Sandwell NHS
Primary Care Trust

Sandwell
Metropolitan Borough Council

Environment and Health in Sandwell

Joint Strategic Needs Assessment

February 2013

List of contributors

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This review of health and social care need has been brought together by a partnership of organisations listed below

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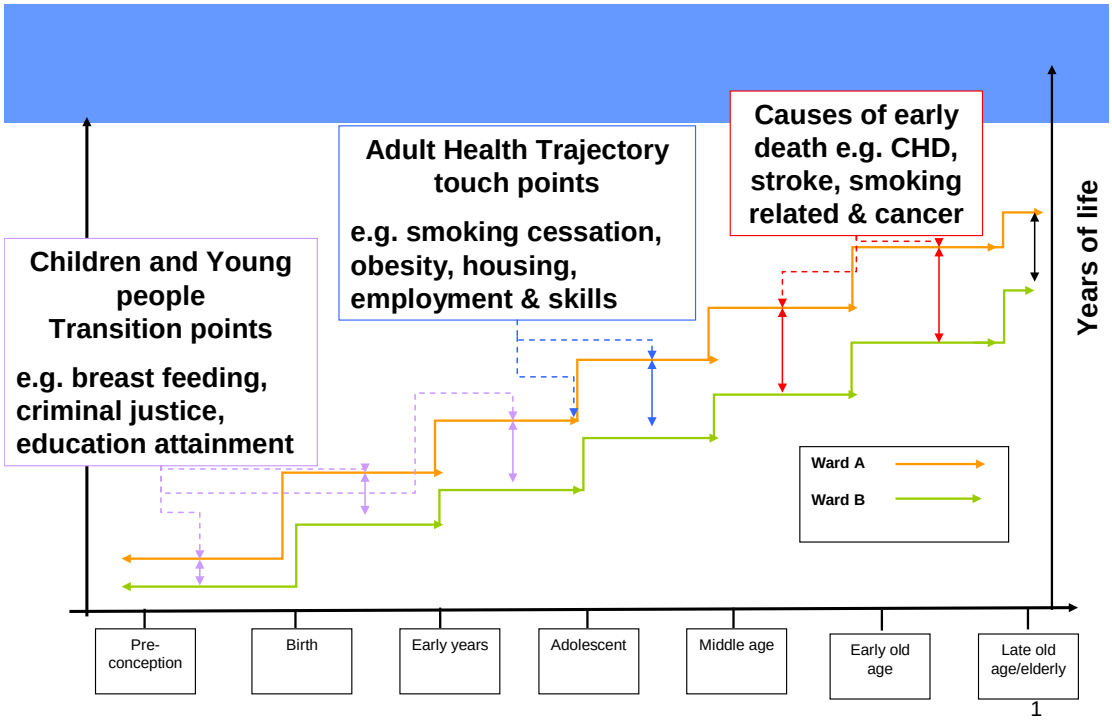
Acronyms/Abbreviations/Glossary

AQMA	Air Quality Management Area
CLAE	Changes to Local Authority Enforcement Project
COMEAP	The Department of Health's Committee on the Medical Effects of Air Pollutants
DALYs	Disability adjusted life years
DPH	Director of Public Health
EHP	Environmental Health Practitioner
EPHT	Environmental Public Health Tracking System
HPA	Health Protection Agency
IMD	Index of Multiple Deprivation
LSOA	Lower Super Output Area-a geographical area designed for the collection and publication of small area statistics typically containing around 1500 people
MBC	Metropolitan Borough Council
NO_2	Nitrogen dioxide
PM_{10}, $PM_{2.5}$	Particles with a diameter of less than 10 and 2.5 µm. In stack emission measurements these are the particles which pass through a size-selective inlet with a 50% efficiency cut-off at 10 and 2.5 µm aerodynamic diameters respectively
RTE	Ready to eat
SO_2	Sulphur dioxide
SPC	Statistical Process Charts
WHO	World Health Organisation

A Strategic Commissioning Framework– Trajectory, Transition and the Life Course

This Joint Strategic Needs Assessment (JSNA) sets out the health and social care needs of young people in Sandwell within the life course framework (fig a).

Figure a: Example Life course framework including transition and trajectory points



Outline definition:

Transition points: Those points in life that are fixed and allow or enable interventions to alter the life course. For example, breast feeding is a transition point. In this case, the rate of breast feeding will have an impact on the immediate transition point and also on the Childs long term trajectory.

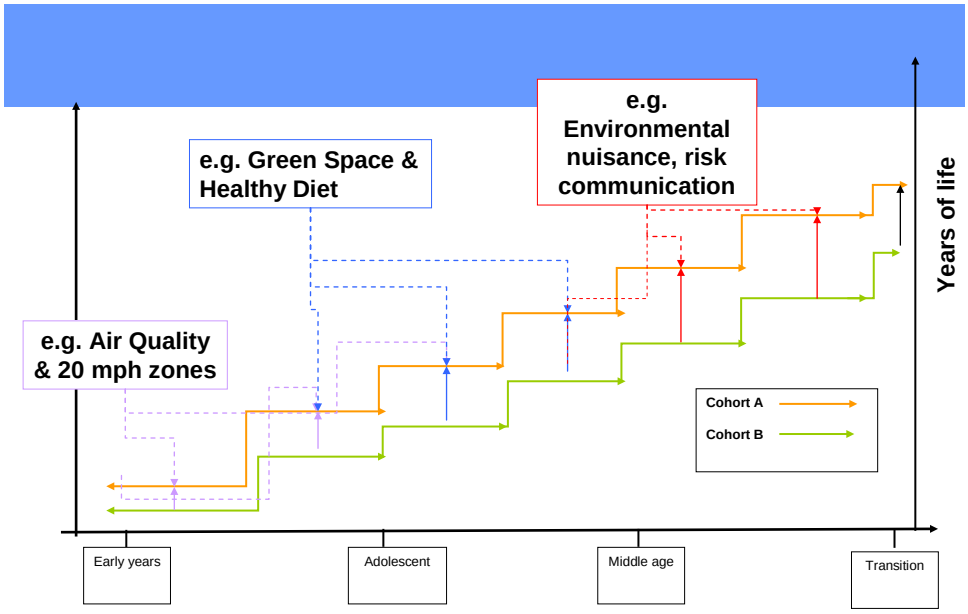
Trajectory points: Those points in life that are constant but effective change will also alter the life course. For example, opportunities to develop employment skills or promote an active lifestyle will have an immediate and also cumulative impact on the long term trajectory.

Life Course Outcomes:The aim of the framework is to change the course of life and enable people to reach their potential for living a full and fulfilling life. Essentially, the approach focuses commissioning and intervention activities to promote and enhance positive life chances and a healthy life: adding years to life as well as life to years.

An example of the life course framework applied to this Environmental JSNA is described below in Figure b:

At each point recommendations are described in terms of intervention both at transition points and trajectory points. For example, Trajectory points that impact across all ages include the need for improvements in Air Quality and better communication about environmental risk and hazards. Examples of Transition points where specific interventions can change subsequent heath and wellbeing include access to green space to promote physical activity, access to healthy foods and the introduction of 20 MPH zones to reduce road traffic accidents.

Figure b: Environmental framework including transition and trajectory points



In terms of setting strategic targets and monitoring outcomes from investment in programmes designed to change both Transition and Trajectory points, the following outcomes should be considered:

Outcomes: (TBA)

These are taken from the Public Health Outcomes Framework, the NHS Outcomes Framework and the Adult Social Care Outcomes Framework (see Appendix A).

Executive Summary

While the quality of our environment has improved considerably over the last few decades, there is abundant evidence that it continues to exert a powerful effect on public health. Estimates of this burden vary and the nature and impact of environmental stressors have changed over the decades. As well as the high profile environmental concerns such as climate change, local communities also consistently identify basic environmental amenity such as public health nuisances, fly tipping, noise, rodent infestations, bonfires, and derelict land as being critical 'front-line' issues. They are right to do so as these immediate interferences with day to day life have objective impacts on both health and quality of life. In addition, our understanding of the inter-relationship between the physical, social, psychosocial and economic environments has matured significantly demonstrating the significance of cumulative exposures. This is especially important given the disproportionate exposure to these hazards of vulnerable populations such as deprived communities and children, and the emerging evidence that deprived communities are also more vulnerable to the impact of these hazards.

Innovative methods examining this complex of relationships are required for the targeting and management of interventions for the greatest health benefit and effect on reducing inequalities. In response, Sandwell PCT and MBC have developed the first Environmental Public Health Tracking system in Europe. This systematically assesses the distribution, scale and impact of key environmental hazards and resources tailored to meet local needs and provides a platform for evidence based interventions.

This first Joint Strategic Needs Assessment on environment and health focuses on those environmental stressors identified by the Tracking programme as having a an effect on the health and well being of the people of Sandwell and where there is a realistic opportunity for effective intervention: public health nuisance, air quality, access to healthy diet, access to green spaces and opportunities for cycling, 20 mph traffic zones, and public risk communication.

1. Introduction

1.1 While most of the burden of disease in developed countries can be explained by the impact of age, gender, genetics, deprivation and personal lifestyle factors such as smoking tobacco and drinking alcohol, there remains a rump of unexplained disease some of which is linked to exposure to environmental stressors such as hazardous chemicals. Up to 10% of congenital anomalies, 25% of cancer, 10% of depression and 10% of ischaemic heart disease have been attributed to environmental effects globally (1). Recent work for the WHO suggests that approximately 100,000 deaths and six million disability adjusted life years (DALYs) in Europe are attributable to the four main environmental risk factors and injuries in children (2). There is a developing consensus that reproductive health, child health, and cancers are the most plausible effects together with non-specific health effects related to public health nuisance.

1.2 When asked which environmental health issues are most important to them, local people invariably raise matters of basic environmental amenity such as litter, fly tipping, noise, bonfires, housing disrepair, street lighting, and derelict land (3-5). Despite this, the professional and media focus has been on the 'big' environmental challenges such as global warming and ozone depletion, largely sidelining public health nuisances. However these immediate interferences with day to day life have objective impacts on both health and the quality of life. Air, food and drinking water quality, for example, have direct pathological impacts on health and there is evidence of psychological (6) and indirect effects on people of living in poor quality environments e.g. depressed house values in areas near industrial sites (7, 8).

