



# An introduction to the London Health Observatory and the Health Inequalities Intervention Tool

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## Structure of the presentation

- What is a public health observatory (PHO)?
- The role and functions of UK PHOs
- Overview of the London Health Observatory
- Overview of the Health Inequalities Intervention Tool



# What is a public health observatory?

- Provide evidence and information on
  - Health of the population
  - Health determinants
  - Health inequalities
- For
  - Public health practitioners
  - Policy makers
  - Community representatives
- To use to
  - Prevent disease
  - Promote health
  - Prolong life



# What is evidence and information?

Enquiry service  
Signposting data  
and information

Tools and methods  
for data analysis

Support health practitioner  
and intelligence networks

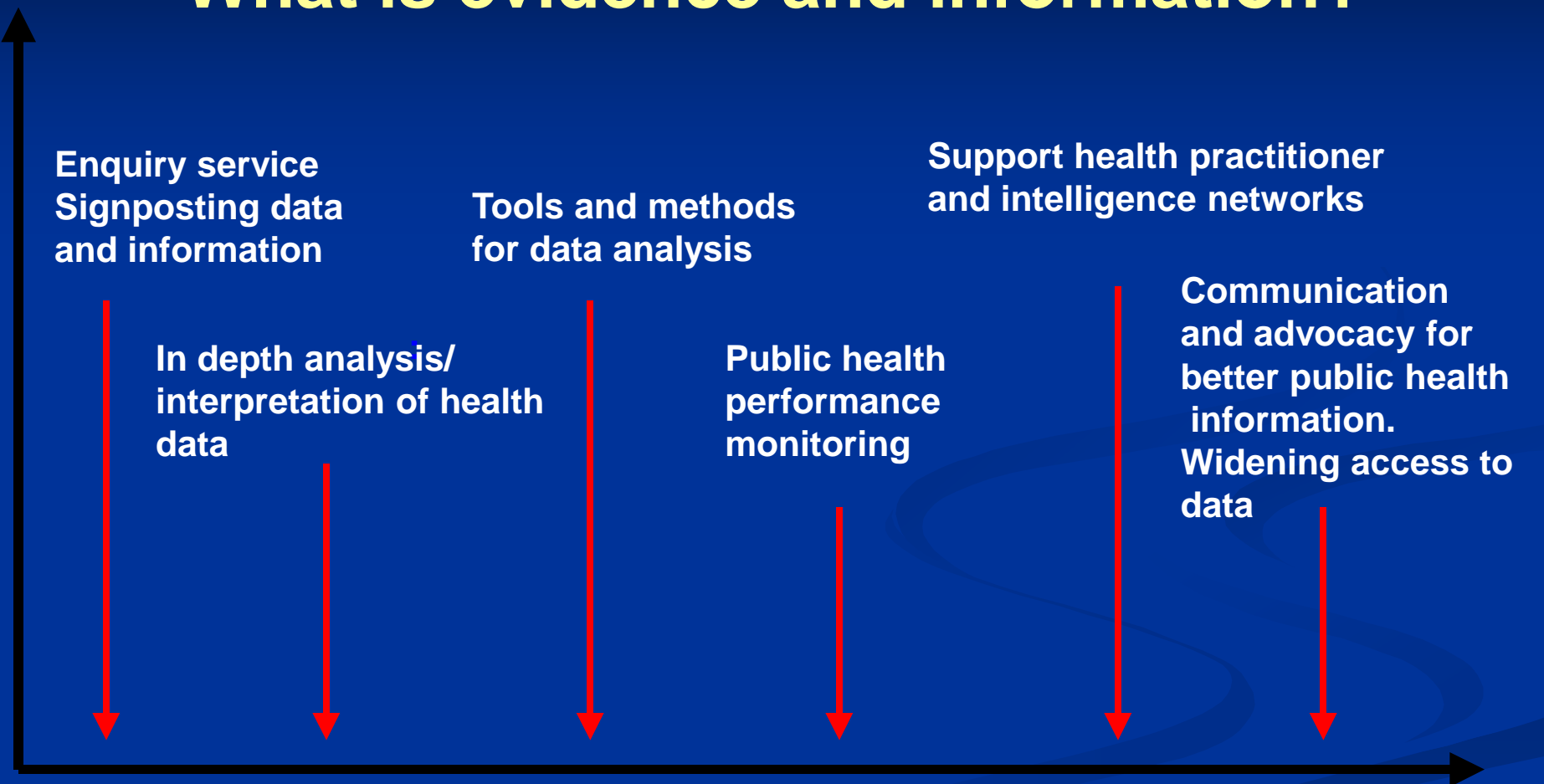
In depth analysis/  
interpretation of health  
data

