the house and that she shouldn't dry washing over the radiators. Claire didn't know what to do then really as she cannot afford to open the windows and let all the heat out; it is hard enough to keep warm. Anyway, you don't want to go leaving windows open; because the kids could fall out.

"No, they haven't got safety catches on, so that's another reason why I don't open them!"

The dilemma is not helping her growing anxiety. Claire doesn't have a drier either so has no other way to dry clothes. She will just have to manage the best she can and hope the weather doesn't get too cold this year.

Considerations for professionals when developing interventions or engagement strategies

Claire is managing week to week with money. She has to make short term decisions that may have a longer term detrimental impact on her and her son; but she has no choice really. She has a meter as it means she will not have any big bills dropping through the door and besides, she doesn't have enough credit on her phone to be ringing the supply companies to ask about better options. She cannot act on the advice of the housing officer as she is fearful of opening the windows due to burglars and it feels like throwing money out of the window if the heating is on at the same time. When summer comes she can dry the clothes on the balcony but in winter time she has no choice but to put them over the radiator.



Steph and Adam

When Adam's grandmother left him her house when she passed away, he thought that this was the first step on the ladder for him and Steph to build a great life for them and have the family home they dreamed of. Neither Adam nor Steph had been very close to their own parents as children as both sets of parents had suffered from mental health and substance mis-use issues and they now have very little contact with them at all. This house needed a lot of work as it was bought many years ago under the right to buy scheme and had not therefore seen improvements under the decent homes work because his grandmother didn't want to move out of her house for the 4 months that was needed for the refurbishment. It was however theirs, mortgage free and in a decent town for the kids to grow up in. Things were going well as Adam had a pretty decent job, plans to do up the house and Steph was expecting their second child.

Just after the baby was born Adam was made redundant. He had not been in the job long and got only a small amount of redundancy. They immediately made cuts as they looked for work. It was going to be impossible for them both to work as they had no one to look after the children. They often don't have the cash to put in the meter and as the gas gets used up quicker than the electricity they often don't have gas. They are, just using a small electric fire in the evening, and the house is getting very cold now winter is approaching. To make matters worse, their three year old is getting ill a lot and the doctors say it is asthma. He has been in A and E twice now and when he was in hospital it was impossible for Adam to look for work properly.

Steph gets through each day as best as she can but even routine tasks such as washing and drying clothes are becoming a problem with no hot water or heating. Nobody sleeps properly at night because the three year old is up all night

coughing because of the asthma, which also wakes the baby up on top of waking for feeds.

"It's definitely worse in the winter. I know that [son 1] and [son 2] definitely worse in the winter... Yeah. With [son 2], he had a cold and then it's, with his asthma but it is the weather as well, the doctor said his chest is full of mucus. His chest is clear, but there's like that mucus so it's not moving it. So he's had this white inhaler for a week and if that don't work I'll take him back. It's just constant, coughing all the time, in night, waking up at night."

Because the house is cold the children wake up again because they have kicked their covers off and got cold, but they are scared to put too many blankets on the baby in case he overheats.

"I don't want him to get too hot, because even if he'd got that on I'd still put him a blanket on. So I think if he gets too hot I don't want him to overheat and I'm always panicking myself so."

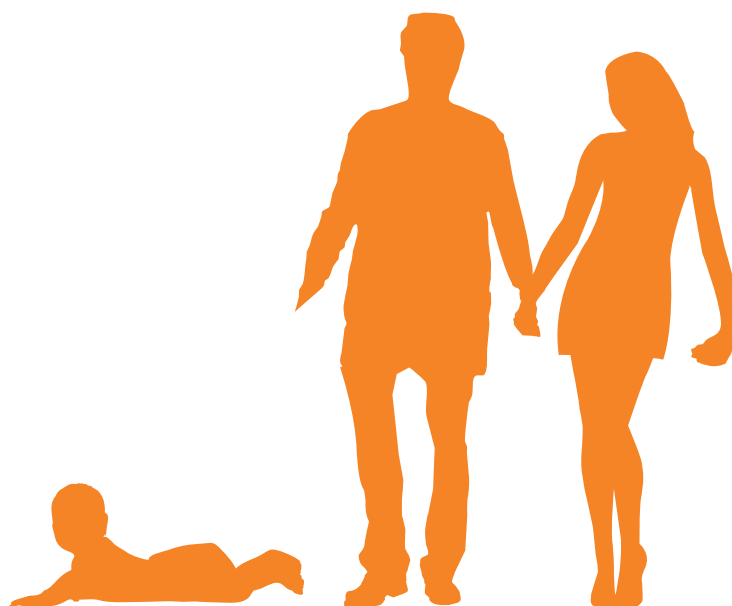
She has also now started missing meals to make sure the kids have enough to eat. The stress of not being able to provide a basic thing such as heating for their children, as well as being turned down for countless jobs is making them both worried sick and cannot see a way forward. They don't know where to turn and feel utterly overwhelmed. They are reluctant to talk about their problems to anyone as they easily feel judged. In an effort to keep the heat in they left

the bedroom curtains closed in the day but then overheard someone from the nursery school and thought they were talking about them:

“There are people up our school that never have their curtains open, and it’s like ‘scruffs’. They’re closed day and night and it’s like, it’s not healthy that.”