1.3 There is also considerable evidence that this burden of exposure is disproportionately borne by the poor; deprived communities live closer to sources of environmental contamination, areas of higher air pollution, and poor quality housing (8). The same communities also have less access to environmental goods such as green space in urban areas (8). In addition, there is some evidence that deprived communities are not only more exposed to environmental hazards but are also more susceptible to the effects of those exposures (4, 9). This relationship was emphasised in Professor Michael Marmot's analysis of the distribution, scale and consequences of inequalities in England (10).

1.4 Sandwell's Environmental Public Health Tracking system has been operating in pilot form since April 2011 and has developed innovative integration and analysis of NHS and MBC data, hazard and disease surveillance at small area level, an active horizon scanning programme which has already highlighted important emerging issues, and a range of practice and research initiatives. Several local authorities are now collaborating with Sandwell on extending the service across the region and beyond, a development which has attracted WHO endorsement.

1.5 The Tracking programme comprises:

- Routine surveillance of environmental hazards and exposure estimation including routine analysis of public health nuisance complaints
- Routine surveillance of key health outcomes
- Routine assessment of the relationship between hazards and health outcomes
- Routine assessment of food safety intelligence and availability of healthy food choices
- Access to environmental resources

- Horizon scanning
- Spatial planning and health
- Risk communication
- Research proposals addressing hypotheses generated from the above

1.6 This report focuses on specific areas where there is a plausible and significant impact on health and well being or potential for health gain in Sandwell, and plausible opportunities for effective interventions, viz. public health nuisance, air quality, access to healthy diet, and public risk communication.

2. Air Quality

Key Findings

- While smoke and SO_2 levels have declined in magnitude and concern, traffic related pollutants such as nitrogen dioxide (NO_2) and particulate matter (PM) have increased. NO_2 is associated with respiratory disease and PM with both cardiovascular and respiratory diseases
- The impact of particulate matter on respiratory and cardiovascular disease has declined over the last 30-40 years and resulted in an increase in life expectancy in Sandwell.
- Current levels of NO_2 could be associated with hundreds of additional cases of childhood bronchitis
- The emerging potential of 'greening' urban corridors to reduce pollution as well as enhancing local environments should be explored.

Strategic Actions

- Support further trialing to identify the most effective greening options for Sandwell
- Identify and secure funding to deliver greening interventions

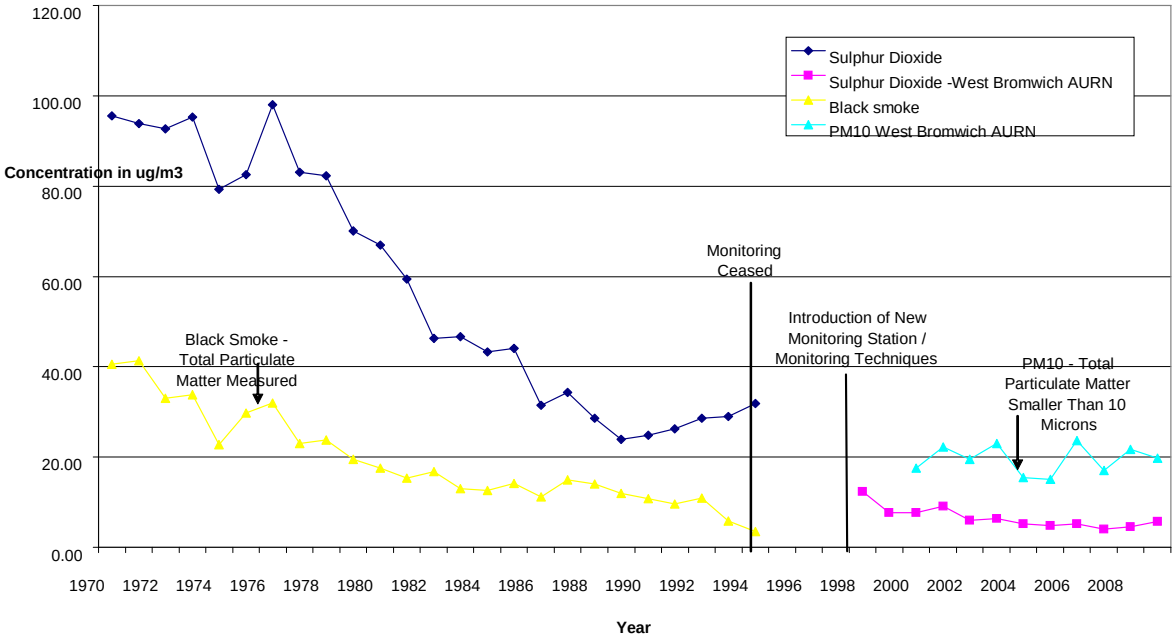
Air Quality

2.1 The transformation of Sandwell's air quality from the old heavy industry era pollution to today's standards is one of the great local environmental and public health achievements. Until the middle of the last century, industry and homes were largely dependent on energy produced from coal, a grossly polluting process. In places like Sandwell, populations grew alongside polluting industries. Heavy smogs lasting for days and causing serious health problems were common in all industrialised areas. A combination of tight legal controls, technical developments to reduce emissions, and the decline of heavy industry in Sandwell has had a dramatic effect in reducing the levels of pollution emitted. The ferrous foundry sector, for example, so dominant in the 1960s and 1970s with over 50 large foundries in the borough, has now declined to single figures with little prospect of this type of industry being reintroduced. The persistent smogs of the industrial era are a thing of the past, but this doesn't mean that the effects of air pollution are entirely behind us. Not only have the sources and quantities of pollutants changed, the nature of those pollutants has as well. While smoke and SO_2 levels have declined in magnitude and concern, traffic related pollutants such as nitrogen dioxide (NO_2) and particulate matter (PM) have increased in importance during this time.

Health Impact

2.2 Figure 1 shows that by 1970 major improvements had already been made in the Sandwell area: the annual average concentration of particles measured as Black Smoke had fallen to 40 µg/m^3 compared with over 200 µg/m^3 in the early 1950s. There is a considerable body of research into the health effects of air pollution, in particular PM. This work has linked day to day changes in concentrations of pollutants with day to day changes in the number of people dying from cardiovascular and respiratory disorders and the numbers admitted to hospital. The Department of Health's Committee on the Medical Effects of Air Pollutants (COMEAP) has combined the results of many studies looking at the link between cardiovascular mortality and exposure to black smoke and $PM_{2.5}$ to produce an average effect of a 1.5% increase in mortality for each 10 µg /m3 increase in levels of $PM_{2.5}$.

Figure 1: Annual SO2 and Black Smoke Concentrations 1970 - 2009



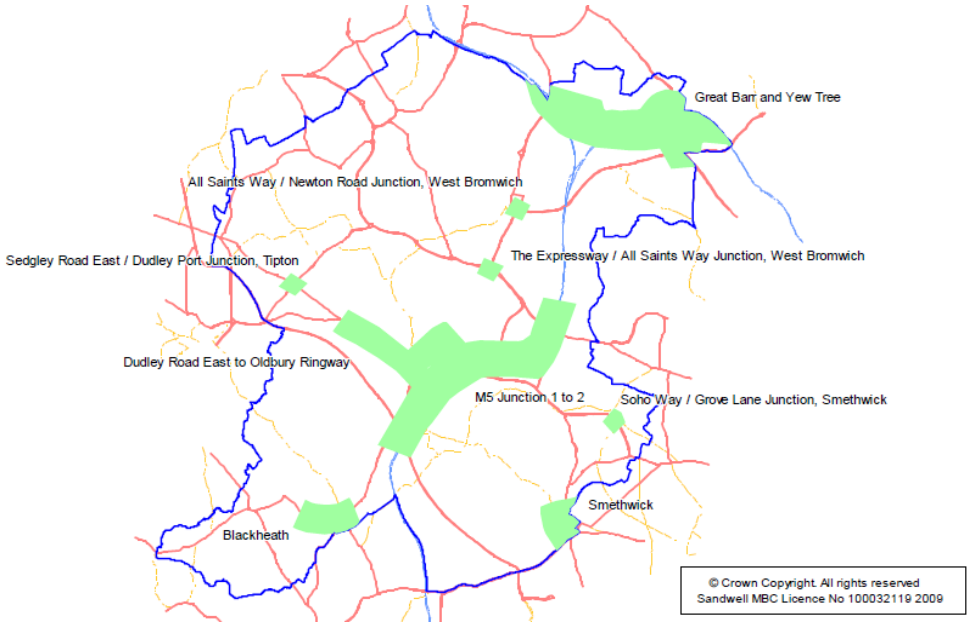
2.3 Even more striking than the effects of day to day changes in concentrations are the findings that long-term exposure to particles raises the likelihood of dying from cardiovascular diseases at all adult ages. This is a very important finding and COMEAP has estimated that a 10 µg/m^3 increase in long-term average concentration of fine particles ($PM_{2.5}$) is associated with a 6% increase in risk of death from cardiovascular disease. This coefficient enables the calculation of the impacts on health of current concentrations of fine particles. The annual average concentration of fine particles ($PM_{2.5}$) in (background) urban areas of the UK is now about 10 µg/m^3. This is associated with an average loss of life expectancy of about six months. It is inevitable that this loss of life expectancy is distributed across the population with some people losing rather less than six months of life expectancy and others losing considerably more. It is estimated that the reduction in Sandwell from about 40 µg/m^3 in 1970 to about 5 µg/m^3 by 1994 (when measurements stopped) has resulted in an increased in life-expectancy of perhaps of a year or two. This is a major contribution to public health in Sandwell.

