

HEALTH IMPACT ASSESSMENT

of the

Leeds Out of Hours Noise Service

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v.Final

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Executive Summary

The out of hour's noise service (OOH's) is an extension of the Council's day time service to respond to noise complaints and take action against noise nuisance. It operates city-wide 7 nights a week, although it does not provide round the clock 24 hour coverage.

The overall aim of the service is to resolve noise complaints as they occur out of hours and challenge noise associated anti-social behaviour (ASB) there by contributing to the vision of everyone feeling safe in their neighbourhood.

'Annoyance' caused by environmental noise is a major source of complaint to Leeds Environmental Health Services. Environmental noise affects health in several ways. There is strong evidence for it to be a causative factor in physiological health problems, sleep disturbance, development of latent health disorders, impaired task performance as well as social behaviour and annoyance reactions.

The OOH's service makes a significant contribution to dealing with sources of excessive environmental noise and may be addressing issues affecting up to 3% (24,000 people) of the city's population. By focusing resources in the most deprived SOA's the service is helping to reduce health inequalities.

Promotion of 'city centre living' and Leeds as a '24 hour city' is likely to increase the number of people who experience adverse environmental noise in the near future.

There is scope to promote and increase uptake of the service by members of the BME community.

Recommendations are made with respect to enhancing the scheme thereby improving the health and wellbeing of a greater number of the population of Leeds.

A Health Impact Assessment of the Leeds Out of Hours Noise Service

1. The Out of Hours Noise Service (OOH's)

The OOH's service is an extension of the Council's day time service to respond to complaints about noise and take action against noise nuisance. It operates city-wide 7 nights a week, although it does not provide round the clock 24 hour coverage. During winter months it operates until 2.00am the following morning, Sunday to Thursday and until 3.00am on Friday to Saturday. Saturday and Sunday afternoons are also covered (when resources allow, from 1.00pm to 8.00pm. Calls to the service are answered by a call centre, 'Care Ring' and the details passed through to the noise office. All requests for service are responded to within the hour by telephone. If the noise is ongoing at the time of the call, a visit is made by the officers and the appropriate action taken e.g. in the case of a sounding alarm preventing a neighbourhood from sleeping a notice will be served and a contractor brought in to silence the alarm there and then. The visiting team always comprises two officers, a lead officer accompanied by either a driver/support officer.

The service is flexible in that coverage can and has been extended to meet seasonal fluctuations in demand or to respond to special situations such as the impact of 'freshers' week at both of Leeds Universities and the introduction of the smoking ban. In the summer demand increases due to the warmer weather and people having their windows open and using their outside space to have parties and barbeques. Pub beer gardens are more populated in the summer and complaints about entertainment noise increase. As such in British Summer Time the service is extended to operate until 5.00am on Friday and Saturday.

The OOH's service aims to target its activities in the most disadvantaged neighbourhoods by giving complainants who live in the wards with the 20% most deprived SOA's a priority response. This has resulted in about 35% of the services resources being used to deal with environmental noise in these areas.

For the purposes of this report the term 'Environmental Noise' excludes noise from roads & transport as well as noise generated in the workplace that impacts on the health of employees as this is dealt with under specific health & safety legislation.

2. Noise Nuisance

Environmental Health investigate complaints of noise nuisance and noise disturbance both during the day and at night. The operation of the night time service facilitates a more prompt investigation and in most cases a speedier resolution to the complaint. The local authority is charged with a duty to investigate noise complaints and take appropriate action under the provisions of several key pieces of legislation.

Under S.80 of the Environmental Protection Act 1990 local authorities have the power to serve a statutory notice requiring the abatement of a noise nuisance. To be considered a bona fide complaint, the noise must be affecting the complainant in their home or place of work. It must happen with relative frequency or be disruptive. For example being woken by loud music late at night, or being exposed to excessively loud music on a regular basis throughout the day. Noise from both domestic and commercial properties can be investigated.

Under the provisions of the Licensing Act 2003 Environmental Health Services is a responsible authority and as such has a duty to deal with issues relating to public nuisance arising from licensed premises, this includes noise from within and outside the premises. The OOH's service supports this role by allowing investigations to be carried out and evidence gathered whilst the premises are open, at night. This has been particularly useful following the increased level of complaint with the introduction of the smoke free legislation.

The Control of Pollution Act 1974 and the Clean Neighbourhood and Environment Act also offer legislative tools which the teams regularly use in relation to noise in the street and noise from burglar alarms.

There are other types of noise that aren't covered by the service because they are beyond Environmental Health's legislative remit, although they may affect certain people. For example, noise from road traffic and airports.

In cases where noise nuisance can be proved, an abatement notice will be served. If this notice is breached the perpetrator can be prosecuted and a fine imposed. The fine can be up to £5,000 for domestic premises and up to £20,000 for commercial premises. Furthermore, if the person responsible for the nuisance breaches the notice persistently, their noise making equipment can be seized and retained to prevent further nuisance occurring. The power to prosecute perpetrators also exists under aforementioned legislation.

