

## Housing - Case File

You are a fully qualified Environmental Health practitioner working in the Residential Section of the Chadwick Valley MDC's Environmental Health Department, with responsibility for private sector housing. A letter has been received from the GP of a couple and their four children (new-born, 18 months, 4 and 6 years) living in a four-bedroom, privately-rented house, they having moved to the property after a fire that partially destroyed their home in a neighbouring borough. The letter reports that the health visitor attending the mother and baby thinks the house is, in her words, 'dilapidated', and feels that the cold and damp conditions of last winter were responsible for the frequent appointments for upper respiratory tract infections affecting the toddler and 4 year-old, and may have been associated with the recently diagnosed asthma of the 6 year-old.

The husband, who is 10 years older than the mother of the children, and is believed not to be the natural father of the older two, has emphysema, though he refuses to give up his 20-a-day smoking habit. He has recently appeared in Court and is awaiting sentence on a conviction of assault whilst drunk, but it is hoped that he will not receive a custodial sentence as he has assured the judge and his probation officer that he intends to stop drinking and obtain employment. In this resolve he seems to have remained 'dry' for 3 months and has taken a job as a storeman at a local builders' merchants, so there is now some regular money coming into the home, as well as the benefits.

The letter concludes with a request that the EHP might wish to inspect the house and decide whether anything can be done to improve the living environment for the family. It is understood that a request for re-housing by the Council has been unsuccessful, though this might be to their advantage as the couple are keen to stay in the immediate area as it is within walking distance of the mother's sister, who provides much-needed support with the children. Also, the eldest child is well-settled at the local primary school and the couple recognise that they owe it to their children to provide the best possible start they can for them. Despite appearances to the contrary, the GP and health visitor believe that the family are genuinely making the effort to establish a caring home, but the single factor working against them, at least at the moment, is the state of their house. Finally, the GP expresses an interest in knowing a little more about the factors that cause mould growth in damp houses, as she is shortly going to be presenting a training session to her peers at the post-graduate medical centre at Chadwick General Hospital on the health implications of damp houses on child health.

Despite the fact that your subsequent inspection is conducted on a warm day in mid-summer, there is evidence confirming the observations made by the health visitor earlier in the year. You start by asking the mother how the house is occupied and she informs you that the two eldest sleep in the rear bedroom, the toddler in the front box bedroom and the new-born with her and her partner in the double bedroom. You observe that you were expecting there to be a

fourth bedroom and she points out that this is locked up and contains the effects of the owner and landlord, Mr Kent.

Your general observations of the house is that it was likely built in the last decade of the 19<sup>th</sup> Century or first decade of the 20<sup>th</sup> Century, and has had a foam cavity wall insulation installed at some time. The pitched roof has been replaced with concrete tiles (probably in the 1970s) and it might be assumed that glass-fibre roof insulation was incorporated then, though not to the standard currently required.

The property has clearly not been properly maintained in recent years, and there is evidence of penetrating dampness around the chimney stack causing rainwater to track down the walls in the bedroom occupied by the 4- and 6-year olds. The mother feels that this is particular unfair because the fourth bedroom (the one in which the landlord's effects are stored) seemed perfectly dry when they were shown around at the 'viewing' by the agent, and ahead of their signing of the lease agreement. The 'box' bedroom occupied by the toddler seems to be quite reasonable in terms of repair and there is a single element electric heater mounted on the wall. However, besides a defective night storage heater in the parent's bedroom, this is the only form of heating available upstairs.

Examining the front, double bedroom where the adults and infant sleep, the air has a mustiness about it, and you notice that the opening casement windows in the bay window are nailed shut, with 'gaffer tape' sealing the gaps. On pulling away the wardrobe the wallpaper behind is covered in a blue-green mould, and you see a haze of spores in the air as you attempt to push the wardrobe back.