2.4 There is considerable debate as to whether NO_2 directly causes health effects or acts as an indicator for the impact of PM. The absence of an agreed concentration-response relationship precludes effective cost-benefit analyses even in cases where the policy is designed to help meet NO_2 air quality objectives. This is important for Sandwell where the principal source of NO_2 pollution in the Borough is road transport (see figure 2). There is general compliance in Sandwell with the objectives in the government's Air Quality Strategy with the exception of a number of areas in which pollutant concentrations have been found to exceed the annual mean NO_2 objective. Thirteen areas exceeding this objective have been identified and as a result the MBC has declared the whole borough an Air Quality Management Area. Though emission control technology is continually improving emissions from vehicles, these technological advances can only partially mitigate the impact of increased road traffic. Sandwell's 2009 Air Quality Action Plan sets out the work currently being undertaken to improve air quality within the areas of exceedance and the borough as a whole (11).

Interventions

2.5 Sandwell PCT has worked with Kings College London to improve the understanding of the potential health impact of NO_2 in different exposure circumstances. The NO_2 guideline of 40 µg/m^3 as an annual average is intended to protect against the risk of children's respiratory symptoms as a result of long-term exposure to NO_2. This assessment accordingly used the evidence around children's respiratory symptoms and outdoor air pollution to quantify the possible health effects of NO_2 and/or particles. Coefficients were derived from two sources; one using asthma prevalence studies to give a broadly based measure of the effect of NO_2 and/or particles on asthma symptoms, the other using a multi-pollutant model. Annual mean pollutant concentrations for NO_2, and black carbon used in the calculations were obtained from the monitoring sites at West Bromwich, Birmingham Tyburn and Dudley. The urban increment was taken to be the difference between these values and those at the rural site at Harwell. Kings College has estimated that over 1300 asthmatic children in Sandwell experience bronchitic symptoms due to the high levels of NO_2 in the borough.

Figure 2: Areas Exceeding NO2 Air Quality Objective Sandwell 2010



2.6 Given the challenges in reducing levels of NO_2 further using conventional control measures; Sandwell PCT and MBC have also worked with the University of Birmingham to explore the emerging potential of 'greening' urban corridors to reduce pollution as well as enhancing local environments. Urban canyons arise as a result of streets cutting through dense areas of tall buildings which are higher than the width of the street. Street canyons restrict air movement and increase residence time within the canyon, which results in an increase in pollutant concentrations as they fail to disperse. Both NO_2 and PM are deposited onto surfaces at rates which depend on the nature of the surface. Deposition rates onto vegetation are much higher than those onto hard surfaces such as brick buildings. Planting vegetation in urban canyons has been shown to significantly reduce street level concentrations of pollution. Other benefits include reduced noise pollution and surface temperature, increased amenity value and improved aesthetic appearance. The University of Birmingham has conducted some initial modelling of the impact of greening the southern part of Bearwood Rd, a NO_2 hotspot.

3. Public Health Nuisances

Key Findings

- Nuisance includes a very wide range of public health challenges including noise, pollution, smells, rubbish, and housing disrepair.
- The quality of the immediate environment is important to communities. This is reflected in the evidence of poor physical and mental health being associated with perceived nuisance.
- Areas of high complaint levels in Abbey, Soho and Victoria, St Paul's, Smethwick, Oldbury, West Bromwich Central and Greets Green and Lyng wards.

Strategic Actions

- Target Environmental Health Practitioner activity in those areas with exceptionally elevated levels of nuisance complaint
- Refer elevated areas to other Council and partner organisations (e.g. Police) including the Voluntary Sector to enable other officers to refer nuisances to EHPs for intervention

3.1 Nuisances in the legal sense are not simply irritations but things which can be harmful to health or which interfere with normal day-to-day living. Nuisance includes a very wide range of public health challenges including noise, pollution, smells, rubbish, and housing disrepair. That much of the great canon of public and environmental health legislation of the Victorian era remains in force is testimony to the fact that public health nuisances remain an important determinant of health and well being.

3.2 Local authorities have duties to inspect their areas for the existence of nuisances, must respond to complaints and if satisfied that a statutory nuisance exists, take action to abate or prevent recurrence. While not all complaints to the local authority will be statutory nuisances the overwhelming majority will be genuine and there is emerging evidence that perceived as well as real nuisance is linked to poor health (9). While Sandwell MBC, as most local authorities, provides a highly effective nuisance response service, there has been little assessment of the distribution of nuisances, the trends over time and their relationship with other factors. This is important for the early identification of a developing or previously unknown problem, and essential for identifying areas for intervention and monitoring the impact of policies on community satisfaction.

3.3 Sandwell PCT and MBC have collaborated in a systematic analysis of nuisance data using descriptive and analytical assessments together with spatial mapping where appropriate. Over 20,000 complaints over six years have been included and Statistical Process Charts (SPC) have been used for the first time to interrogate public health nuisance data. SPCs are a quality control measure used for many decades in industry to identify outliers that are so different from what they should be that there is something wrong with the process that needs putting right.

3.4 Sandwell MBC supplied nuisance complaint data for the years 2004-2009 inclusive which have been grouped into four nuisance categories - Total (all causes), Noise, Environmental (air, land and water pollution) and Public Health (infestations, animals and drainage). Post coded incidents (post code of complainant) were used to calculate weighted and unweighted complaint rates (together with 99% confidence intervals) at Lower Super Output Area (LSOA)1 level. SPCs were used to identify LSOAs exhibiting special cause variation. Areas that had significantly deteriorated or improved over the study period were also identified. These ‘hot spot’ and ‘cold spot’ areas are being subjected to a ‘case review’ assessment to identify plausible causes, physical and/or social. The relationship with deprivation was assessed using the LSOA Index of Multiple Deprivation score (IMD).

3.5 These outlying areas were mapped using Mapinfo© and assessed for spatial relationship with the distribution of potential exposure sources including landfill sites, authorised industrial processes, and sites producing foundry wastes. There are large numbers of the former and the latter in the Borough and public concern is high in some areas.

Health and Wellbeing Impact

3.6 Nuisance complaints are not just a measure of individual or community dissatisfaction with the quality of the local environment; they also in many cases represent a real and direct exposure to a hazard and, in virtually all other cases, are a powerful proxy measure of an exposure. This is reflected in the evidence of poor physical and mental health being associated with perceived nuisance (6). The quality of the immediate environment is important to communities, often much more important than national or international issues such as global warming. It is the immediate environment that directly impacts on their lives on a daily basis.

3.7 A small number of areas were significantly poor for more than one year; e.g. two areas in Oldbury and St Paul's wards for four years. In addition, 26 areas showed a significant increase in complaints over the period with four areas in Smethwick, St Paul's and West Bromwich Central deteriorating from being average or better to particularly poor. On the other hand, 18 areas including some that had been very poor saw a significant decline in complaints.

3.8 15 areas were consistently poor over the period. Figure 3 shows example control charts for total complaints for the six years (the excessively high areas are in red and exceptionally low areas in green). Figure 3.1 shows the areas of high complaint levels in Abbey, Soho and Victoria, St Paul's, Smethwick, Oldbury, West Bromwich Central and Greets Green and Lyng wards and figure 4 shows the location of those areas with lower than expected levels of complaints in Great Barr, Friar Park, Newton, and Tipton Green wards (data and maps for all nuisance categories and all years are available).

3.9 There is a very strong relationship between the number of LSOAs with significantly high levels of nuisance complaint and deprivation (R^2=0.9). Over 60% of those areas with the highest levels are in the top two quintiles of deprivation and fewer than 6% in the least deprived quintile. The analysis has also clearly identified those areas with excessively high or deteriorating levels of complaint. In some cases, such as two extreme outliers in 2004, there will be clear explanations known to the regulator (in this case a particularly troublesome quarry). However, in other cases there is no obvious explanation and so these areas will need further investigation to explore the underlying cause of the problem(s) e.g. are there exceptional cases distorting the analysis, is the local community particularly sensitive and if so what are the reasons for this sensitivity, is something new emerging, or is a combination of stresses generating increasing complaints?