In order to take enforcement action, sufficient evidence needs to be gathered by the local authority. This evidence can take the form of diaries kept by the complainant to record the frequency and impact of the noise, information collected from a data logger, the complainants testimony but most important of all evidence from an appropriate officer who has witnessed the noise. Having the OOH's service greatly increases the opportunity for an officer to witness the noise and as a consequence puts less emphasis on the complainants testimony and can speed up considerably the resolution of the case. For complainants who are vulnerable or less able to express themselves this can be a significant benefit. It can also ease the frustration for complainants associated with officers missing opportunities to witness a noise and provides reassurance for complainants knowing that there is someone on the end a phone they can speak to should the noise occur outside office hours.

3. About Health Impact Assessment's (HIA)

3.1 Their Purpose

Based on an e-mail consultation and an international workshop¹ a consensus paper² defines HIA as '*a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population*'.

Ideally HIA's should be conducted prospectively, but they can be used retrospectively and concurrently with the policy, programme or project under consideration. A further emphasis within an HIA should be a consideration of the impact of the activity on health inequalities, although this issue continues to be debated. It should be noted that the HIA concept provides a mechanism to assess the health impacts of an activity which may be at first be considered to have little or no direct relevance to health.

The function of the HIA therefore is largely twofold:

- to demonstrate to what extent an activity (see below) does or does not produce health benefits, or indeed whether it produces negative health impacts.
- to make recommendations to amend the activity to enhance the positive health outcomes or mitigate adverse impacts.

3.2 The Toolkit Approach

Whilst the OOH's service has been in operation since 2001, a HIA was deemed to be appropriate since the scheme is currently the subject of a spending review and there may be an opportunity to make recommendations with respect to its impact on health.

There are several approaches to conducting a HIA and there is an increasing amount of literature about the HIA process. Therefore a user friendly 'HIA ToolKit for Public Health Practitioners' has been developed jointly by Leeds CC & Leeds PCT. In the Toolkit the terms 'policies, programmes and projects', usually associated with HIAs have been replaced by the term 'activity/activities'. The Toolkit has been used to conduct the HIA of the OOH's service. The completed worksheets, which are a fundamental part of the Toolkit, can be found in **Appendix 1**.

Screening considered the aims & operation of the OOH's service and deemed it suitable for a Basic HIA. **Scoping** identified the populations most likely to be affected by the activity and the stakeholders who would need to be involved or consulted. **Terms of Reference** were drawn up and a Health Impact Statement (HIS) subsequently produced. The **Appraisal** stage and **Recommendations** are described and discussed in subsequent sections of this report.

¹ Health Impact Assessment: from Theory to Practice. Report on the Leo Kaprio Workshop. Gothenburg: WHO European Centre for Health Policy & Nordic School of Public Health 2001.

² Health Impact Assessment: Main Concepts and Suggested Approach. Consensus paper. Brussels: WHO European Centre for Health Policy. <http://www.who.dk/hs/EHCP.index.htm>

4. Policy Context

4.1 Local Policy Context

The overall aim of the service is to investigate and resolve noise complaints as and when they arise outside normal office hours. The service also has a mandate to address other statutory nuisance complaints and proactive work when time allows. In dealing with noise complaints the service is helping to reduce anti-social behaviour (ASB) and so contributes to the vision of everyone feeling safe in their neighbourhood. The effects of ASB are well documented. In the case of noise nuisance the environmental health profession is familiar with the impact it has on both physical and mental wellbeing. **Wilson and Kelling (1982)** first described the now widely acknowledged 'broken windows' theory, which suggests how ASB can hold back the regeneration of disadvantaged areas and may create an environment where more serious crime can take hold. The OOH's service is particularly targeted at the worse Super Output Areas (SOAs), many of which are included in the Intensive Neighbourhood Management Programme. It therefore contributes to one of the local strategic partnerships key priorities which is 'narrowing the gap' between the most disadvantaged and more affluent areas of Leeds.

The service contributes to the delivery of Local Public Service Agreement 2, specifically the indicator 'Reduction in the number of residents who have experienced excessive noise'.

4.2 National Policy Context

The Government's Respect Agenda was officially launched on the 10th January 2006 with the publication of the Respect Action Plan. It's aim is to build on previous legislation and initiatives such as the Together campaign in 2003 that had been introduced to tackle anti-social behaviour (ASB) and it's causes.

The Crime and Disorder Act 1998 defines ASB as acting in '*a manner that caused or was likely to cause harassment, alarm or distress to one or more persons not of the same household as the complainant*'. Noise nuisance caused by 'nuisance neighbours' is identified in the Government's Respect Action Plan as anti-social behaviour.

Chapter 7 of the Respect Action Plan talks about effective enforcement and community justice. The use of noise abatement notices is therefore seen as an important element of this plan.

The European Court of Human Rights has confirmed that Article 8 of the Convention of Human Rights 'values' the right to a healthy environment, free from noise.

5. Appraisal

Appraisal is centred on developing and implementing a methodology to assess the health impacts of the activity. In this instance the OOH's service. The application of a HIA in a socio/economic environment is largely a qualitative process as precise-cause effect relationships are difficult to prove. Key elements include a review of existing documented evidence, population and/or community profiling, and understanding the relationship between the activity and relevant health determinants. An important feature is the evidence gathered through consultation with appropriate stakeholders.