You conclude your inspection upstairs, in the bathroom, where you find hot water being supplied by a gas water heater mounted above the sink and bath. It lights after three failed attempts but runs alternately 'scolding hot' and 'lukewarm', in short bursts. There is no fixed ventilation and the louvres in the top of the window have been stuffed with newspaper 'to stop the draught'.

Downstairs you find that there to be a sizeable area of rising damp in the back wall of the dining room, and on closer examination see around the skirting board and beneath the carpet the orange-coloured fruiting body of dry rot (*Serpula lacrymans*). The lounge is in reasonable condition, with a gas fire with flame effect. You turn on the gas and attempt to light it, but only two of the three jets ignite. It is clear that the lounge is where the family spends most of its time, as witnessed by the fact that the baby is asleep in a cot in the corner, and the toddler is sitting watching the TV.

You complete you inspection of the inside of the property in the kitchen where the 1970s-style units are matched by a gas-cooker of the same vintage, where only two of the four rings are serviceable. The work-tops are heavily worn in places, and adjacent to the sink, water has got under the laminate surface and caused the chipboard core to deteriorate, thus opening up a

gap at its junction with the wall. The rising damp seen in the dining room extends into the kitchen and affects the wall plaster of the larder. A large commercial washing machine is whirring away in the corner with the outlet running through the open back door via a hose into the outside gully. The mother indicates that it's a 'life-saver', given the amount of washing she has to do, and this is evidenced by the various clothes-horses around the house laden with items of children's clothing. However, in consequence, there is no-where in the kitchen to accommodate the fridge-freezer which has had to be located in the hall-way.

## Housing - Tasks

### Task 1

Ahead of carrying out an HHSRS assessment, compose for yourself some notes on the matters relevant to the likelihood of an occurrence and the severity of the outcomes to do with: 1) Excess Cold, 2) Food Safety, and, 3) Carbon monoxide (as a fuel combustion product), having regard to the observations made during your inspection.

**(50 marks)**

### Task 2

Draft the text of a short letter to the GP acknowledging her assistance in reporting the matter to you and detailing the main causes and preventative measures pertinent to 'damp and mould growth', indicating to her how the HHSRS considers the most vulnerable when arriving at the category of harm from this particular hazard.

**(50 marks)**

<p>For the purpose of this examination you should justify any assumptions you have made within the answers given</p>
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## Housing - Marking Advice

1. *Ahead of carrying out an HHSRS assessment, compose for yourself some notes on the matters relevant to the likelihood of an occurrence and the severity of the outcomes to do with: 1) Excess Cold, 2) Food Safety, and, 3) Carbon monoxide (as a fuel combustion product), having regard to the observations made during your inspection*  
**(50 marks)**

Clearly, candidates should be making reference here to the 'Hazard Profiles' detailed in the HHSRS 'Operating Guidance' (February 2006), and though they should be given some laxity as to the matters they consider relevant, there should be a real attempt to relate these back to what they have been told about the property, but not to its occupancy.

In the order they were put in the question, the matters relevant in this case to the likelihood of an occurrence and the severity of the outcomes regarding Excess Cold are:

1. Dampness – in such a position, and sufficiently extensive and persistent as to reduce the effectiveness of the thermal insulating material and/or the structure.
2. Type / Size / Maintenance of heating provision / system – inappropriate or inefficient systems and appliances, inadequate for the size of dwelling, and inadequately maintained.
3. Ventilation – inadequate, excessive, or inappropriate provision for thorough ventilation; inadequate means of controlling the ventilation; disrepair to the systems of controlling ventilation
4. Draughts – uncontrollable draughts and those situated to cause discomfort.

Matters relevant to the likelihood of an occurrence and the severity of the outcomes in terms of Food Safety are:

1. Storage - dampness to the facilities and lack of appropriately sited space for a refrigerator and freezer.
2. Preparation - disrepair to the (sinks, drainers or) worktops.
3. Cooking - defects or disrepair to the oven and/or hob
4. Design, layout and state of repair – dampness in walls and defective seal between (a sink, a drainer, or) a worktop and the adjacent wall surface.