Table 3: Control Chart for All Nuisances by LSOA 2004-9

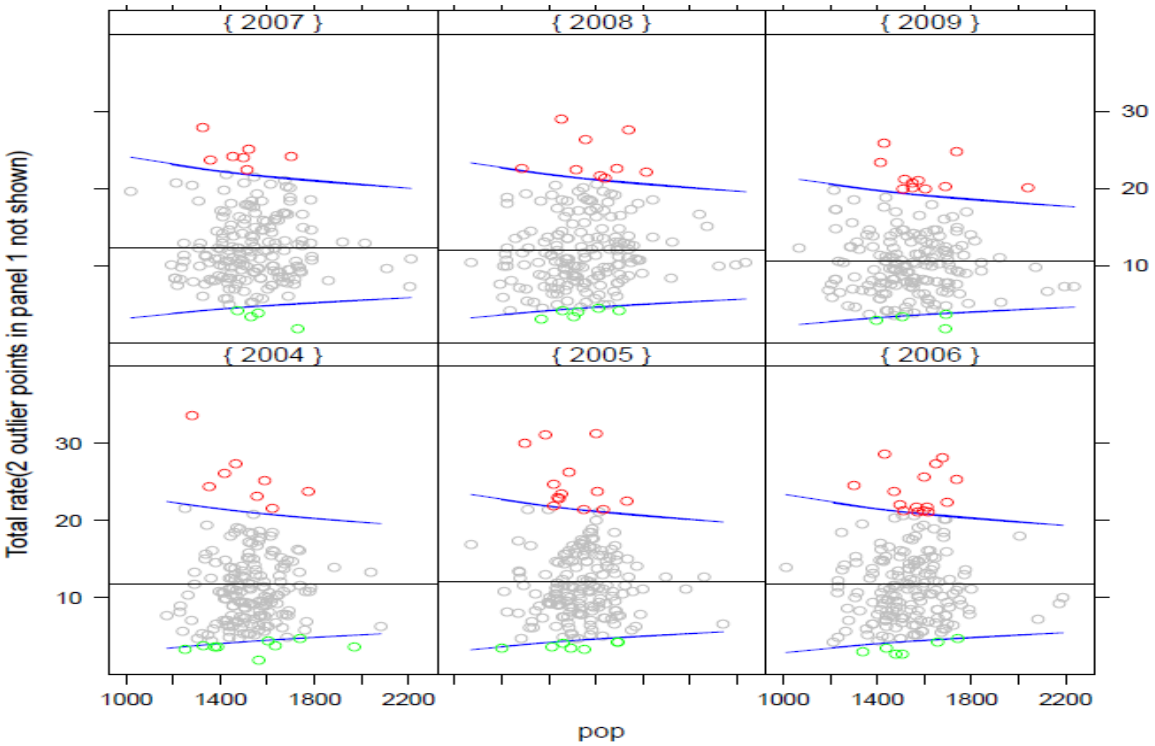
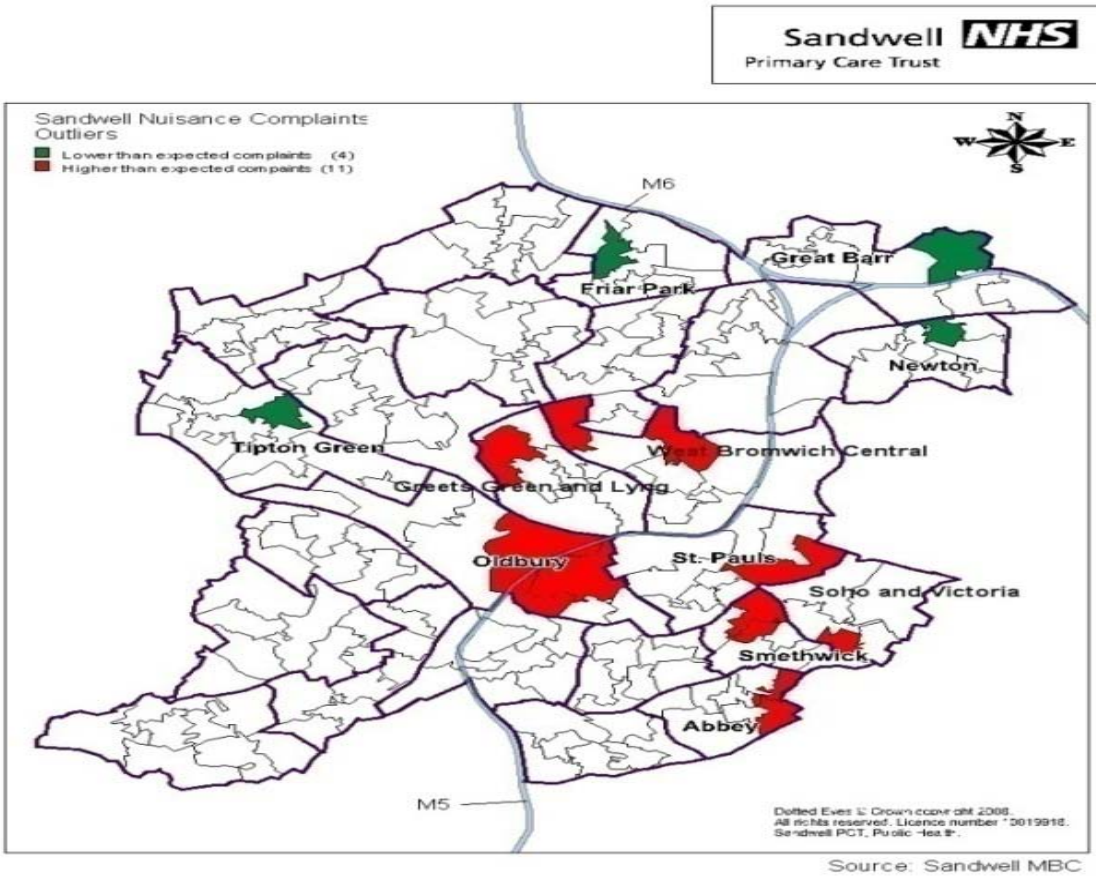


Figure 4: Areas with exceptionally high and low levels of nuisance complaints 2009



4. Food Safety-Hygiene and Access to Healthy Foods

Key Findings

- In 2009, overall compliance with food hygiene standards in Sandwell was 68% compared with a national average of 80%.
- Obesity and overweight are increasingly being considered not just in terms of causal factors operating at the level of the individual, such as behaviour, health beliefs and food preferences, but also in the wider environmental context of the places in which people live and work.
- The 'obesogenic environment' includes factors such as transport choices, access to green space and leisure facilities or access to sources of healthy and affordable food.
- Food borne disease is a major cause of illness in the UK imposing a significant burden on patients and the economy. Obesity is a major issue In Sandwell with a third of year 6 children being obese or overweight.
- There is a clear relationship with deprivation with poorer areas experiencing significantly poorer average food safety.
- Sandwell's policy of targeting high risk *areas* as well as high risk *premises* pays dividends resulting in significantly improved food safety scores and should be maintained.
- Sandwell is close to, if not already at, some level of market saturation with no one is Sandwell more than a very short walk from a hot food takeaway.

Strategic Actions

- Reinstate Sandwell's *area* targeting of food hygiene inspections.
- Actively consider the role of EHP food hygiene inspections to include healthy food preparation as well as food hygiene standards
- Consider the implications from the anticipated results of the trans fats sampling study

4.1 There is a long history of legislation in this country to protect consumers from dangerous, poor quality and contaminated food. Effective legislation and improved quality control essentially made the deliberate contamination of food with acutely toxic substances a thing of the past in the last century and the focus of legislation shifted to the microbiological safety of food. This has defined the development of the inspection and enforcement policies of local authorities and Sandwell Council's Regulatory Services carries out regular checks on all food premises in the Borough, advises industry, and investigates food complaints. In 2009, overall compliance with food hygiene standards in Sandwell was 68% compared with a national average of 80% (12).

4.2 Enforcement policies were reviewed recently to encourage greater flexibility, enabling authorities to target resources at high-risk areas and to use a wider range of interventions to support and improve levels of compliance with food law (13). Sandwell used this flexibility to focus interventions on high risk geographical areas as well as individual premises from April 2008.

4.3 While EHPs use nationally agreed criteria to assess the level of risk associated with a premise, based on physical condition and management processes, to determine the intervention (advice, warning, formal action such as prosecution or closure in extreme cases), there is no objective measure of the impact of those interventions.

4.4 There has been concern for many years that Sandwell's poor record on dietary related diseases owes something to the lack of ready access to healthy foods (14). Recently concern has also focussed on the much easier access to unhealthy food choices especially in poorer communities. Obesity and overweight are increasingly being considered not just in terms of causal factors operating at the level of the individual, such as behaviour, health beliefs and food preferences, but also in the wider environmental context of the places in which people live and work. There is a growing literature on the association between the fast food landscape and obesity and food choices. Mapping this inequality effectively provides intelligence to focus interventions on the most vulnerable.

4.5 Sandwell PCT and MBC have worked with the Health Protection Agency and the University of Birmingham to:

- Assess the impact of Sandwell Council's targeting approach to food hygiene inspections
- Develop and test an objective measure for the impact of EHP food hygiene inspections
- Map access to unhealthy food choices as measured by proximity to hot food takeaways

Health Impact

4.6 Food borne disease is a major cause of illness in the UK imposing a significant burden on patients and the economy. An estimated million people suffer a food borne illness in the UK annually, with 20,000 hospitalisations and 500 deaths, at a cost of £1.5 billion (15).

4.7 Obesity is a major issue In Sandwell with a third of year 6 children being obese or overweight (16).

Interventions

4.8 Sandwell MBC provided data on food premises' locations in the Borough and the results of their professional assessment of the quality of those businesses. An overall score was calculated and averaged for businesses in each LSOA. The relationship between average area food safety score and deprivation was assessed using area deprivation score (IMD).The impact of Sandwell's policy of area targeting was assessed by comparing the individual premise score before and after the local authority intervention in two areas (zones in West Bromwich and Bearwood) using a Wilcoxon signed-rank test and paired T Test.

4.9 A sampling framework was developed to produce a microbiological baseline for food premises in Sandwell and to enable the impact of intervention to be assessed against standards. A dedicated EHP was trained to take the required samples. The intervention focused on hand hygiene and cross contamination, known to be major factor in outbreaks of food borne disease

4.10 The intervention and sampling were targeted on butchers and other retailers and caterers handling both ready to eat (RTE) and raw foods. Sampling included RTE products together with at least two environmental samples in line with published methods (17). Samples of cleaning cloths and chopping boards were taken where available as they are known to harbour and spread micro-organisms (17).

4.11 The sampling procedure was then repeated one month later. Samples were tested for the following as appropriate:

Aerobic colony count, *E. coli,* Enterobacteriaceae, Coagulase positive Staphylococci,

Listeria species including *L. monocytogenes*

4.12 Comparisons of microbiological standards before and after food safety actions at individual premises were made using paired T-Test (Wilcoxon Sign Rank analysis for colony count as not normally distributed). Pearson's Chi Squared analysis was used to determine the significance of the difference between microbiological compliance prior and following intervention.

4.13 The 'obesogenic environment' includes factors such as transport choices, access to green space and leisure facilities or access to sources of healthy and affordable food. Sandwell has been considering the impact of communities living in food swamps (areas in which there are a great many outlets selling energy dense pre-prepared food which while inexpensive and accessible, do not offer healthy and nutritionally balanced food choices) as well as food deserts. Using GIS software, we measured access to fast food outlets in short walk distances of a large number of randomly generated points falling in residential areas of Sandwell, both in terms of proximity and density of outlets.

4.14 Local authorities routinely inspect food premises to monitor compliance with hygiene standards and this was identified as a source of routine and real time data on the availability of fresh fruit and vegetables. An assessment of the additional time taken to collate these data was completed.