Public health  
performance  
monitoring

Communication  
and advocacy for  
better public health  
information.  
Widening access to  
data

RESPONSIVE

PRO-ACTIVE





## History of PHOs in the UK

- English PHOs were established in 2000 following a Government White Paper.
- They were:
  - Established by the Government using national money.
  - Established in each of the 9 regions of England.
  - Required to work in collaboration and formed the Association of Public Health Observatories (APHO).
- PHOs were later established in Scotland, Wales and Ireland. These PHOs are now part of APHO.
- The APHO Executive Board contains representatives from all PHOs in the UK.



# The UK Public Health Observatories

There is one PHO in each region of England, and one in each of Scotland, Wales and Ireland





# The core functions of PHOs in England

To work in partnership with researchers, regional and local health policy makers and practitioners to:

- Monitor trends in health and its determinants, highlighting areas for action
- Highlight future health problems
- Assess the health impact of potential and past policies
- Draw together information from different sources and to identify gaps in information
- Provide standard sets of community health information at local government and regional level
- To support the development of skills in public health practitioners and NHS staff, for example in equity audits and health impact assessments, and build capacity in public health intelligence.



## Advantages of the APHO Network

- **A large concentration of expertise:** over 150 public health intelligence professionals.
- **A wide range of partners:** ensures relevance of outputs and range of inputs.
- **Quality assurance:** a mechanism for quality control and peer review.
- **Increased outputs:** one PHO can undertake work on behalf of all others.
- **Specialized knowledge:** Each PHO has a number of 'lead areas' and therefore develops specialized skills.



## What is a 'Lead Area'?

- PHOs generally undertake regional analysis, with comparisons to the national average.
- For lead areas they undertake national analysis on behalf of all other PHOs in England (and sometimes the UK).
- PHOs link and liaise with the national Department of Health and other national organizations on their lead areas.
- Topics were chosen because they are:
  - 1) a national priority area
  - 2) a significant health burden.
- Topics were allocated to individual PHOs on the basis of:
  - 1) specific skills and interests in the PHO or
  - 2) specific health issues in the regions.



# English PHO lead areas

<b>North East</b>	Mental health Offender health Europe and International Learning disabilities	<b>East Midlands</b>	Food and nutrition Renal disease Teenage pregnancy Cancer
<b>North West</b>	Drug misuse Alcohol Crime and violence Dental health	<b>London</b>	Ethnic minorities Health inequalities Tobacco
<b>West Midlands</b>	Environment Older people Social care	<b>Eastern</b>	Primary care Sustainable development Chronic obstructive pulmonary disease
<b>South West</b>	Sexual health Injuries End of life	<b>South East</b>	Physical activity and obesity Transport Coronary heart disease Stroke
<b>Yorkshire and Humber</b>	Children and young people Diabetes Health economics		



## Diversity

- Hosting arrangements – primary care trusts, hospital trusts, universities
- Funding
- Regional stakeholders – public health, commissioning, local government, national government
- Sub-units - national drug treatment monitoring systems, quality observatories, cancer registries, specialist observatories
- Skill sets – analytical, web development, social marketing, communications, training
- Regional health priorities