Considerations for professionals when developing interventions or engagement strategies

Day to day life has become a real struggle for Steph and Adam. Basic tasks are a huge challenge and they feel overwhelmed; thinking further than the next day is impossible. Thinking about things like swapping suppliers, seeking out help with insulation and other schemes is just not possible for them right now. They are simply surviving and this is having a very detrimental impact on the health of themselves and their children.



The Trade-off Zone Model

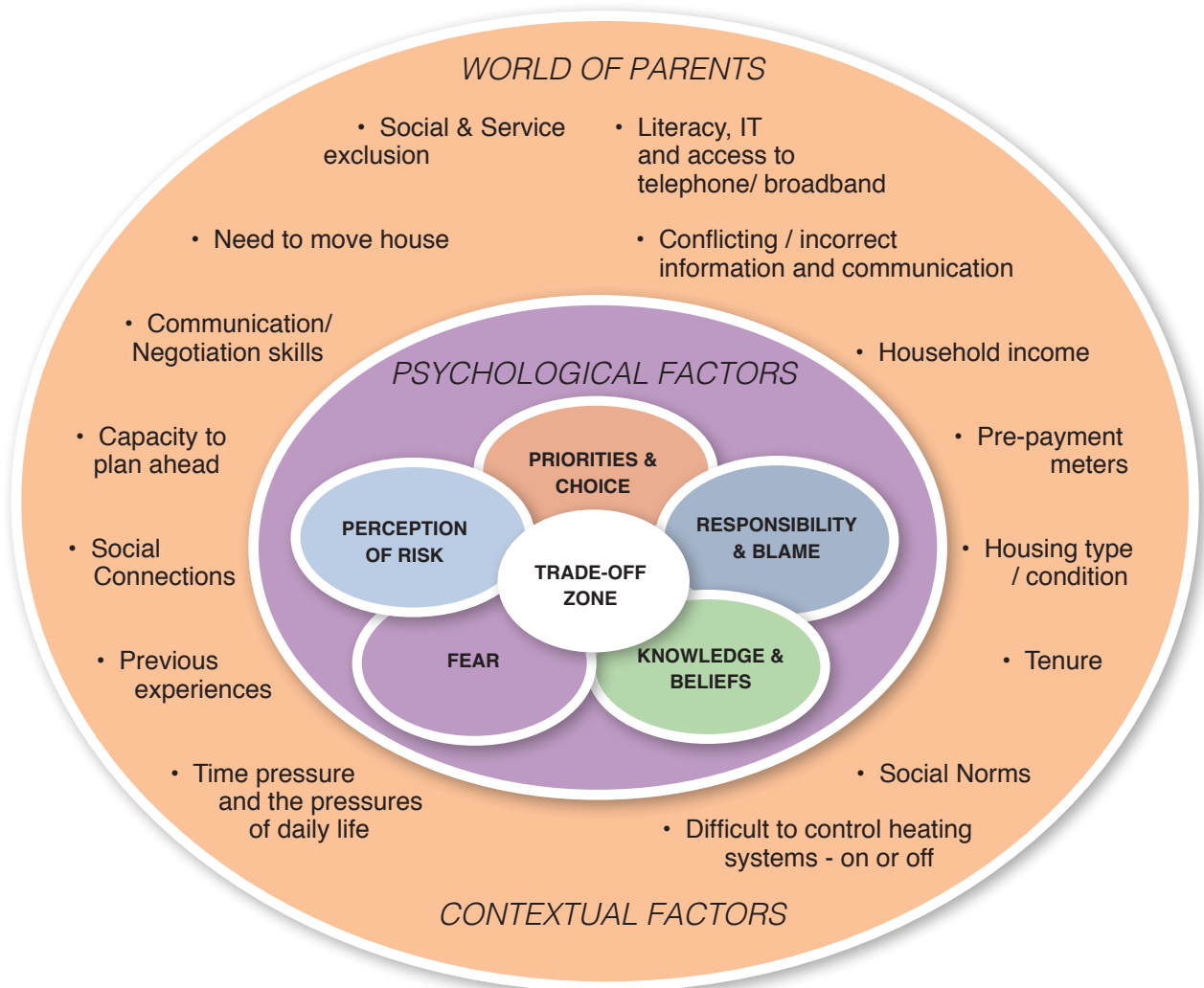
The pen portraits illustrate examples of some of the trade-offs found in the research. In order to develop understanding, and practical application of the research findings and the trade-off faced by parents, a model has been developed. The 'Trade Off Zone' Model shows how the contextual factors interplay with the psychological factors to drive behaviour. For example:

Of the families interviewed, seven families had pre-payment meters (a contextual factor). The research showed that for the majority of the parents, their priorities were providing for their families and ensuring that all bills were paid. However, although respondents appeared to understand that paying for their gas or electricity was more expensive through a meter system, the fear of debt and large bills was powerful enough to drive their behaviour in terms of using this method of payment. This example could also be considered in terms of the 'choice' made by the parent. In this instance the 'trade-off' was higher fuel prices and control over bills v's fear of debt and large bills.