Food Safety

4.15 Figure 4 shows the map of food safety scores across the Borough. There is a clear relationship with deprivation with poorer areas experiencing significantly poorer average food safety scores (R^2=0.6). The area targeting approach had a highly significant impact on improving the individual premise score in both areas (*p*=0.001) and has coincided with an increase in overall food premises compliance to over 77% (see figure 5). On average, in the West Bromwich zone, there was an improvement in the hygiene score of 0.5 points on the second visit. This was highly statistically significant *(p*<0.001, 95% confidence interval 0.20 to 0.72). In the Bearwood zone the average improvement was higher at 0.95 points, again highly significant *(p*=0.001, 95% confidence interval 0.44 to 1.46*).*

Figure 4: Average Food Safety Scores by LSOA 2009

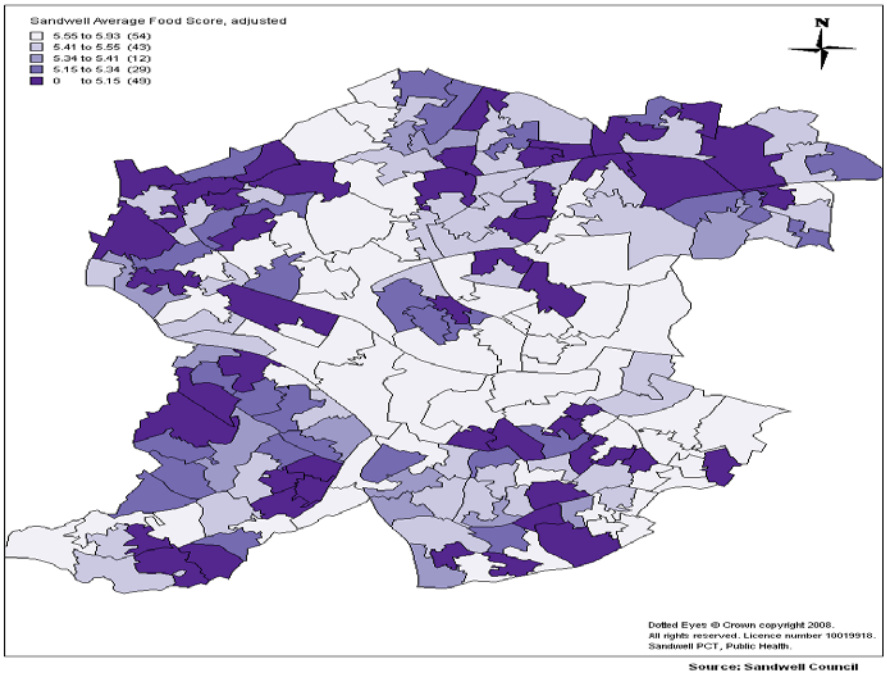
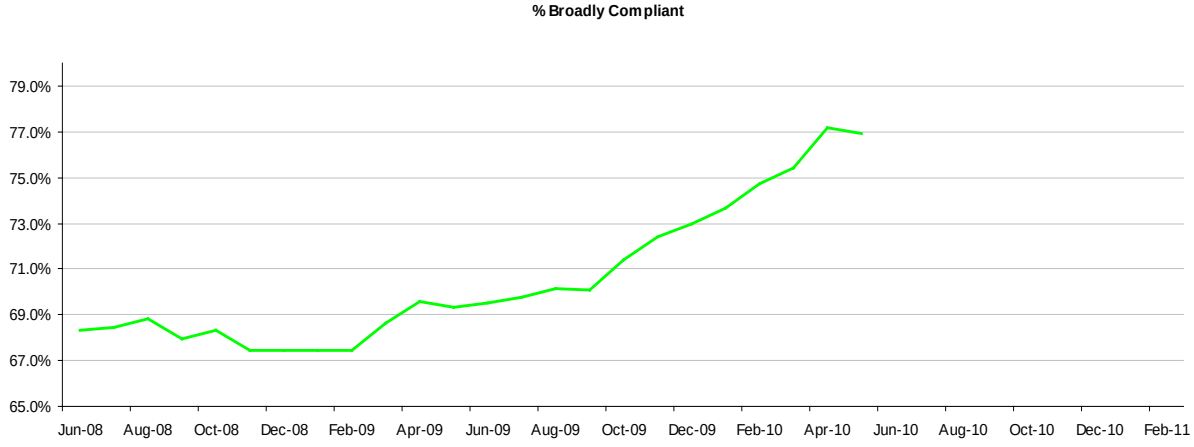


Figure 5: Percentage of Food Premises Broadly compliant in Sandwell



4.16 513 samples were taken from 53 premises. 83% (n=76) of food samples were satisfactory. One was found to contain levels of Listeria hazardous to human health and eight environmental samples revealed high counts of E.coli including a cleaning cloth in a primary school.

4.17 75% of the 266 initial samples and 47% of premises at baseline were compliant (no unsatisfactory or borderline sample results). Fridge and chiller samples had the highest level of satisfactory samples (83.3% (n=48)). 56% (n=32) of cloths, 32% (n=47) of chopping boards and 22% (n=45) of work surfaces were unsatisfactory. 84% (n=205) of post intervention samples were satisfactory. The majority of unsatisfactory samples were found to be in cloths, with only 64% (n=25) being acceptable.

4.18 55% of premises were compliant following intervention, a statistically significant improvement compared with pre-intervention (p=0.014). A significant improvement in work surfaces was also identified (p=0.013). No improvements were found in chopping board, fridge, cloth and food sample results.

Access to unhealthy foods

4.19 Adjusting for the connectivity of the road network and local population density, and interaction effects, we found a statistically significant association between deprivation and fast food accessibility.

4.20 Points in poorer neighbourhoods were closer to an outlet and had a greater density of outlets within a short walking distance. The effect size, whilst significant, was not very large. Adjusting for other variables, points at the 75th centile of deprivation were about two minutes closer to the nearest outlet by foot, compared to points at the 25th centile of deprivation, although the difference between the least deprived and most deprived places was more marked. However there is local consensus suggesting that preferences are very distance sensitive so the effect sizes reported may be sufficient to impact upon behaviour.

4.21 Sandwell's policy of targeting high risk *areas* as well as high risk *premises* pays dividends resulting in significantly improved food safety scores and should be maintained in Sandwell and promoted in other authorities.

4.22 The EHP intervention had a limited impact on improving microbiological standards in the food premises sampled**.** The study also revealed higher than expected levels of general contamination in food premises in the Borough. This is a relatively modest sample size although the results are broadly consistent with emerging work from Australia . Larger studies are required but this work does strongly suggest that a review of the purpose and delivery of food hygiene inspections is required.

4.23 Our work has shown that Sandwell is effectively saturated with hot food takeaways with virtually no one in Sandwell more than a very short walk from an outlet. There is also a significant association between close residential proximity to a hot food takeaway and deprivation. The effect size appears at first sight to be quite modest. However, given that the local population is highly distance sensitive-unwilling to access fast food more than 400 metres away-this becomes an important finding. The density of outlets also increases with deprivation effectively doubling the probability that an outlet could be encountered in a short walk in the immediate neighbourhood and also increasing the choice and diversity of the fast food offer in the immediate vicinity.

4.24 It appears that Sandwell is close to, if not already at, some level of market saturation. This presents a public health challenge in terms of promoting healthy diet and also introduces the prospect of businesses turning to cheaper and more hazardous ingredients as operating margins shrink. Hydrogenated fat, used for frying or as an ingredient in processed foods, is a cheap substitution. Consuming a diet high in trans fats

can raise cholesterol levels in the blood, which can lead to health conditions such as heart attacks and strokes.

4.25 It would appear that the policy levers to influence the food environment, particularly in relation to areas already saturated are limited. While interventions such as planning restrictions can prevent a bad situation from becoming worse, more emphasis should be placed on attempting to influence behaviour at the level of the individual and the food choices that they make. Education and social marketing approaches, whilst having relatively poor evidence base thus far, may offer more opportunities to Public Health practitioners to intervene. Sandwell is actively considering the role of EHP food hygiene inspections in this context and has secured funding to assess and map the use of trans fats in the hot food takeaway industry in the Borough.

5. Risk Communication

Key Findings

- Explaining risk to concerned patients, individuals and communities is a challenge and likely to become more so with increasing access to data and information via the internet. The Environmental Public Health Tracking programme will identify and quantify risks.
- Sandwell has been able to customise these to develop an accessible on line tool to enable people to put risks into context, provide simple explanations of the different ways of presenting/describing risk – 'Ladder of Chances' website

Strategic Actions

- Access to be provided to other agencies to add risks to the site
- All agencies should encourages patients and the public to use the site
- An annual report from the site should be produced

5.1 Explaining risk to concerned patients, individuals and communities is a challenge and likely to become more so with increasing access to data and information via the internet. This is particularly challenging in public health where information often highlights uncertainties, including individual and collective professional uncertainty, and the irreducible element of chance. In addition, the understanding of risk can be transformed by the technique used to express it-relative risk, attributable risk, population attributable risk for example. All this can be interpreted by lay people as the professional hiding behind the statistics. The Environmental Public Health Tracking programme will identify and quantify risks and generate considerable scientific discussion and concepts that will often be impenetrable to lay people. It is critical that appropriate and accessible tools are developed to enable these concepts to be effectively and accurately communicated to individuals and communities