Primary stakeholders with regards to the OOH's service are those people who have contacted the Council because they have been affected by noise in some way. Other stakeholders would be members of the OOH's service themselves, other persons affected by a noise but who did not contact the service and also the alleged perpetrators of the noise. Time constraints in this instance meant that information has only been gathered from a small sample of persons who were affected by noise and contacted the OOH's service.

5.1 Population Profile

Noise is defined as unwanted sound. Environmental noise describes all noise excluding noise from roads & transport and noise generated in the workplace impacting on the health of employees, as this is dealt with under specific health & safety legislation.

Environmental noise pollution is more widespread than ever before and it will continue to increase in magnitude and severity because of population growth, urbanisation and the associated growth in increasingly powerful and cheaper mobile sources of noise (Noise Pollution: A Modern Plague, Lisa Goines & Louis Hagler 2007).

The World Health Organisation (WHO) states that the average level of noise between 11pm and 7am should not exceed 45 decibels, but research conducted by the Building Research Establishment (BRE) in 2001 found that 67% of households are enduring more noise than this. The study also found that over the 10 year period, since the previous survey in 1991, there was a significant increase in noise at night. The number of households suffering excessive noise at night has risen by 1% while the number affected during the day has gone down by 6%. The study also found that 18% of the population reported noise as one of their top five environmental problems. Noise complaints to councils have increased five-fold over the last 20 years, according to the Office for National Statistics annual survey of social trends. The most annoying noises are not necessarily the loudest. The UK Noise Association says it is barking dogs that are the most common source of complaint.

Key findings of respondents to “The UK National Noise Attitude Survey 1999/2000”:

- 21% reported that noise spoilt their home life to some extent, with 8% reporting that their home life was spoilt either ‘quite a lot’ or ‘totally’.
- 81% heard noise from neighbours and 37% were bothered/annoyed by it
- the proportion of respondents who reported being adversely affected by noise from neighbours has increased over the last 10 years whilst for all other categories of environmental noise the proportion adversely affected has remained unchanged
- only a small proportion of respondents who were bothered by noise from neighbours complained to the environmental health department of the local authority, which means that noise complaint statistics will greatly underestimate the extent of community dissatisfaction.
- The evening 7pm to 11pm and night time 11pm to 7am periods are the times when the greatest proportion of residents reported being particularly annoyed/disturbed by most types of noise from neighbours or people nearby.
- The most commonly selected word from a list of 21 used to describe the effects of noise was irritated, 25% of respondents selected this word to describe the impact of noise from neighbours/people nearby.

In Leeds the OOH’s service operates city wide covering, according to the 2001 Census, a population of ~ 715,000. In the 12 months from 1st April 2006 to 31st March 2007 the OOH’s service received 4,187 complaints. Of these 320 were about burglar alarms sounding continuously of which 46 were subsequently disconnected on the night they were reported as sounding. Since 1st April 2007 the service has already received 2,580 complaints.

Map 1 shows the distribution of these complaints by post code and **Map 2** displays the same post code data but this time overlaid with the 3% most deprived SOA’s.

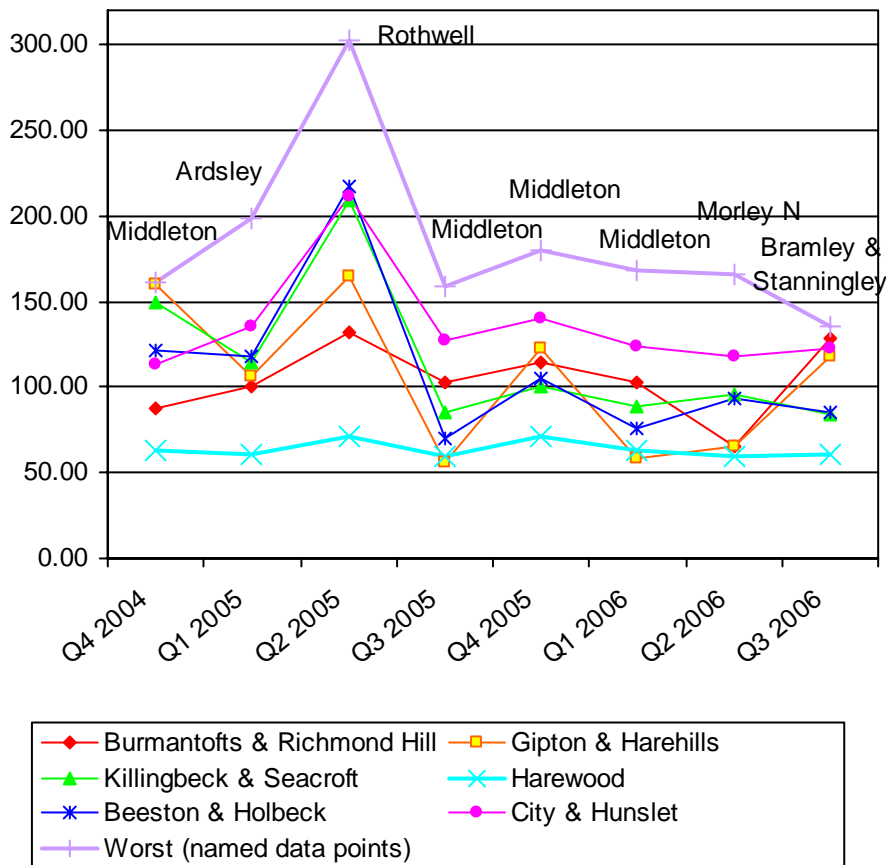
Not unexpectedly the majority of complaints are from the inner city areas which are characterised by high density housing in the form of either terraces, back to backs or high rise apartments. In addition to this the property types tend to have poor noise attenuation characteristics. Their construction and layout resulting in shared party walls. In back to backs each house (other than a gable property) will have three party walls, and in most cases consist of only a single brick skin. This renders the occupants more prone to noise from neighbours actually being intrusive.