Another example of trade-off could be demonstrated by the scenario of advice given to social housing tenants who complained of condensation and mould in their homes. Condensation and mould is caused by lack of ventilation within a home and housing officers visiting a property may advise as such. Windows could be opened to allow air circulations and ventilation grills should be left un-covered. However, the research has demonstrated that keeping a home warm is more of a priority and can be a challenge for families and heating regimes are adopted to manage this. When having enough money to keep the home warm for the children is a priority, opening a window and letting the heat out, is not perceived or experienced as a real option. A trade off has to be made between following advice to rid the house of mould/condensation or simply keeping warm.

The figure on the next page represents some of the contextual and psychological factors found in the research and help professionals understand how similar challenges may lead to different behaviour outcomes within different families.

Figure 6: The trade-off zone model



Helping professionals to understand behaviour and target interventions

Previous discussion within this report throws some light onto how the professionals own knowledge, attitudes and beliefs may affect the assessment of a situation and consequently effect decisions around the type of intervention offered. We have demonstrated the complexity of psychological and contextual factors that drive the behaviour of parents and equally, the factors affecting the professionals understanding and actions will be a vital component in the mix that contributes to the outcomes for the child vulnerable to illness.

The 'Trade-off Zone' model has been developed to illustrate how different contextual factors interplay with psychological factors to drive choices and behaviour. However, in order to understand how different parents may react faced with these trade-offs, and what this means to professionals delivering services and supporting interventions, we must appreciate that not everyone will act and react in the same way. For example Paula and Steve were able to meet challenges and find different solutions due to a combination of their contextual factors (financial situation and family support) and their psychological factors (knowledge, confidence, negotiating skills). Whereas, Michelle and Ryan live in a rented home with a difficult landlord (contextual factor) and didn't feel confident enough to make more of a fuss to get things fixed (psychological factor).

To assist professionals to gain further understanding and therefore target interventions more effectively, a basic segmentation model has been used as a way of helping professionals to break down populations into similar sub-groups. From the findings, 4 possible segments or groups of parents have been identified at this stage.

This segmentation model is still in development and requires further refining and testing before it could be used by professionals to focus their efforts or target interventions to reach at risk households. Once this is completed it is hoped that this will assist in delivering the most effective interventions to the right people at the right time and using the most appropriate methods to communicate with or engage them.

How the segmentation model might help

Using Michelle and Ryan as an example, this is how the segmentation model might be used to map out interventions for the different families and understand the best way to engage and communicate with them.

Table 7: The Segmentation Model

The segment	Psychological factors	Contextual factors Barriers:	What this means to the child at risk	What might help
Michelle and Ryan Can see the issues and trying to take action	Knowledge around causes of asthma Fear of debt & risk of debt Priorities – a roof over head, food and bills paid.	Tenure of home Money might be tight Ability to navigate system and communicate with those who might be able to help	Some trade-offs: Heating regimes Access to home improvements	Clear, concise simple messaging A joined up system so they feel able to access help to tackle land lord without losing home Tools so they can help themselves Peer support from people like Paula and Steve – knowledge and confidence

Conclusion

This project has generated findings to help people working in public health, policy and practice understand the complex network of factors that influence how households make decisions regarding keeping warm at home. The project focuses on households with a child with asthma. A “trade-off zone” model has been developed to illustrate this challenging landscape. A basic segmentation model has been developed but this requires further development and refining.

This project is one of few that examine the lives of families in relation to fuel poverty and affordable warmth. Whilst it does provide valuable insight, ongoing research is essential on the following:

- The impact of fuel poverty, energy price rises and welfare reform on health.
- Research that includes comprehensive strategies to accurately capture the child’s perspective.
- The influence of cold on people with clinical conditions that would make them vulnerable to the impact of cold.
- The impact of cold and damp on health and strategies to reduce health risk.
- Research that used innovative approaches to capture the reality of the health risks of cold and its impact, for example photo-methodologies and participative methods.

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Appendix One:

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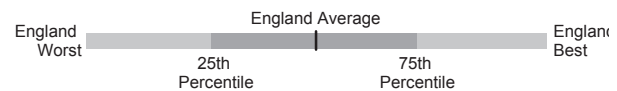
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Appendix Two:

Rotherham Health Profile

The chart below shows how the health of people in this area compares with the rest of England. This area's result for each indicator is shown as a circle. The average rate for England is shown by the black line, which is always at the centre of the chart. The range of results for all local areas in England is shown as a grey bar. A red circle means that this area is significantly worse than England for that indicator; however, a green circle may still indicate an important public health problem.

- Significantly worse than England average
- Not significantly different from England average
- Significantly better than England average