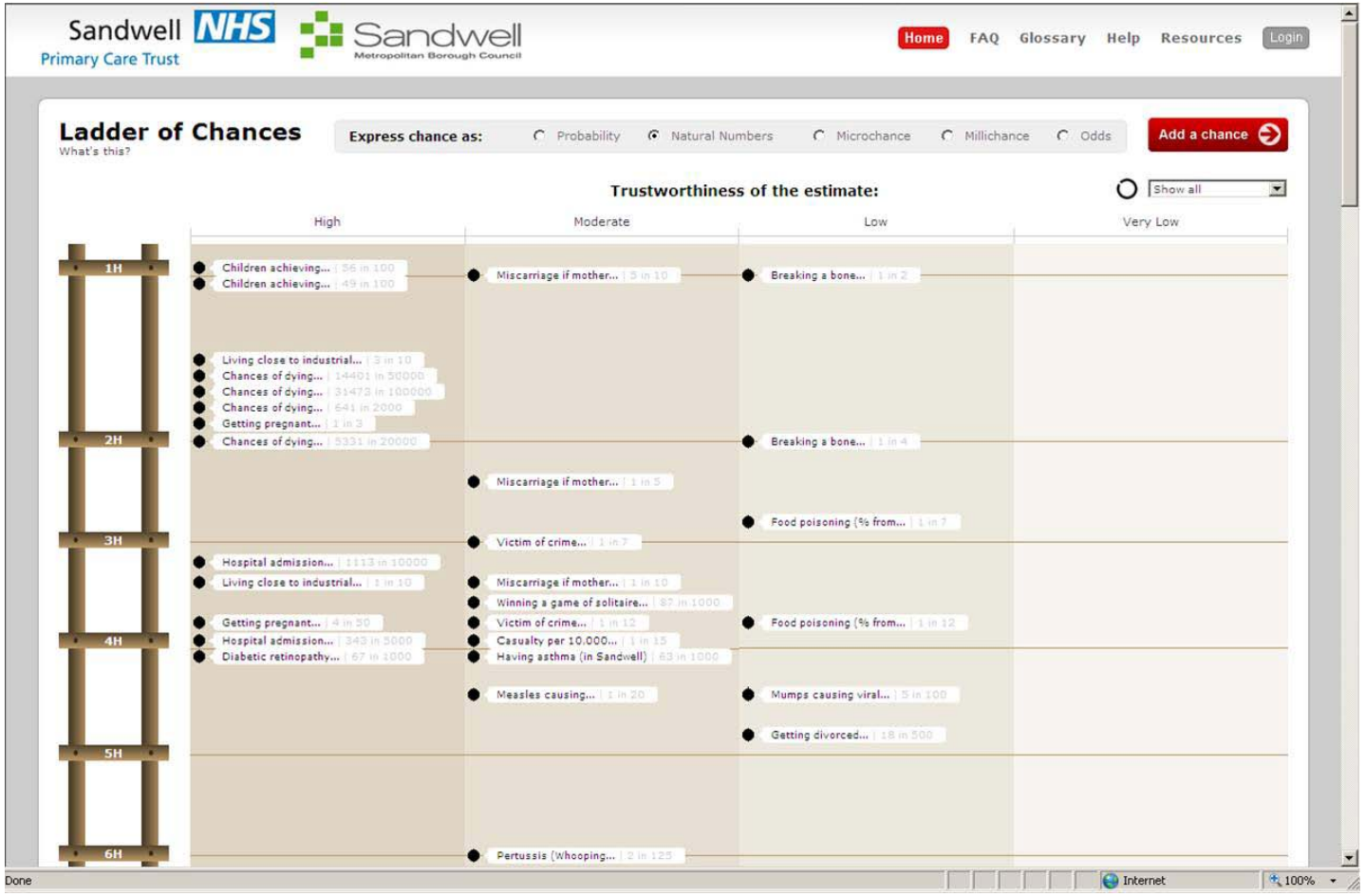
5.2 The International Network for Knowledge about Wellbeing (ThinkWell) is a not-for-profit organization committed 'to help people find health information and know whether it is trustworthy, and, where information is not available, help people design and participate in research studies that will answer their questions' (18). Thinkwell has developed a number of on-line tools to help professionals and lay people interpret risk effectively and Sandwell PCT has been able to customise these to develop an accessible on line tool (http://www.sandwell.whatareyourchances.com/index.php) to enable people to put risks into context, provide simple explanations of the different ways of presenting/describing risk and a hierarchy of Sandwell specific risks.

Intervention

5.3 The site allows different level of users to add, view and compare risks/chances against known chances on a 'Ladder of Chances' (see figure 6). Chances can also be entered and displayed for temporary view and comparison on the ladder of chances by the public, without registering on the site. Members and administrators have a secure log in through which to add, document and display chances in the database and on the ladder of chances. The administrator can create members and other administrators in order to share data on the site. Chances can be displayed and searched through different expressions such as Probabilities, Natural Numbers, Micro chances, Mili chances and Odds, as well as categories.

5.4 Membership of the site to enable the addition of risks has been opened to MBC and PCT staff and a small working group established with a moderator to manage the appropriateness and presentation of these risks as well as assessing the quality of the data behind the risk calculations.

Figure 6: What are your chances?


Sandwell Primary Care Trust NHS
Sandwell Metropolitan Borough Council
Home FAQ Glossary Help Resources Login
Ladder of Chances
What's this?
Express chance as: Probability Natural Numbers Microchance Millichance Odds
Add a chance
Trustworthiness of the estimate:
Show all
High Moderate Low Very Low
1H
Children achieving... | 56 in 100
Children achieving... | 49 in 100
Miscarriage if mother... | 5 in 10
Breaking a bone... | 1 in 2
Living close to industrial... | 3 in 10
Chances of dying... | 14401 in 50000
Chances of dying... | 31473 in 100000
Chances of dying... | 641 in 2000
Getting pregnant... | 1 in 3
2H
Chances of dying... | 5331 in 20000
Breaking a bone... | 1 in 4
Miscarriage if mother... | 1 in 5
Food poisoning (% from... | 1 in 7
3H
Victim of crime... | 1 in 7
Hospital admission... | 1113 in 10000
Living close to industrial... | 1 in 10
Miscarriage if mother... | 1 in 10
Winning a game of solitaire... | 87 in 1000
Getting pregnant... | 4 in 50
Victim of crime... | 1 in 12
Food poisoning (% from... | 1 in 12
4H
Hospital admission... | 343 in 5000
Diabetic retinopathy... | 67 in 1000
Casualty per 10,000... | 1 in 15
Having asthma (in Sandwell) | 63 in 1000
Measles causing... | 1 in 20
Mumps causing viral... | 5 in 100
Getting divorced... | 18 in 500
5H
6H
Pertussis (Whooping... | 2 in 125
Done
Internet
100%

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Appendix A

Table a: Public Health Outcomes framework 2013/16

1 Improving the wider determinants of health	2. Health improvement	3. Health protection	4. Healthcare public health and preventing premature mortality
Objective			
Improvements against wider factors which affect health and wellbeing and health inequalities	**People are helped to live healthy lifestyles, make healthy choices and reduce health inequalities**	**The population's health is protected from major incidents and other threats, whilst reducing health inequalities**	**Reduced numbers of people living with preventable ill health and people dying prematurely, whilst reducing the gap between communities**
1.1 Children in poverty	2.1 Low birth weight of term babies	3.1 Fraction of mortality attributable to particulate air pollution	4.1 Infant mortality* (NHSOF 1.6i)
1.2 School readiness (Placeholder)	2.2 Breastfeeding	3.2 Chlamydia diagnoses (15-24 year olds)	4.2 Tooth decay in children aged 5
1.3 Pupil absence	2.3 Smoking status at time of delivery	3.3 Population vaccination coverage	4.3 Mortality rate from causes considered preventable** (NHSOF 1a)
1.4 First time entrants to the youth justice system	2.4 Under 18 conceptions	3.4 People presenting with HIV at a late stage of infection	4.4 Under 75 mortality rate from all cardiovascular diseases (including heart disease and stroke)* (NHSOF

			1.1)
1.5 16-18 year olds not in education, employment or training	*2.5 Child development at 2-2 and a half years (Placeholder)*	3.5 Treatment completion for Tuberculosis (TB)	4.5 Under 75 mortality rate from cancer* (NHSOF 1.4i)
1.6 Adults with a learning disability/in contact with secondary mental health services who live in stable and appropriate accommodation† *(ASCOF 1G, 1H)*	2.6 Excess weight in 4-5 and 10-11 year olds	3.6 Public sector organisations with a board approved sustainable development management plan	4.6 Under 75 mortality rate from liver disease* (NHSOF 1.3)
1.7 People in prison who have a mental illness or a significant mental illness (Placeholder)	2.7 Hospital admissions caused by unintentional and deliberate injuries in under 18s	*3.7 Comprehensive, agreed inter-agency plans for responding to public health incidents and emergencies (Placeholder)*	4.7 Under 75 mortality rate from respiratory diseases* (NHSOF 1.2)
1.8 Employment for those with long-term health conditions including adults with a learning disability or who are in contact with secondary mental health services **(i-NHSOF 2.2)* ††*(ii-ASCOF 1E)* ***(iii-NHSOF 2.5)* †† *(iii-ASCOF 1F)*	2.8 Emotional well-being of looked after children		4.8 Mortality rate from infectious and parasitic diseases
1.9 Sickness absence rate	*2.9 Smoking prevalence – 15 year olds (Placeholder)*		4.9 Excess under 75 mortality rate in adults with serious mental illness*(NHSOF 1.5)
1.10 Killed and seriously injured casualties on England's roads	*2.10 Self-harm (Placeholder)*		4.10 Suicide rate
1.11 Domestic abuse (Placeholder)	2.11 Diet		4.11 Emergency readmissions within 30 days of discharge from hospital* (NHSOF 3b)
1.12 Violent crime (including sexual	2.12 Excess weight in adults		4.12 Preventable sight loss

violence)			
1.13 Re-offending levels	2.13 Proportion of physically active and inactive adults		*4.13 Health-related quality of life for older people (Placeholder)*
1.14 The percentage of the population affected by noise	2.14 Smoking prevalence – adults (over 18s)		4.14 Hip fractures in people aged 65 and over
1.15 Statutory homelessness	2.15 Successful completion of drug treatment		4.15 Excess winter deaths
1.16 Utilisation of outdoor space for exercise/health reasons	2.16 People entering prison with substance dependence issues who are previously not known to community treatment		4.16 Estimated diagnosis rate for people with dementia* (NHSOF 2.6i)
1.17 Fuel poverty (Placeholder)	2.17 Recorded diabetes		
1.18 Social isolation (Placeholder) † (ASCOF 1I)	*2.18 Alcohol-related admissions to hospital (Placeholder)*		
1.19 Older people's perception of Community Safety †† (ASCOF 4A)	2.19 Cancer diagnosed at stage 1 and 2		
	2.20 Cancer screening coverage		
	2.21 Access to non-cancer screening programmes		
	2.22 Take up of the NHS Health Check programme – by those eligible		
	2.23 Self-reported well-being		
	2.24 Injuries due to falls in people aged 65 and over		
1 = * Shared Indicator *NHSOF 2.2.*	0 = * Shared Indicator *NHSOF* 0 = ** Complementary Indicators	0 = * Shared Indicator *NHSOF* 0 = ** Complementary Indicators	8 = * Shared Indicator *NHSOF 1.1, NHSOF 1.2, NHSOF 1.3,*

1 = ** Complementary Indicators *iii-NHSOF 2.5* 2 = † Shared Indicator *ASCOF 1G and 1H) & (ASCOF 1I)* 3 = †† Complementary indicators *ii-ASCOF 1E), (iii-ASCOF 1F) & (ASCOF 4A)* 4 = *Indicators placeholders, pending development or identification*	*NHSOF* 0 = † Shared Indicator *ASCOF* 0 = †† Complementary indicators *ASCOF* 4 = *Indicators placeholders, pending development or identification*	*NHSOF* 0 = † Shared Indicator *ASCOF* 0 = †† Complementary indicators *ASCOF* 1 = *Indicators placeholders, pending development or identification*	*NHSOF 1.4i, NHSOF 1.5, NHSOF 1.6i, NHSOF 2.6i & NHSOF 3b..* 1 = ** Complementary Indicators *NHSOF 1a* 0 = † Shared Indicator *ASCOF* 0 = †† Complementary indicators *ASCOF* *1 = Indicators placeholders, pending development or identification*

Alignment across the Health and Care System

* Indicator shared with the NHS Outcomes Framework.