# LONDON'S POPULATION AND DIVERSITY

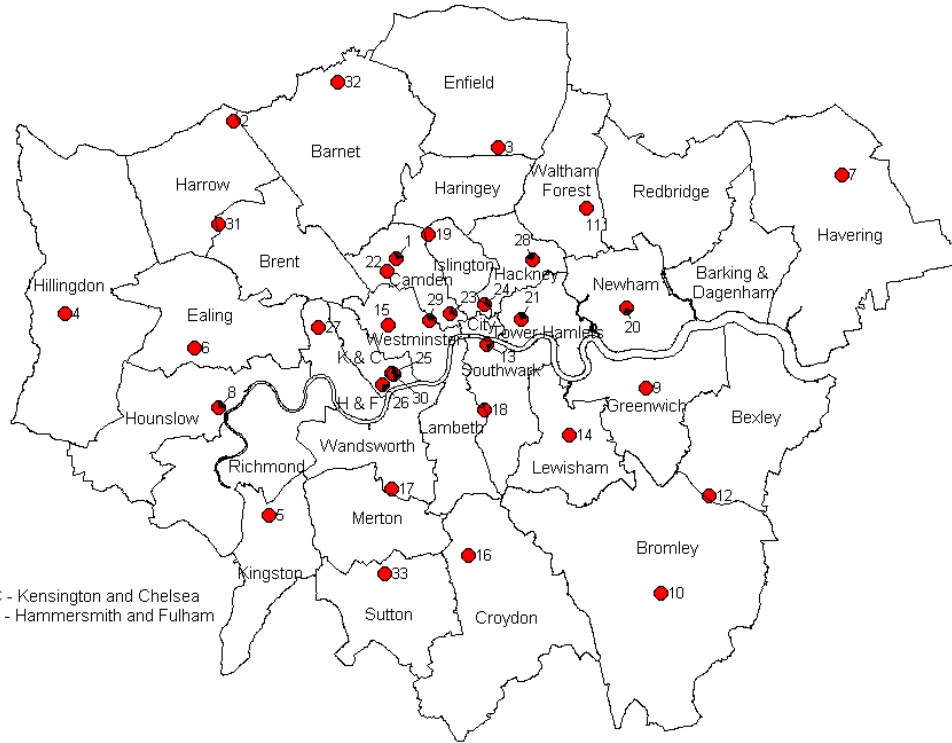
## Key Facts

- 7.55 million resident population in Greater London
- Highly ethnically diverse with 42% from an ethnic minority group
- More than 90 different ethnic groups and 300 different languages spoken
- Home to many refugees and asylum seekers
- Highly mobile population
- 1.1 million daily commuters
- Approximately 15 million visits to London by overseas residents every year



# LONDON'S GEOGRAPHY

London boroughs (local authorities) and acute hospital trusts



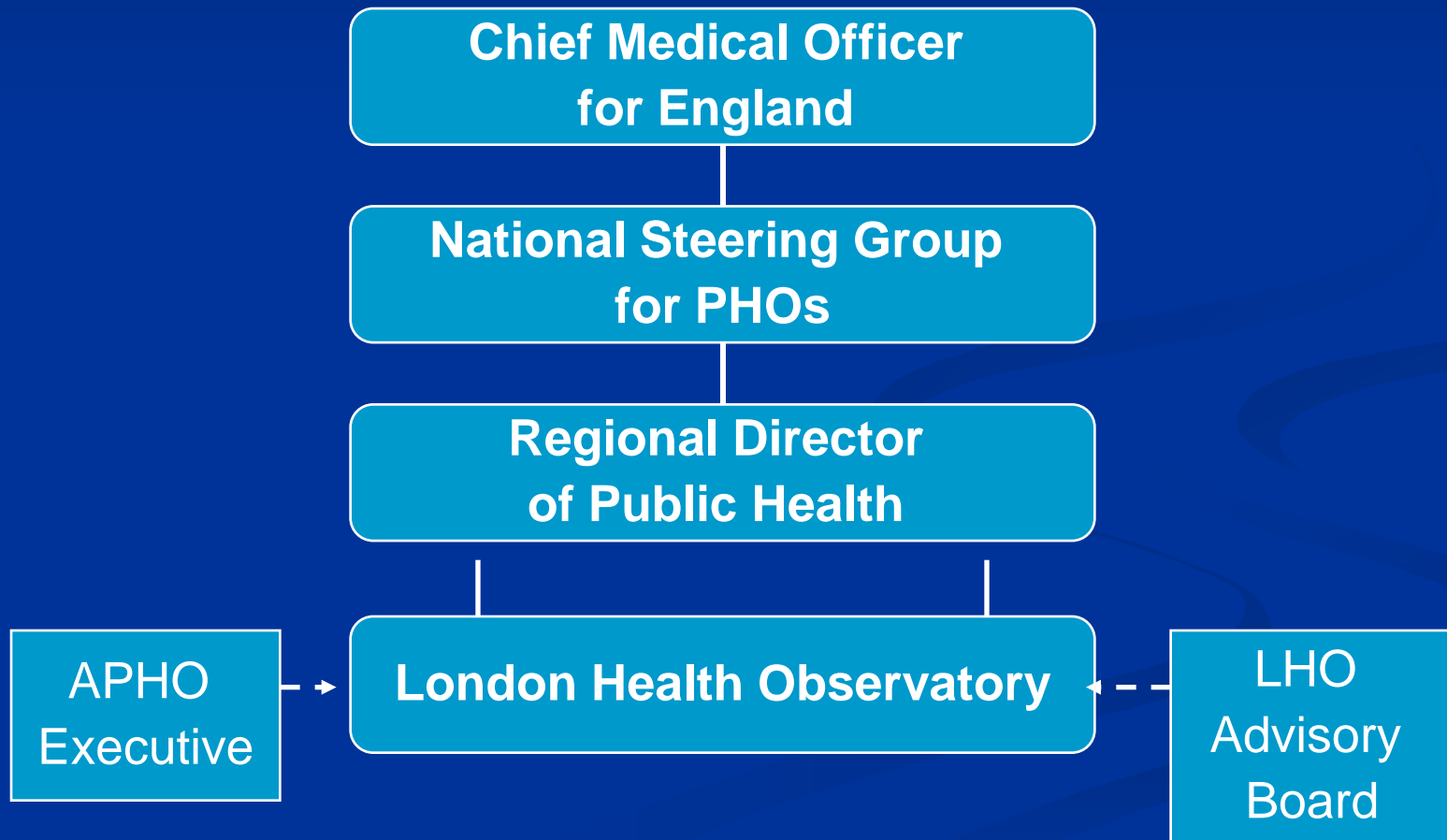
- 1 - Royal Free Hampstead
- 2 - Royal National Orthopaedic Hospital
- 3 - North Middlesex University Hospital
- 4 - The Hillingdon Hospital
- 5 - Kingston Hospital
- 6 - Ealing Hospital
- 7 - Barking, Havering And Redbridge Hospitals
- 8 - West Middlesex University
- 9 - Queen Elizabeth Hospital
- 10 - Bromley Hospitals
- 11 - Whipps Cross University Hospital
- 12 - Queen Mary's Sidcup
- 13 - Guy's And St Thomas'
- 14 - The Lewisham Hospital
- 15 - St Mary's
- 16 - Mayday Healthcare
- 17 - St George's Healthcare
- 18 - King's College Hospital
- 19 - The Whittington Hospital
- 20 - Newham Healthcare
- 21 - Barts And The London
- 22 - Tavistock And Portman
- 23 - Great Ormond Street Hospital
- 24 - Moorfields Eye Hospital
- 25 - The Royal Marsden
- 26 - Chelsea And Westminster Healthcare
- 27 - Hammersmith Hospitals
- 28 - Homerton University Hospital
- 29 - University College London Hosp
- 30 - Royal Brompton And Harefield
- 31 - North West London Hospitals
- 32 - Barnet And Chase Farm Hospitals
- 33 - Epsom And St Helier University Hospitals