Domain	Indicator	Local No. Per Year	Local Value	Eng Avg	Eng Worst	England Range	Eng Best
Our communities	1 Deprivation	85742	33.3	20.3	83.7	[Red circle]	0.0
	2 Proportion of children in poverty	11480	23.1	21.1	45.9	[Red circle]	6.2
	3 Statutory homelessness	117	1.1	2.3	9.7	[Green circle]	0.0
	4 GCSE achieved (5A*-C inc. Eng & Maths)	2102	60.0	59.0	31.9	[Yellow circle]	81.0
	5 Violent crime	2278	8.9	13.6	32.7	[Green circle]	4.2
	6 Long term unemployment	2330	14.3	9.5	31.3	[Red circle]	1.2
Children's and young people's health	7 Smoking in pregnancy ‡			13.3	30.0		2.9
	8 Starting breast feeding ‡	1794	61.8	74.8	41.8	[Red circle]	96.0
	9 Obese Children (Year 6) ‡	560	20.5	19.2	28.5	[Yellow circle]	10.3
	10 Alcohol-specific hospital stays (under 18)	32	56.8	61.8	154.9	[Yellow circle]	12.5
	11 Teenage pregnancy (under 18) ‡	217	43.6	34.0	58.5	[Red circle]	11.7
Adults health and lifestyle	12 Adults smoking	n/a	23.3	20.0	29.4	[Red circle]	8.2
	13 Increasing and higher risk drinking	n/a	21.6	22.3	25.1	[Yellow circle]	15.7
	14 Healthy eating adults	n/a	21.3	28.7	19.3	[Red circle]	47.8
	15 Physically active adults	n/a	52.4	56.0	43.8	[Yellow circle]	68.5
	16 Obese adults ‡	n/a	27.6	24.2	30.7	[Red circle]	13.9
Disease and poor health	17 Incidence of malignant melanoma	36	13.9	14.5	28.8	[Yellow circle]	3.2
	18 Hospital stays for self-harm	519	211.9	207.9	542.4	[Yellow circle]	51.2
	19 Hospital stays for alcohol related harm ‡	6686	2209	1895	3276	[Red circle]	910
	20 Drug misuse	1689	10.1	8.6	26.3	[Red circle]	0.8
	21 People diagnosed with diabetes	12715	6.2	5.8	8.4	[Red circle]	3.4
	22 New cases of tuberculosis	22	8.5	15.4	137.0	[Green circle]	0.0
	23 Acute sexually transmitted infections	2447	949	804	3210	[Red circle]	162
	24 Hip fracture in 65s and over	268	466	457	621	[Yellow circle]	327
Life expectancy and causes of death	25 Excess winter deaths ‡	140	17.5	19.1	35.3	[Yellow circle]	-0.4
	26 Life expectancy – male	n/a	77.8	78.9	73.8	[Red circle]	83.0
	27 Life expectancy – female	n/a	81.7	82.9	79.3	[Red circle]	86.4
	28 Infant deaths	14	4.5	4.3	8.0	[Yellow circle]	1.1
	29 Smoking related deaths	491	247	201	356	[Red circle]	122
	30 Early deaths: heart disease and stroke	217	72.0	60.9	113.3	[Red circle]	29.2
	31 Early deaths: cancer	377	124.1	108.1	153.2	[Red circle]	77.7
	32 Road injuries and deaths	79	30.8	41.9	125.1	[Green circle]	13.1

‡ For comparison with PHOF Indicators, please go to the following link: www.healthprofiles.info/PHOF

Indicator Notes

1 % people in this area living in 20% most deprived areas in England, 2010 2 % children (under 16) in families receiving means-tested benefits & low income, 2010 3 Crude rate per 1,000 households, 2011/12 4 % at Key Stage 4, 2011/12 5 Recorded violence against the person crimes, crude rate per 1,000 population, 2011/12 6 Crude rate per 1,000 population aged 16-64, 2012 7 % mothers smoking in pregnancy where status is known, 2011/12 8 % mothers initiating breast feeding where status is known, 2011/12 9 % school children in Year 6 (age 10-11), 2011/12 10 Persons under 18 admitted to hospital due to alcohol-specific conditions, crude rate per 100,000 population, 2007/08 to 2009/10 (pooled) 11 Under-18 conception rate per 1,000 females aged 15-17 (crude rate) 2009-2011 12 % adults aged 18 and over, 2011/12 13 % aged 16+ in the resident population, 2008-2009 14 % adults, modelled estimate using Health Survey for England 2006-2008 15 % adults achieving at least 150 mins physical activity per week, 2012 16 % adults, modelled estimate using Health Survey for England 2006-2008 17 Directly age standardised rate per 100,000 population, aged under 75, 2008-2010 18 Directly age sex standardised rate per 100,000 population, 2011/12 19 Directly age sex standardised rate per 100,000 population, 2010/11 20 Estimated users of opiate and/or crack cocaine aged 15-64, crude rate per 1,000 population, 2010/11 21 % people on GP registers with a recorded diagnosis of diabetes 2011/12 22 Crude rate per 100,000 population, 2009-2011 23 Crude rate per 100,000 population, 2012 (chlamydia screening coverage may influence rate) 24 Directly age and sex standardised rate for emergency admissions, per 100,000 population aged 65 and over, 2011/12 25 Ratio of excess winter deaths (observed winter deaths minus expected deaths based on non-winter deaths) to average non-winter deaths 1.08.08-31.07.11 26 At birth, 2009-2011 27 At birth, 2009-2011 28 Rate per 1,000 live births, 2009-2011 29 Directly age standardised rate per 100,000 population aged 35 and over, 2009-2011 30 Directly age standardised rate per 100,000 population aged under 75, 2009-2011 31 Directly age standardised rate per 100,000 population aged under 75, 2009-2011 32 Rate per 100,000 population, 2009-2011

More information is available at www.healthprofiles.info Please send any enquiries to healthprofiles@phe.gov.uk