It is also known that the distribution of back to backs is such that most are located within the most deprived SOA’s in areas such as Beeston, Harehills & Armley. These SOA’s tend to have a larger proportion of vulnerable people such as the elderly, disabled and mentally ill who are more susceptible to noise nuisance.

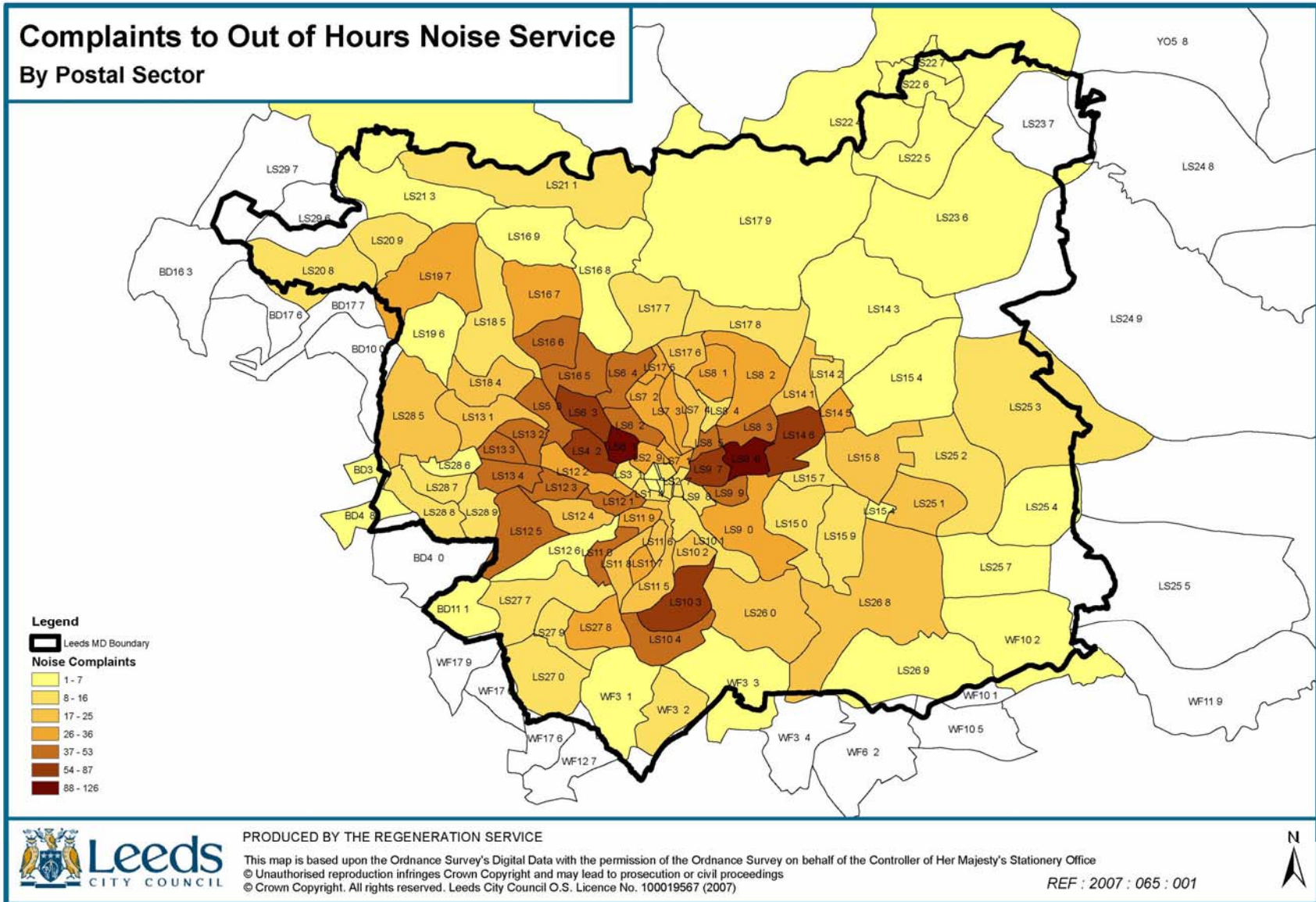
The highest rates of Coronary Heart Disease (CHD) are to be found in the south of Leeds particularly Middleton and Rothwell (**Fig 1**). This is of particular interest as links are now beginning to be found between exposure to

excessive unwanted noise and an increased susceptibility to cardiac disease (see section 5.2 of this report). Whilst no direct cause effect relationship has been proven there is still sufficient evidence to consider giving a higher priority to dealing with noise complaints emanating from these two particular localities. It is interesting to note from Map 1 that the OOH's service does receive a high number of complaints (117) from LS10 3 and LS10 4(Middleton & Belle Isle areas) but relatively few (24) from LS26 0 (Rothwell).