** Complementary to indicators in the NHS Outcomes Framework

† Indicator shared with the Adult Social Care Outcomes Framework

†† Complementary to indicators in the Adult Social Care Outcomes Framework

Indicators in italics are placeholders, pending development or identification

Table b: Adult social care Outcomes Framework 2013/14

1 Enhancing quality of life for people with care and support needs	2. Delaying and reducing the need for care and support	3. Ensuring that people have a positive experience of care and support	4. Safeguarding adults whose circumstances make them vulnerable and protecting from avoidable harm
Objective			
		People who use social care and their carers are satisfied with their experience of care and support services	
1A. Social care-related quality of life ** (NHSOF 2)	2A. Permanent admissions to residential and nursing care homes, per 1,000 population	3A. Overall satisfaction of people who use services with their care and support	4A. The proportion of people who use services who feel safe †† (PHOF 1.19)
People manage their own support as much as they wish, so that are in control of what, how and when support is delivered to match their needs	**Everybody has the opportunity to have the best health and wellbeing throughout their life, and can access support and information to help them manage their care needs** **Earlier diagnosis, intervention and reablement means that people and their carer are less dependent on intensive services**		**Everyone enjoys physical safety and feels secure** **People are free from physical and emotional abuse, harassment, neglect and self-harm** **People are protected as far as possible from avoidable harm, disease and injuries** **People are supported to plan ahead and have the freedom to manage risks the way that they wish**
1B. Proportion of people who use	2B. Proportion of older people (65	3B. Overall satisfaction of carers with	4B. The proportion of people who

services who have control over their daily life	and over) who were still at home 91 days after discharge from hospital into reablement/rehabilitation services * (NHSOF 3.6i)	social services	use services who say that those services have made them feel safe and secure
		Carers feel that they are respected as equal partners throughout the care process.	
1C. Proportion of people using social care who receive self-directed support, and those receiving direct payments ***To be revised from 2014/15:***	2C. Delayed transfers of care from hospital, and those which are attributable to adult social care	3C. The proportion of carers who report that they have been included or consulted in discussions about the person they care for	*4C: Proportion of completed safeguarding referrals where people report they feel safe.* ***New placeholder***
Carers can balance their caring roles and maintain their desired quality of life		**People know what choices are available to them locally, what they are entitled to, and who to contact when they need help.**	
1D. Carer-reported quality of life ** (NHSOF 2.4) & †† (PHOF 1.6)	*2D. The outcomes of short-term services: sequel to service.* ***New measure for 2014/15****:*	3D. The proportion of people who use services and carers who find it easy to find information about support	
People are able to find employment when they want, maintain a family and social life and contribute to community life, and avoid loneliness or isolation		**People, including those involved in making decisions on social care, respect the dignity of the individual and ensure support is sensitive to the circumstances of each individual.**	
1E. Proportion of adults with a learning disability in paid employment ** NHSOF 2.2 &†† PHOF 1.8	*2E: Effectiveness of reablement services* ***New placeholder***	*3E: Improving people's experience of integrated care * (NHS OF 4.9)* ***New placeholder***	

	When people develop care needs, the support they receive takes place in the most appropriate setting, and enables them to regain their independence.		
1F. Proportion of adults in contact with secondary mental health services in paid employment ** NHSOF 2.5 & †† PHOF 1.8	*2F: Dementia –a* measure of the effectiveness of post-diagnosis care in sustaining independence and improving quality of life *.* (NHSOF 2.6ii)* ***New placeholder***		
1G. Proportion of adults with a learning disability who live in their own home or with their family † (PHOF 1.6)			
1H. Proportion of adults in contact with secondary mental health services living independently, with of without support † (PHOF 1.6)			
1I. Proportion of people who use services and their carers, who reported that they had as much social contact as they would like. † (PHOF 1.18) New measure for 2013/14			
		This information can be taken from the Adult Social Care Survey and used for analysis at the local level.	
0 = Shared Indicator *NHSOF* 4 = ** Complementary Indicators *NHSOF 2, NHSOF 2.2, NHSOF 2.4 & NHSOF 2.5*	2 = Shared Indicator *NHSOF 3.6i & 2.6ii (New placement)* 0 = ** Complementary Indicators NHSOF	1 = Shared Indicator *NHSOF 4.9 (New placement* 0 = ** Complementary Indicators NHSOF	0 = Shared Indicator *NHSOF* 0 = ** Complementary Indicators 0 = † Shared Indicator *PHOF*

2 = † Shared Indicator *PHOF 1.18 & PHOF 1.6* 2 = †† Complementary indicators *PHOF 1.6 & PHOF 1.8* 2 = *Indicators placeholders, pending development or identification*	0 = † Shared Indicator *PHOF* 0 = †† Complementary indicators PHOF 3 = *Indicators placeholders, pending development or identification*	0 = † Shared Indicator *PHOF* 0 = †† Complementary indicators PHOF 1 = *Indicators placeholders, pending development or identification*	1 = †† Complementary indicators PHOF 1.19 1 = *Indicators placeholders, pending development or identification*

Alignment across the Health and Care System

* Indicator shared with the NHS Outcomes Framework.

** Complementary to indicators in the NHS Outcomes Framework

† Indicator shared with the Public Health Outcomes Framework

†† Complementary to indicators in the Public Health Outcomes Framework

Indicators in italics are new measures or placeholders, pending development or identification

Table c: NHS Outcomes Framework 2013/14

1 Preventing people from dying prematurely	2. Enhancing quality of life for people with long-term conditions	3. Helping people to recover from episodes of ill health or following injury	4. Ensuring that people have a positive experience of care	5. Treating and caring for people in a safe environment and protect them from avoidable harm
Objective				
1a Potential Years of Life Lost (PYLL) from causes considered amenable to healthcare i Adults ii *Children and young people (** PHOF 4.3 additional link CG)*	2 Health-related quality of life for people with long-term conditions†† (ASCOF 1A)	3a Emergency admissions for acute conditions that should not usually require hospital admission	4a Patient experience of primary care i GP services ii GP Out of Hours services iii NHS Dental Services	5a Patient safety incidents reported
1b Life expectancy at 75 i Males ii Females		3b Emergency readmissions within 30 days of discharge from hospital* (PHOF 4.11)	4b Patient experience of hospital care	5b Safety incidents involving severe harm or death
			4c *Friends and family test*	5c *Hospital deaths attributable to problems in care*
Improvement areas				
Reducing premature mortality from the major causes of death	**Ensuring people feel supported to manage their condition**	**Improving outcomes from planned treatments**	**Improving people's experience of outpatient care**	**Reducing the incidence of avoidable harm**
1.1 Under 75 mortality rate from	2.1 Proportion of people feeling	3.1 Total health gain as	4.1 Patient experience of	5.1 Incidence of hospital-

cardiovascular disease* (PHOF 4.4)	supported to manage their condition ††	assessed by patients for elective procedures i Hip replacement ii Knee replacement iii Groin hernia iv Varicose veins v *Psychological therapies*	outpatient services	related venous thromboembolism (VTE)
	Improving functional ability in people with long-term conditions	**Preventing lower respiratory tract infections (LRTI) in children from becoming serious**	**Improving hospitals' responsiveness to personal needs**	
1.2 Under 75 mortality rate from respiratory disease* (PHOF 4.7)	**2.2 Employment of people with long-term conditions** (* PHOF 1.8 & † ASCOF 1E)	3.2 Emergency admissions for children with LRTI	4.2 Responsiveness to in-patients' personal needs	5.2 Incidence of healthcare associated infection (HCAI) i MRSA ii C.difficile
	Reducing time spent in hospital by people with long-term conditions	**Improving recovery from injuries and trauma**	**Improving people's experience of accident and emergency services**	
1.3 Under 75 mortality rate from liver disease* (PHOF 4.6)	2.3 i Unplanned hospitalisation for chronic ambulatory care sensitive conditions (adults) ii Unplanned hospitalisation for asthma, diabetes and epilepsy in under 19s	3.3 Proportion of people who recover from major trauma	4.3 Patient experience of A&E services	5.3 Incidence of newly-acquired category 2, 3 and 4 pressure ulcers
	Enhancing quality of life for carers	**Improving recovery from stroke**	**Improving access to primary care services**	