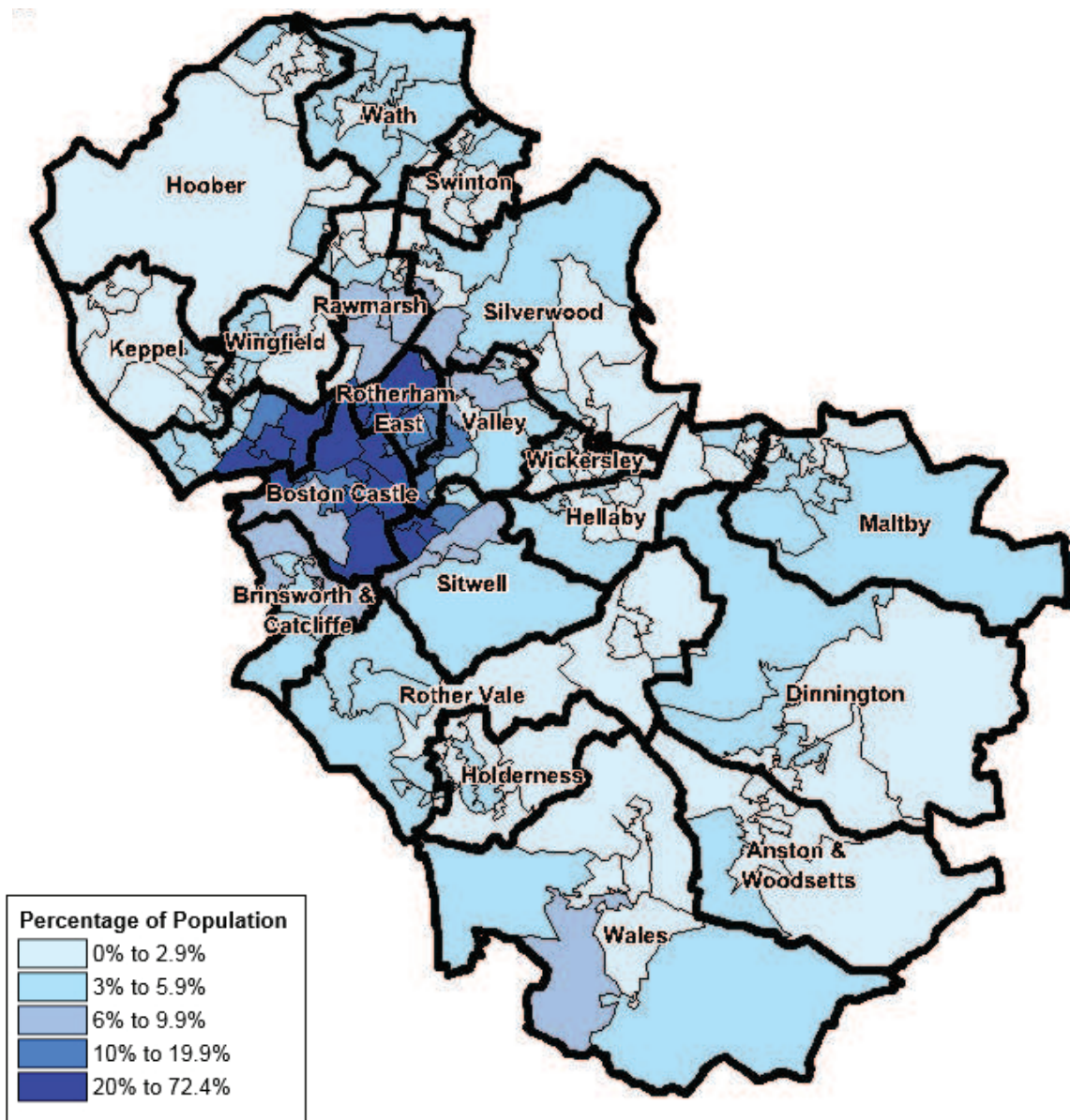
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Appendix Three:

Rotherham Black and Ethnic Minority Population

Rotherham

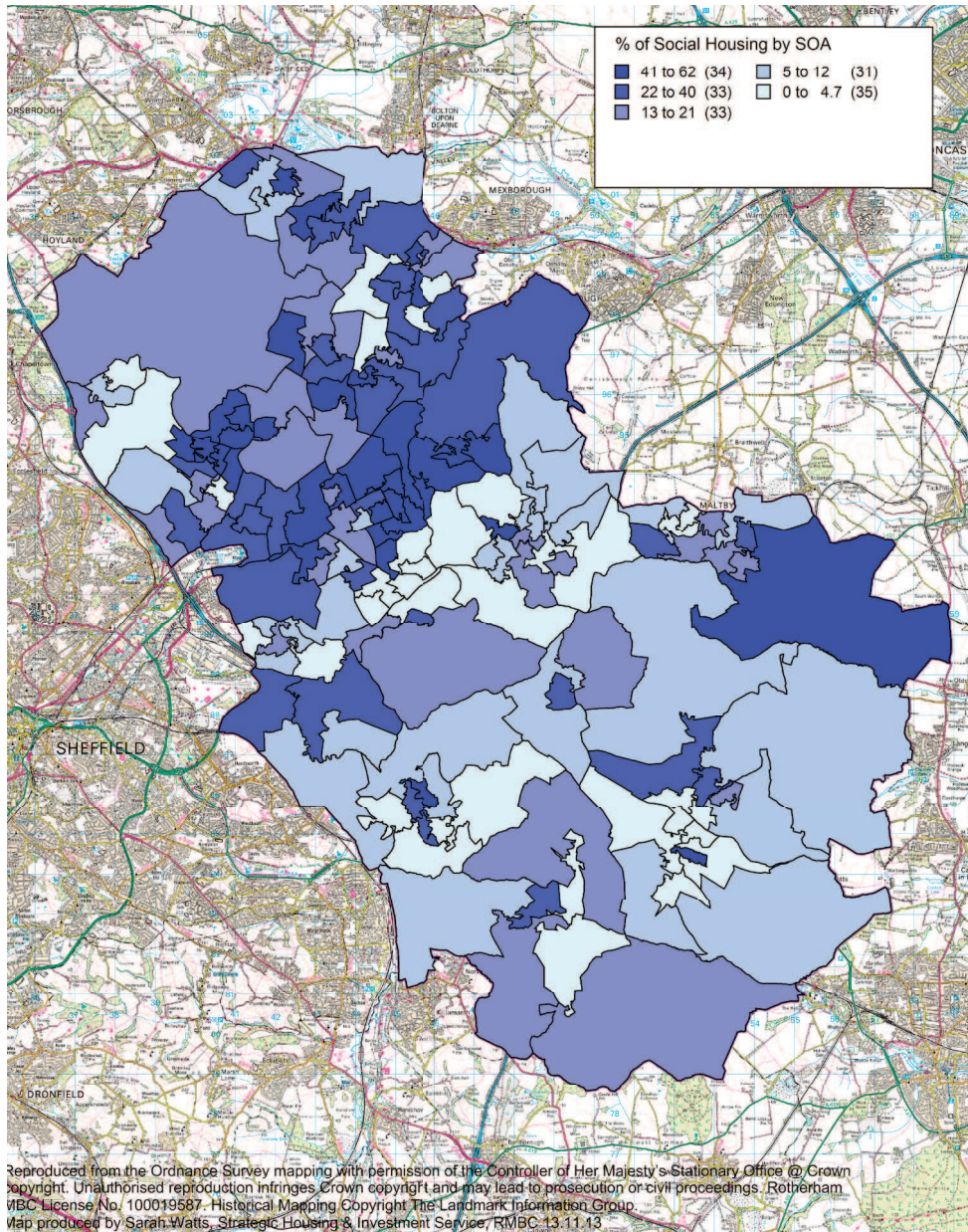
2011 Census - BME Population



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Appendix Four:

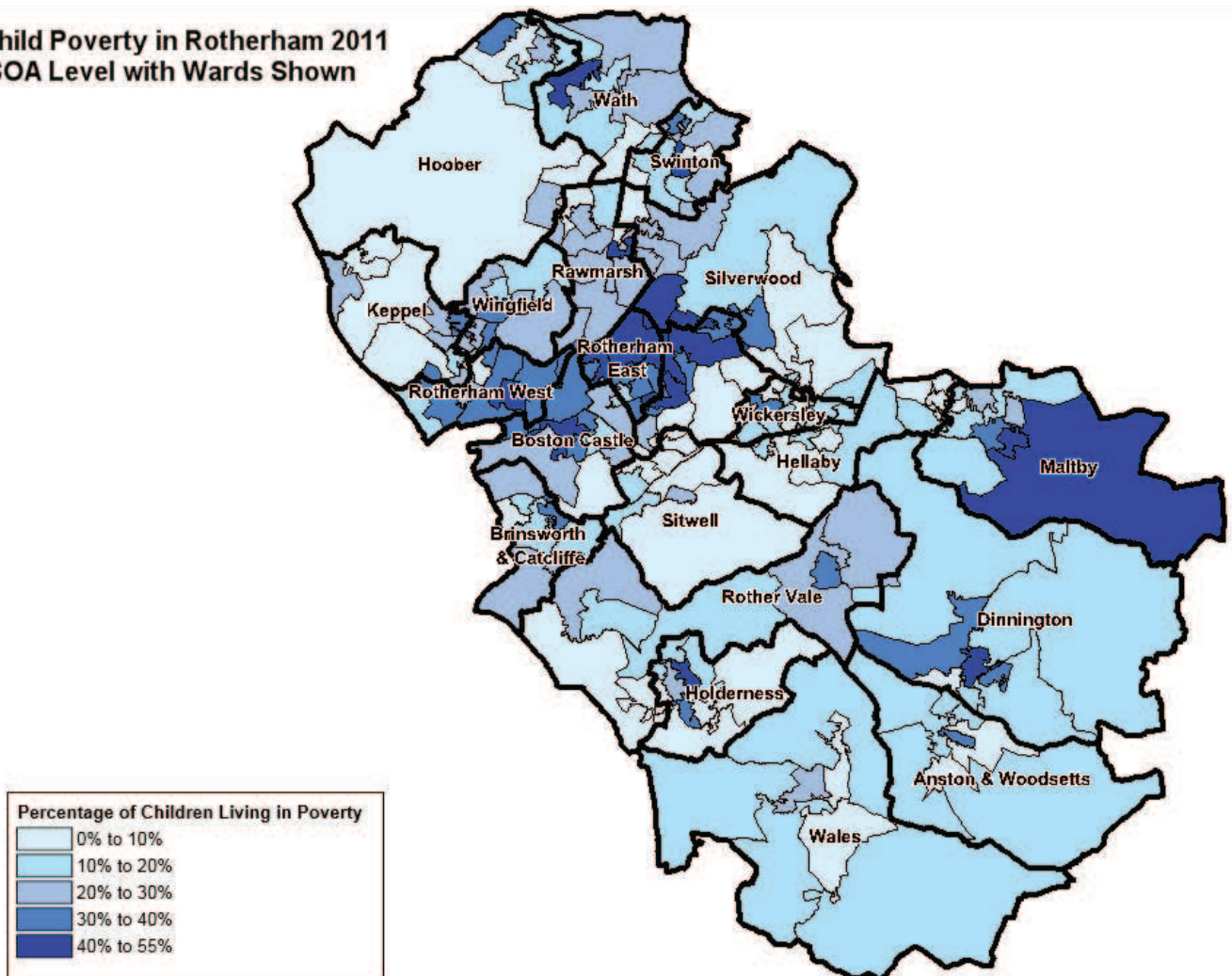
Rotherham Social Household Tenure



Appendix Five:

Child Poverty in Rotherham

**Child Poverty in Rotherham 2011
SOA Level with Wards Shown**

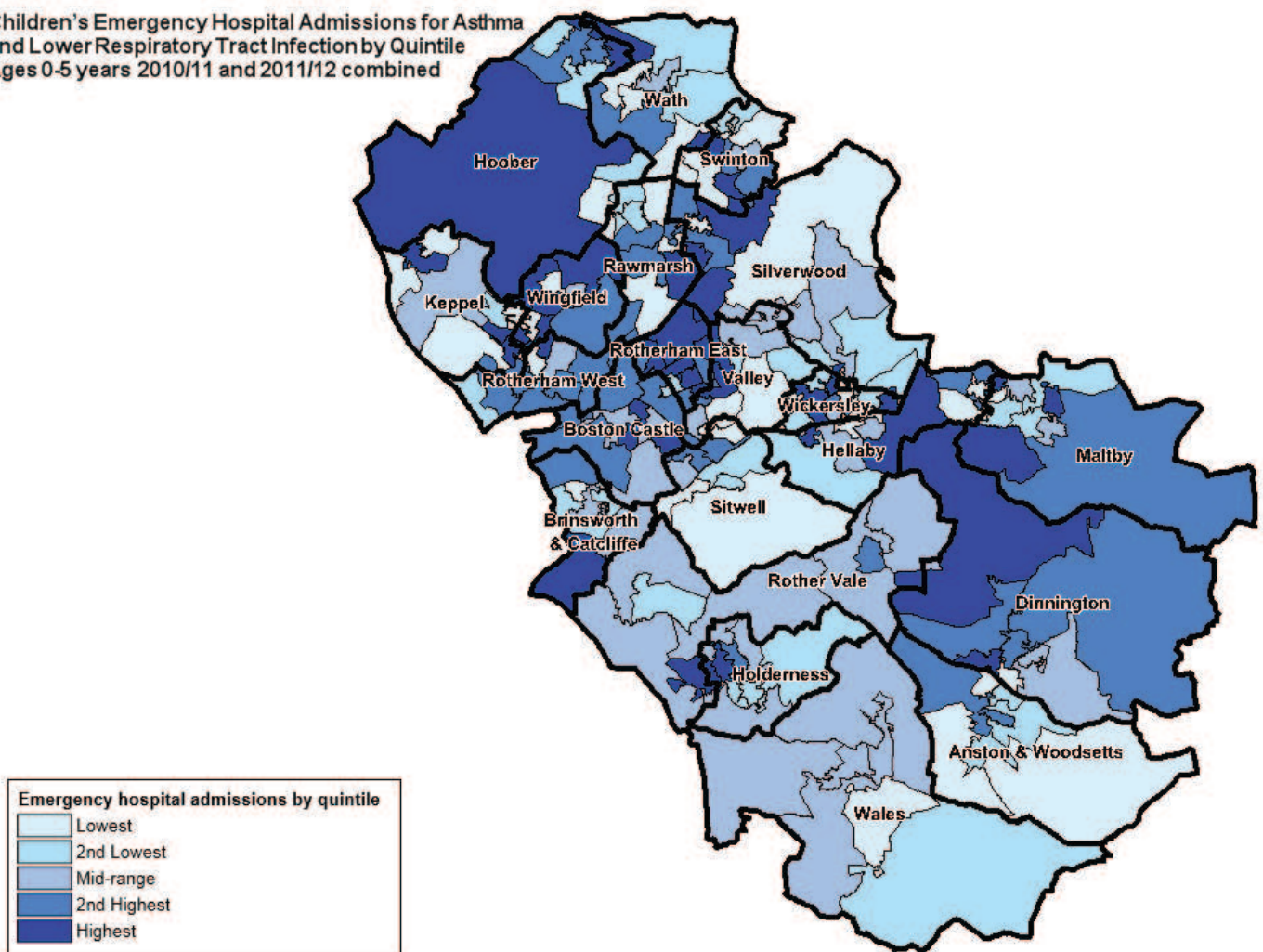


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Appendix Six:

Emergency Hospital Admissions for Asthma and Lower Respiratory Tract Infections

Children's Emergency Hospital Admissions for Asthma and Lower Respiratory Tract Infection by Quintile Ages 0-5 years 2010/11 and 2011/12 combined



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Appendix Seven:

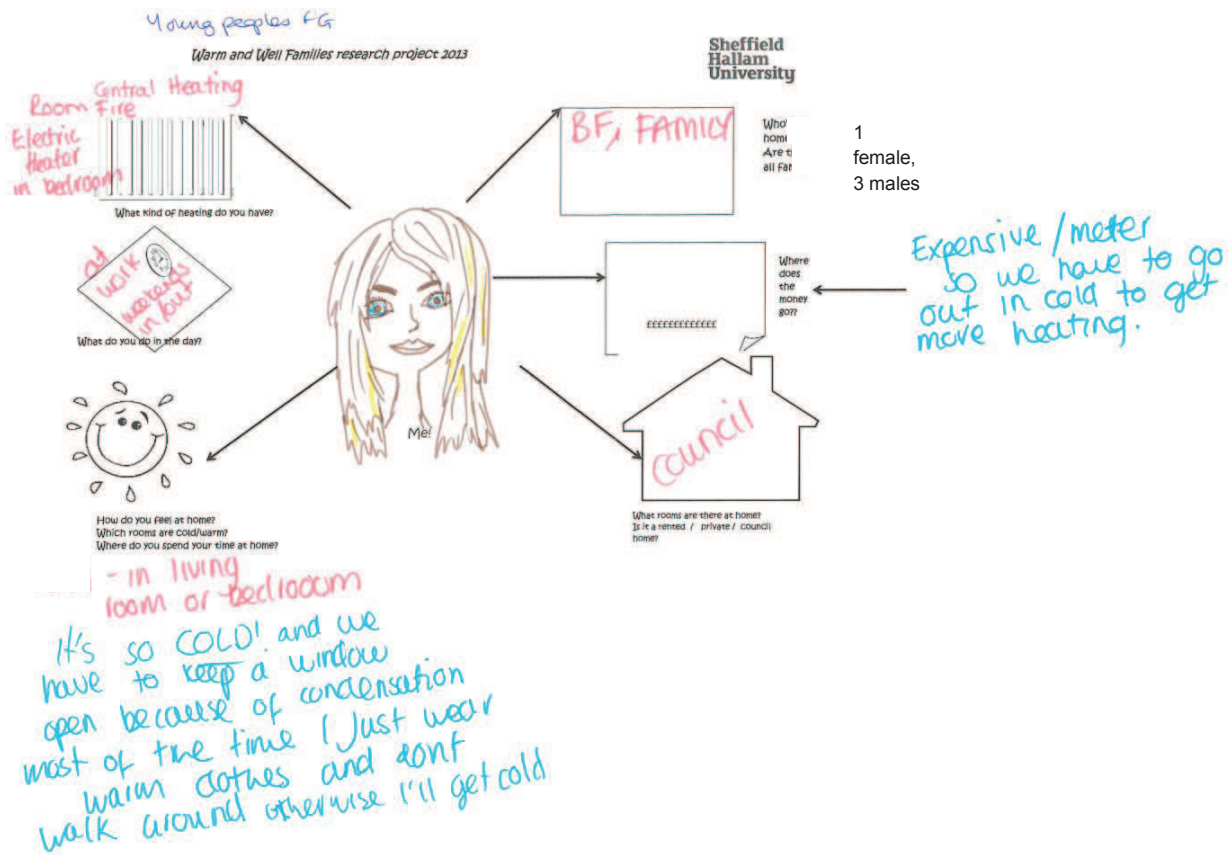
Inhaler types

Asthma UK website <http://www.asthma.org.uk/advice-medicines-for-your-child>

Reliever inhalers are usually blue and are essential in treating asthma attacks. Relievers are medicines that children can take immediately when asthma symptoms appear. They relax the muscles surrounding the narrowed airways quickly, allowing the airways to open wider, and making it easier to breathe again. Preventer inhalers protect the lining of the airways and are usually brown, red or white. Preventer inhalers help to calm down the swelling in the airways and stop them from being so sensitive. This means that children are less likely to react badly when they come across an asthma trigger. Not all children and young people will need a preventer inhaler. These inhalers are usually prescribed for children and young people using their reliever inhaler three or more times a week. Most children or young people who need preventer medicines will receive a preventer inhaler from their doctor or asthma nurse that contains inhaled steroids. There are several kinds of inhaled steroids, but they all work in the same way.

Appendix Eight:

Young people's focus group example material



Children's focus group example material

School FG

Warm and Well Families research project 2013



Electric Fire

What kind of heating do you have?

watch tv
do homework

What do you do in the day?

How do you feel at home?
Which rooms are cold/warm?
Where do you spend your time at home?

Who's at home?
Are they all Family?

Where does the money go?

What rooms are there at home?
Is it a rented / private / council home?

Me!