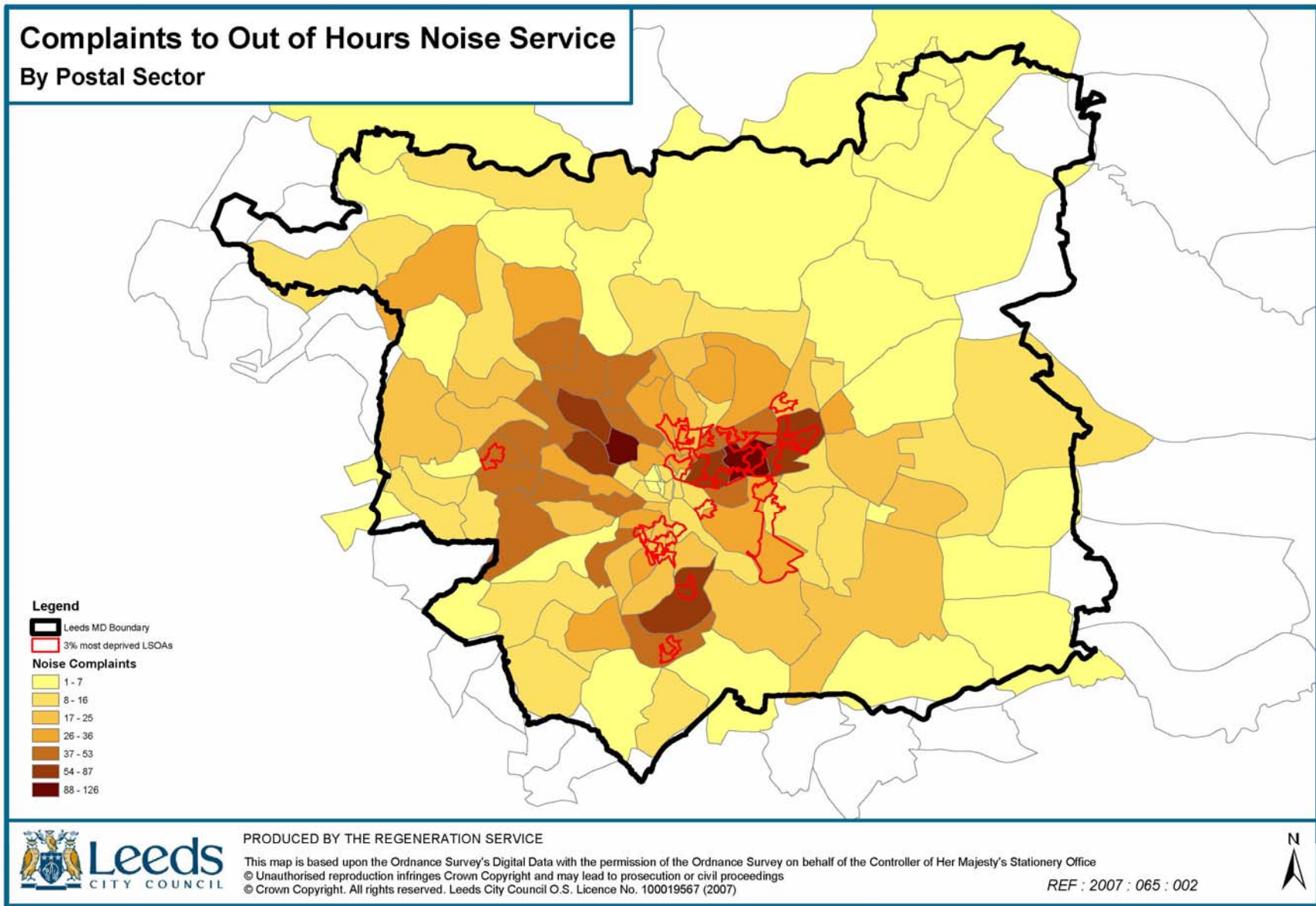
Fig 1. CHD all ages DAS rates / 100,000
source: PCT Health Informatics



Map 1



Map 2



5.2 Noise & Health – a literature review

As we have seen in the ‘Population Profile’ annoyance caused by environmental noise is a major source of complaint to local environmental health services. It is clear from the BRE study that factors such as noise sensitivity and attitudes to noise are important in determining the level of annoyance.