Matters relevant to the likelihood of an occurrence and the severity of the outcomes in respect of fuel combustion products, and in particular, carbon monoxide are:

1. Flueless appliances – gas or oil burning appliances, including cookers.

2. Disrepair to appliance – to gas, oil or solid fuel burning appliances resulting incomplete combustion.
3. Inadequate ventilation – particularly of rooms with gas, oil or solid fuel burning appliances.
4. Disrepair to ventilation

2. *Draft the text of a short letter to the GP acknowledging her assistance in reporting the matter to you and detailing the main causes and preventative measures pertinent to 'damp and mould growth', indicating to her how the HHSRS considers the most vulnerable when arriving at the category of harm from this particular hazard.*

**(50 marks)**

After suitable salutations and an acknowledgement of the GPs assistance, the letter should describe in basic terms the causes of dampness and mould, and the means available to prevent it, before exploring in more detail how the HHSRS focuses on the most vulnerable i.e. the under 14 year-olds.

Damp and mould growth in houses presents various hazards including dust mites and mould or fungal growths resulting from dampness and/or high humidity. Based on statistical averages the most vulnerable age group is all persons aged 14 years or under, and in the case of HHSRS the averages for the most significant (Class 1) outcome were based on the mortality statistics for England and Wales for respiratory disease in children aged 0 to 14 year, and for the lowest category (Class 4) from GP consultation rates for coughs and wheeze. Recent research has shown that low levels of background ventilation, without visible mould or dampness, can result in high indoor humidity levels and in greatly increased house dust mite populations. In consequence the average likelihoods given may be an underestimate, and should be considered as conservative.

Whilst it might be assumed that the doctor is aware of the health effects and the pre-cursors to allergic responses, it might be worth mentioning that for a sensitized person developing asthma repeated exposure can lead to asthma, the severity intensifies with increasing humidity, house dust mite and mould levels, and that deaths from all forms of asthma in the UK are around 1,500 a year, of which around 60% has been attributed to dust mite allergy. Although less significant statistically in health terms, spores of many moulds and fungi (including timber attacking fungi) can be allergenic. The spores can also be carcinogenic, toxic and cause infections.

The indications are that house dust mite populations and indoor mould growth have increased over the last century. This is probably because of reduced ventilation levels, increased humidity, and warmer indoor temperatures in winter months caused by changes in dwelling design and adaptations introduced when houses are renovated. Both house dust mites and moulds flourish in damp or humid conditions, and their growth is also influenced by temperature. Where

relative humidity is outside the optimum range, increasing temperatures can result in increased mite populations and mould growth.

Moisture production is influenced by the design, construction and repair of the dwelling, and on occupant density and activity. Moisture is produced by occupants through their normal biological and domestic activities. Relatively low levels of moisture are generated through breathing and are spread out over the twenty-four hours. However, there are higher levels produced in peaks from cooking, clothes drying and bathing (or showering). There should be continuous low-level of background ventilation. Hygrothermal conditions are considered the most important limiting factor in house dust mite population growth. However, furnishing, especially the age and type of mattresses, and mode of housekeeping, can also have some influence.

Dwellings should be warm, dry and well-ventilated. Indoor relative humidity should be between 40% and 60%, except for short periods of fluctuation. This range is the optimum to limit the growth of house dust mite populations and mould growth and it is also the recognized comfort zone (the means by which the structure might be improved can be mentioned). The location of the damp and/or mould is also relevant, the threat to health being influenced by the number and intended use of the affected room(s). Damp affected bedrooms are probably more important since mattresses tend to support larger dust mite populations than other furniture and furnishings. Also the most vulnerable age group normally spend a large proportion of the day in their bedrooms, both because that group typically require 9 to 14 hours sleep per day and because bedrooms are often also used for homework.