1.4 Under 75 mortality rate from cancer* (PHOF 4.5) *i One-and* *ii Five-year survival from all cancers* *iii One-and* *iv Five-year survival from breast, lung and colorectal cancer*	2.4 Health-related quality of life for carers †† (ASCOF 1D)	3.4 Proportion of stroke patients reporting an improvement in activity/lifestyle on the Modified Rankin Scale at 6 months	4.4 Access to i GP services and ii NHS dental services	5.4 Incidence of medication errors causing serious harm
Reducing premature death in people with serious mental illness	**Enhancing quality of life for people with mental illness**	**Improving recovery from fragility fractures**	**Improving women and their families' experience of maternity services**	**Improving the safety of maternity services**
1.5 Excess under75 mortality rate in adults with serious mental illness*(PHOF 4.9)	**2.5 Employment of people with mental illness** (** PHOF 1.8 & †† ASCOF 1F)	3.5 Proportion of patients recovering to their previous levels of mobility/walking ability at I 30 and ii 120 days	4.5 Women's experience of maternity services	5.5 Admission of full-term babies to neonatal care
Reducing deaths in babies and young children	**Enhancing quality of life for people with dementia**	**Helping older people to recover their independence after illness or injury**	**Improving the experience of care for people at the end of their lives**	**Delivering safe care to children in acute settings**
1.6 i Infant mortality* (PHOF 4.1) ii Neonatal mortality and stillbirths iii *Five year survival from all cancers in children*	2.6 i Estimated diagnosis rate for people with dementia*(PHOF 4.16) ii *A measure of the effectiveness of post-diagnosis care in sustaining independence and improving quality of life* † (ASCOF 2F)	3.6 i Proportion of older people (65 and over) who were still at home 91 days after discharge from hospital into reablement/ rehabilitation service† (ASCOF 2B) ii Proportion offered rehabilitation following discharge from acute or	4.6 Bereaved carers' views on the quality of care in the last 3 months of life	5.6 Incidence of harm to children due to 'failure to monitor

		community hospital		
Reducing premature death in people with a learning disability			**Improving experience of healthcare for people with mental illness**	
1.7 *Excess under 60 mortality rate in adults with a learning disability*			4.7 Patient experience of community mental health services	
			Improving children and young people's experience of healthcare	
			4.8 *An indicator is under development*	
			Improving people's experience of integrated care	
			4.9 *An indicator is under development* † (ASCOF 3E)	
6 = * Shared Indicator *PHOF 4.1, PHOF 4.4, PHOF 4.5, PHOF 4.6, PHOF 4.7, & PHOF 4.9* 1 = ** Complementary Indicators *PHOF* 0 = † Shared Indicator *ASCOF* 0 = †† Complementary indicators *ii-ASCOF)* 1 = *Indicators placeholders, pending development or identification*	2 = * Shared Indicator *PHOF 1.8 & PHOF 4.6* 1 = ** Complementary Indicators *PHOF* 1.8 2 = † Shared Indicator *ASCOF 1E & ASCOF 1F* 4 = †† Complementary indicators *ASCOF* 1A, *ASCOF* 1E & *ASCOF* 1F 0 = *Indicators placeholders, pending development or identification*	1 = * Shared Indicator *PHOF 4.11* 0 = ** Complementary Indicators *PHOF* 1 = † Shared Indicator *ASCOF 2B* 0 = †† Complementary indicators *ii-ASCOF)* *0 = Indicators placeholders, pending development or identification*	0 = * Shared Indicator PHOF 0 = ** Complementary Indicators *PHOF* 1 = † Shared Indicator *ASCOF 3E* 0 = †† Complementary indicators *ASCOF)* *3 = Indicators placeholders, pending development or identification*	0 = * Shared Indicator *PHOF* 0 = ** Complementary Indicators *PHOF* 0 = † Shared Indicator *ASCOF* 0 = †† Complementary indicators *ii-ASCOF)* 1 = *Indicators placeholders, pending development or identification*

Alignment across the Health and Care System

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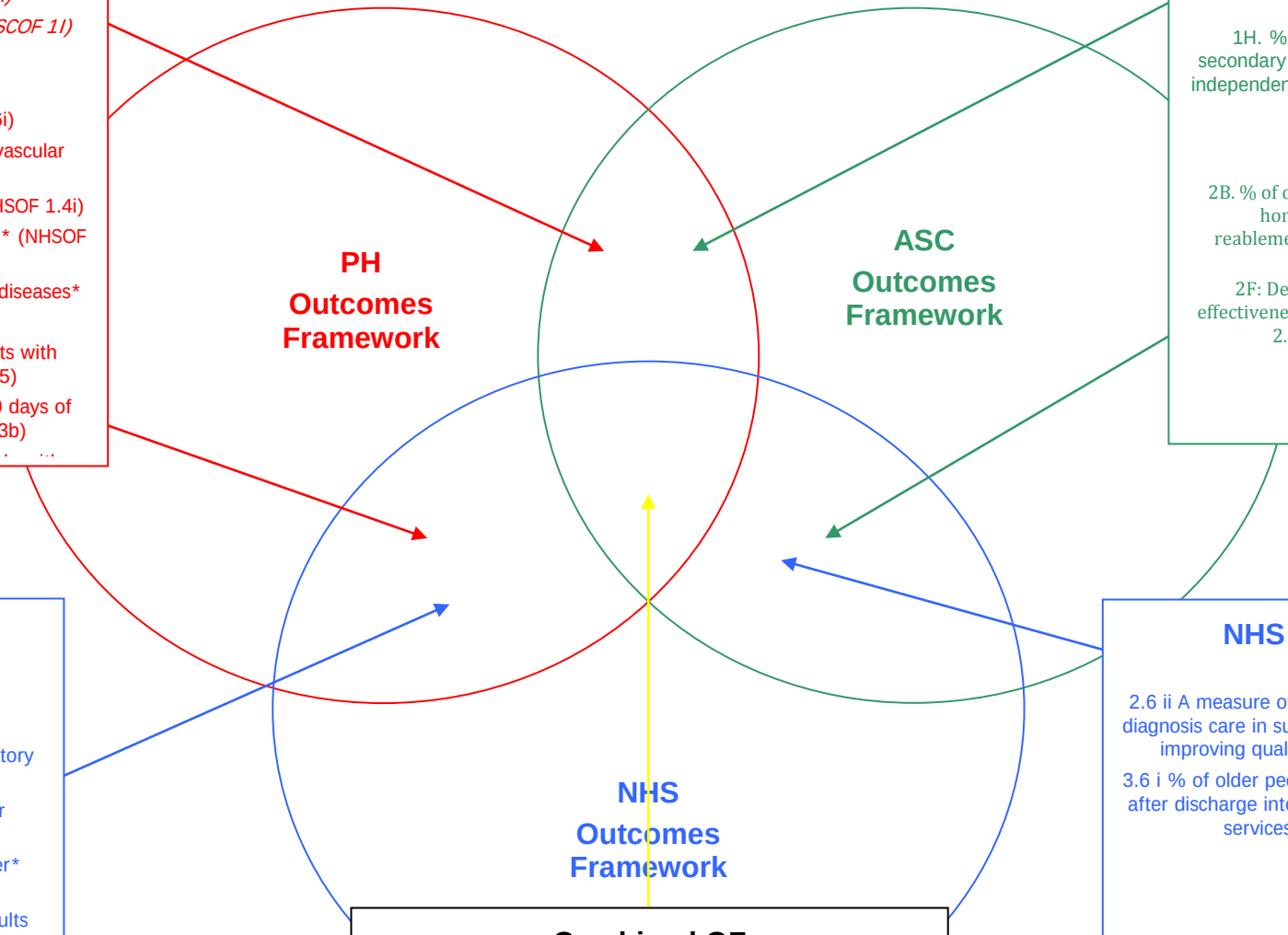
** Complementary to indicators in the Public Health Outcomes Framework

† Indicator shared with the Adult Social Care Outcomes Framework

†† Complementary to indicators in the Adult Social Care Outcomes Framework

Indicators in italics are new measures or placeholders, pending development or identification

Figure c: What is being monitored in partnerships across Health and Social Care? – Shared Indicators



PH OF

1.6 Adults with a LD who live in stable accommodation† *(ASCOF 1G, 1H)*

1.18 Social isolation (Placeholder) † (ASCOF 1I)

4.1 Infant mortality* (NHSOF 1.6i)

4.4 < 75 mortality rate from all cardiovascular diseases* (NHSOF 1.1)

4.5 < 75 mortality rate from cancer* (NHSOF 1.4i)

4.6 < 75 mortality rate from liver disease* (NHSOF 1.3)

4.7 < 75 mortality rate from respiratory diseases* (NHSOF 1.2)

4.9 Excess < 75 mortality rate in adults with serious mental illness*(NHSOF 1.5)

4.11 Emergency readmissions within 30 days of discharge from hospital* (NHSOF 3b)

ASC OF

1G. % of adults with a LD who live in their own home or with their family † (PHOF 1.6)

1H. % of adults in contact with secondary mental health services living independently, with of without support † (PHOF 1.6)

2B. % of older people (65 and over) at home after discharge into reablement/rehabilitation services * (NHSOF 3.6i)

2F: Dementia –a measure of the effectiveness of post-diagnosis.* (NHSOF 2.6ii) New placeholder

NHS OF

1.1 Under 75 mortality rate from cardiovascular disease* (PHOF 4.4)

1.2 Under 75 mortality rate from respiratory disease* (PHOF 4.7)

1.3 Under 75 mortality rate from liver disease* (PHOF 4.6)

1.4 Under 75 mortality rate from cancer* (PHOF 4.5)

1.5 Excess under75 mortality rate in adults with serious mental illness*(PHOF 4.9)

1.6 i Infant mortality* (PHOF 4.1)

2.6 i Estimated diagnosis rate for people with dementia*(PHOF 4.16)

3b Emergency readmissions within 30 days of discharge from hospital* (PHOF 4.11)

NHS OF (cont)

2.6 ii A measure of the effectiveness of post-diagnosis care in sustaining independence and improving quality of life † (ASCOF 2F)

3.6 i % of older people (65 and over) at home after discharge into reablement/rehabilitation services † (ASCOF 2B)

Combined OF

1.8 PHOF: Employment LTC including LD in contact with secondary mental health services

2.2 NHSOF: Employment of people with long-term conditions

11E. ASCOF: Proportion of adults with a learning disability in paid employment

Figure d: What is being monitored in partnerships across Health and Social Care? – Complimentary indictors Indicators