Symptoms & negative affectivity

There is considerable evidence of both objective and subjective sleep disturbance by noise. In research commissioned by the Department of Health³, noise annoyance was found not only to be strongly associated with noise exposure but also with reporting of symptoms¹. This raises the question of whether noise-disturbed sleep causes health problems, or whether health problems lead to greater susceptibility to noise-disturbed sleep. Correlations between symptoms are usually high, hence the strong association between noise disturbed sleep and health outcomes. A key finding of the study is that associations between reported noise exposure, noise sensitivity and health outcomes largely reflect negative affectivity (the tendency to perceive and report negative aspects of the environment and self).

Physiological health problems

A growing body of evidence confirms that noise pollution has both temporary and permanent effects on humans by way of the endocrine and autonomic nervous systems. It has been suggested that noise acts as a non specific biological stressor eliciting reactions that prepare the body for a “fight or flight” response^{2,3,4}. For this reason noise can trigger responses that affect the cardiovascular system and so may present a risk for cardiovascular disease,^{2,3,4,5} or exacerbate an existing cardiovascular condition.

The idea of noise as a non-specific stressor that creates susceptibility to illness is supported by studies that have linked noise, stress, cardiac reactivity, hypertension and performance in laboratory, community and occupational settings⁶. A study of US automotive workers⁷ assessed the acute affect of exposure to noise on blood pressure and heart rate. The study concluded that the physiological affects of noise appear to be both acute and chronic. Results in terms of acute effects suggest that different physiological mechanisms are involved for blood pressure and heart rate, with blood pressure being affected by overall noise exposure and heart rate by instantaneous peak noise. The findings of both acute and chronic effects in the same worker population supports a possible link between repeated acute reactions of the cardiac system and ultimately chronic changes in heart measure. If this is the case, the acute effects may be precursors of future cardiac disease.

Sleep disturbances

Uninterrupted sleep is important for good physiological and mental functioning in healthy individuals⁸. Environmental noise is one of the major causes of

³ Subsequent reference numbers in this section refer to list at the end of the section

disturbed sleep ^{2,9}. When sleep disruption becomes chronic, the results are mood changes, reduced performance and other long term effects on health and wellbeing¹⁰.

Sleep disturbance can manifest itself as falling asleep, frequent awakenings, waking too early and alterations in sleep stages and depth. Apart from various effects in sleep itself, noise during sleep causes raised blood pressure, increased heart rate, increased pulse amplitude, vasoconstriction, changes in respiration, cardiac arrhythmias and increased body movement ⁸. Decreased alertness leading to accidents, injuries and death has also been attributed to lack of sleep and disrupted circadian rhythms ¹².

Long-term psychosocial effects have been related to nocturnal noise. Noise annoyance during the night has been found to increase total noise annoyance for the following 24 hours. Particularly sensitive groups include the elderly, shift workers, persons vulnerable to physical or mental disorders and those with sleep disorders ².

Other factors that influence the problem of night time noise include its occurrence in residential areas with low background noise levels and combinations of noise and vibration such as produced by heavy machinery. Low frequency sound is more disturbing, even at very low sound pressure levels, these low frequency components appear to have a significant detrimental effect on health ¹³.

Mental health

Noise pollution is not believed to be a cause of mental illness but can accelerate and intensify the development of latent mental disorders. Noise pollution can cause or contribute to the following adverse effects: anxiety, stress, nervousness, nausea, headache, emotional instability, argumentativeness, changes in mood, sexual impotence, increases in social conflicts, neurosis and hysteria. Population studies have suggested associations between noise and mental health indicators, such as rating of wellbeing, symptom profiles, use of sleeping pills and rates of admission to hospital on mental health grounds. Children, the elderly, and those with underlying depression may be particularly vulnerable to these effects because they may lack adequate coping mechanisms ².

Impaired task performance

Noise pollution impairs task performance at school and at work, increases errors and decreases motivation ^{5,14}. Reading attention, problem solving and memory are most strongly affected by noise. Deficits in performance can lead to errors and accidents, both of which have health and economic consequences ².

Social behaviour and annoyance reactions

Annoyance is defined as a feeling of displeasure associated with any agent or condition believed by an individual to adversely affect him or her. The term

annoyance does not begin to cover the wide range of negative reactions associated with noise pollution which include: anger, disappointment, withdrawal, helplessness, depression, anxiety, distraction, agitation or exhaustion. Lack of perceived control over the noise intensifies these effects^{2,9}.

Social and behavioural effects of noise exposure are complex, subtle and indirect. The effects include changes in every day behaviour e.g. closing windows and doors to eliminate outside noises, avoiding the use of outside balconies, patios, and yards, and turning up the volume of radios and television sets to mask the noise as well as changes in social behaviour e.g. aggressiveness, unfriendliness, non-participation, or disengagement and changes in social indicators and changes in mood².

The degree of annoyance produced by noise varies with the time of day, the unpleasant characteristics of the noise, the duration and intensity of the noise, the meaning associated with it and the nature of the activity the noise interrupted. Annoyance is influenced by a variety of non acoustical factors including individual sensitivity to noise¹⁵. These include fear of the noise source, conviction that noise could be reduced by third parties, individual sensitivity, the degree to which an individual feels able to control the noise, and whether or not the noise originated from an important economic activity^{2,9}. Other less direct effects of annoyance are disruption of peace of mind, the enjoyment of property and solitude.

The results of annoyance are privately felt dissatisfaction, publicly expressed complaints to authorities (although under reporting is significant) and the adverse health effects previously described. Given that annoyance can denote more than slight irritation, it describes a significant reduction in the quality of life, which corresponds to a negative impact on health and wellbeing. In this regard it is important to note that annoyance does not abate over time despite continuing exposure to noise¹⁶; i.e. we don't get 'used' to it.

5.3 New Evidence

5.3.1 Methodology

Time constraints in carrying out this HIA limited the scope of stakeholder involvement and therefore dictated the appraisal methodology. Ideally an arbitrary selection of persons who had used the OOH's service should have been identified and interviewed as a forum or by questionnaire. However in the time available it was decided to select 6 complainants, from each of the five area teams within Environmental Health Services (giving a total of 30), who, from records and personal knowledge, had benefited from the service. Whilst this would tend towards co-operation by the respondents, it was felt that they would still provide a non-biased cameo of typical service users and therefore illustrate the health impacts of noise on their lives and the resultant impacts made possible by the OOH's service.

A questionnaire was drawn up and was used by colleagues in the Health Improvement Team as a basis for a telephone interview. (see Appendix 2) Response therefore tended to be high and positive, as expected.

The outcome supports the documented evidence described above (5.2) in terms of physical, mental and social health impacts.

5.3.2 Results

Customer/complainant profile:

Status of complainants	%
Female	70
Male	30
Living alone	20
Living with others	80
UK origin	77
African	9
Asian	7
Afro-Caribbean	7

On average each complainant represented 3 persons affected by the noise in the same household.

On average each complainant believed 2 other households were affected by the same noise.

As such the number of persons actually affected by noise could be 6 times the number of complaints received. i.e. over 24,000 people annually.

Awareness of the OOH's service

All complainants felt reassured that there was always someone they could speak to about their noise problem. Concern was expressed by some however that it took some time to get through on the phone and it was often a while before anyone came to see them – in several instances well after the noise had ceased.

How did you become aware of the OOH's service?	%
Leaflets	35
Word of mouth	20
Council information	15
Newspapers	10
Police	10
Landlord	5
Other	5

Types of noise and complainant actions

Source of noise	%
Loud music	75
ASB	40
Alarms	10

note – some complainants were affected by more than one source.

Length of time the noise had been ongoing before a complaint was made.	%
up to 1 week	0
up to 1 month	5
1- 3 months	15
3 – 6 months	25
6 – 9 months	5
1 year	15
1 – 2 years	15
2 – 5 years	10
> 5 years	10

Other actions taken by the complainant to try and resolve the situation.	%
Contacted the perpetrator	50
Contacted the police	10
Spoke to their landlord	10
Contacted local councillor	10
Contacted Citizens Advice Bureau	5
Consulted neighbours	5

Effects of the noise on people's health, wellbeing and enjoyment of life

Self assessed emotional impact of the noise.	%
Made me feel angry	70
Felt stressed	10
Feeling anxious	10
Concerned about personal safety	10
Other descriptions: felt powerless, cried*2, concerned about pre-existing heart condition, privacy invaded, wanted to retaliate in some way.	–

Affect on enjoyment of the home.	%
Unable to sit outside	50
Unable to read	65
Sleep disturbance	85
Couldn't watch TV etc	80
Other descriptions: damage to car, had to keep windows closed, bought headphones, went out, stopped having friends & family around.	–

15% of complainants reported having to take time off work (one a nurse felt she wouldn't be able to concentrate on her job properly).

40% had children due at school the following day (1 person reported their child fell asleep in an exam).

65% had household members due at work the next day.

Medical status	%
Pre-existing heart condition	15
Pre-existing stress related condition requiring medication	10
Required medical intervention for stress as a result of the noise	15

Effect of the actions of the OOH's service

The effectiveness of the actions of the OOH's service is indicative of how long the complainants continued to experience the adverse effects of the noise.

Immediate outcomes	%
Noise stopped altogether	20
Stopped initially before recurring after the team left	25
Little or nothing	20
Letter sent or notice served	30
Court case	5
Further monitoring	?
Aggressive response from perpetrators	?

Long term outcomes	%
Perpetrator moved away	25
Improvement	25
Stopped	45
Still awaiting outcome	5

The greatest source of complaint/concern was delay in arriving at the premises, which in the opinion of the complainant would have enabled the OOH's service team member to witness the noise and so reduce the need for longer monitoring or repeat visits.

5.4 Future developments

The potential for complaints about environmental noise nuisance to increase in the near future is considerable. Leeds is promoting the concept of 'city centre living' which has manifested itself in the form of many new high rise apartment blocks. Since 2000 about 5,000 units of accommodation have been provided in this way with a further 6,000 planned. In terms of potential exposure to noise nuisance from neighbours these apartments are similar to back to back houses in that each flat has a number of shared party walls. The city centre itself can be a source of noise. Leeds is promoted as a 24 hour city with pubs, clubs and takeaways which are open well into the early hours of the morning. These are likely to increase background noise levels at a time

when in more suburban areas they would be at their lowest. The smoking ban has resulted in a lot of people moving outside of premises to smoke, often in shelters with very limited acoustical attenuation. Groups of people gathering in this way and behaving noisily has already increased the number of complaints received by the noise service.

6. Assessment of Potential Impacts

Assessment is a subjective perception as to the likelihood of an activity having a positive or negative impact on health. There are various ways in which this can be shown e.g. by using a scale of -3 to +3 indicating the perceived strength of the impact from strongly negative to strongly positive. Stakeholders can be engaged in this process of evaluation in order to give some consensus to quantifying the identified impacts.

Because of time constraints in this instance the following general assessment is offered:

The population profile and literature review indicate that **noise is likely to have a negative effect on health**, with the greatest impacts being in the inner city.

Night time noise is likely to have a **greater negative impact on health** than day time noise. It causes sleep disturbance and increases the likelihood of stress being experienced and adversely affects behaviour and well being the following day.

The development of Leeds as a **24hr city** increases the likelihood of people being affected by noise and therefore the likelihood of **negative health impacts**.

On the other hand, the telephone call, subsequent visit by **the OOH** team and their consequent actions all have a **likely positive impact** on the health of the persons affected by the noise, as the source of the adverse health impact is removed.

7. Conclusions

The OOH's service is currently focussed on complainants living in the inner city areas. As such the service is potentially targeting those with the greatest levels of ill health.

This limited survey indicates that while knowledge of the OOH's service is widespread, there is proportionately little usage of the service by ethnic minority groups.

It is believed that the numbers of complaints received about noise nuisance does not present a full picture. Evidence from the survey confirms this and suggests that each complaint may itself represent at least six other persons

affected in the same or other households. Thus the OOH's service may be addressing issues affecting 3% of the city's population.

It is apparent that many people will have endured a noise for many months before making a complaint. Many of these will also have attempted to effect a remedy themselves by approaching the perpetrator or seeking help from another source. This perhaps explains why many complainants wanted a quicker response from the OOH's service and were disappointed with the time taken to abate the nuisance.

The speed of resolution is significant when the survey shows that 25% of the complainants have an existing health condition which could be exacerbated by the noise being experienced.

The OOH's service is seen to have an impact on well-being. In particular a noise problem is seen to have an impact on education and employment capabilities. Both of these are key factors in addressing health inequalities and deprivation.

As stated above, due to time constraints this 'advanced HIA' has have been limited in its scope. As such, should the opportunity arise in the future to conduct a more extensive HIA it is recommended the following are considered:-

- **The impact the OOH's service has on staff operating the service.**

By its very nature the OOH's service requires staff to work shifts, which has long been associated with negative health outcomes. It is understood that staff work no more than one night a week which should lessen the impact, but there is never the less the potential for this to cause disruption in sleep patterns in a similar way to jet-lag.

- **The impact on alleged perpetrators of noise.**

Whilst the OOH's service is undoubtedly having a positive impact for complainants this will not be the case for alleged perpetrators. In this respect there are a number of areas worthy of further investigation e.g. people who are complained about but are found not to be causing a nuisance, vulnerable people with mental health problems that manifests itself in noisy behaviour, people whose noise results from a particular past time e.g. practicing a musical instrument.

- **Use of the service by vulnerable groups.**

From the literature review we have established that some groups are more vulnerable to the effects of environmental noise nuisance than others. However insufficient data is gathered from complainants to comment on whether or not the OOH's service is receiving a disproportionate number of complaints from this group having regard to the population as a whole.

8. Recommendations

- I. Conduct a more extensive HIA of the OOH's service to explore some of the issues referred to in the conclusion. Particularly in relation to the efforts complainants are willing to make themselves in order to resolve their complaint with the perpetrator before contacting the service. Having the time to process a larger sample size would increase the validity of the findings from the questionnaire and confirm the relationship between a single complaint and the actual number of people affected by the source of the complaint.**
- II. Increase the number of teams available each night to provide a swifter service and an enhanced noise abatement response.**
- III. Ensure that politicians and planners are fully aware of the health impacts and implications of a '24hr city' and 'city centre living'.**
- IV. Work with partners to ensure the public are aware of services available to assist them tackle perpetrators before contacting the OOH's service if they so wish.**
- V. To minimise adverse health effects, people need to be advised that they don't have to wait to breaking point before they contact the service.**
- VI. Implement the findings of the review of the call centre system to minimise/reduce the time taken for callers to access the service.**
- VII. Targeting the service at the most deprived SOA's rather than the wards containing the most deprived SOA's would be a more effective approach to tackling health inequalities. Consider giving a higher priority to dealing with noise complaints emanating from the Rothwell and Middleton areas to help address inequalities in relation to CHD.**
- VIII. Widen the scope of publicity and develop mechanisms to ensure users of the service are fully representative of all the communities in the city.**

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APPENDIX 1

TOOLKIT WORKSHEETS

APPENDIX 2

QUESTIONNAIRE USED IN THE APPRAISAL