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[LHO 100042264, 2008]

- There are 33 main acute hospitals in London
- There are 31 Primary Care Trusts (PCTs) coterminous with all 32 London Boroughs (local authorities). PCTs commission acute services, provide community services and manage/commission primary healthcare for Londoners.



# LHO Governance





# Summary of lead area activity 2010

Topic	Activity	Web address
Health Inequalities	The health inequalities intervention toolkit (March 2010)	<a href="http://www.lho.org.uk/LHO_Topics/Analytic_Tools/HealthInequalitiesInterventionToolkit.aspx">http://www.lho.org.uk/LHO_Topics/Analytic_Tools/HealthInequalitiesInterventionToolkit.aspx</a>
	Further updates to the local basket of inequalities indicators (until April only)	<a href="http://www.lho.org.uk/LHO_Topics/Analytic_Tools/BasketOfIndicatorsDataTool.aspx">http://www.lho.org.uk/LHO_Topics/Analytic_Tools/BasketOfIndicatorsDataTool.aspx</a>
	The London Regional Health profile	<a href="http://www.apho.org.uk/resource/view.aspx?RID=95272">http://www.apho.org.uk/resource/view.aspx?RID=95272</a>
	Development of indicators related to Marmot Review indicator framework	<a href="http://www.marmotreview.org/AssetLibrary/pdfs/targets%20and%20measurements/framework%20of%20indicators.pdf">http://www.marmotreview.org/AssetLibrary/pdfs/targets%20and%20measurements/framework%20of%20indicators.pdf</a>
	London analysis of indicators related to the Marmot review national indicators	Coming soon
Tobacco	The local tobacco control profiles for England	<a href="http://www.lho.org.uk/LHO_Topics/Analytic_Tools/TobaccoControlProfiles/">http://www.lho.org.uk/LHO_Topics/Analytic_Tools/TobaccoControlProfiles/</a>
Ethnicity	A paper summarising possibilities for the ethnicity indicator in Health Profiles 2011	Coming soon



# London health profile – Health determinants in London compared to England average

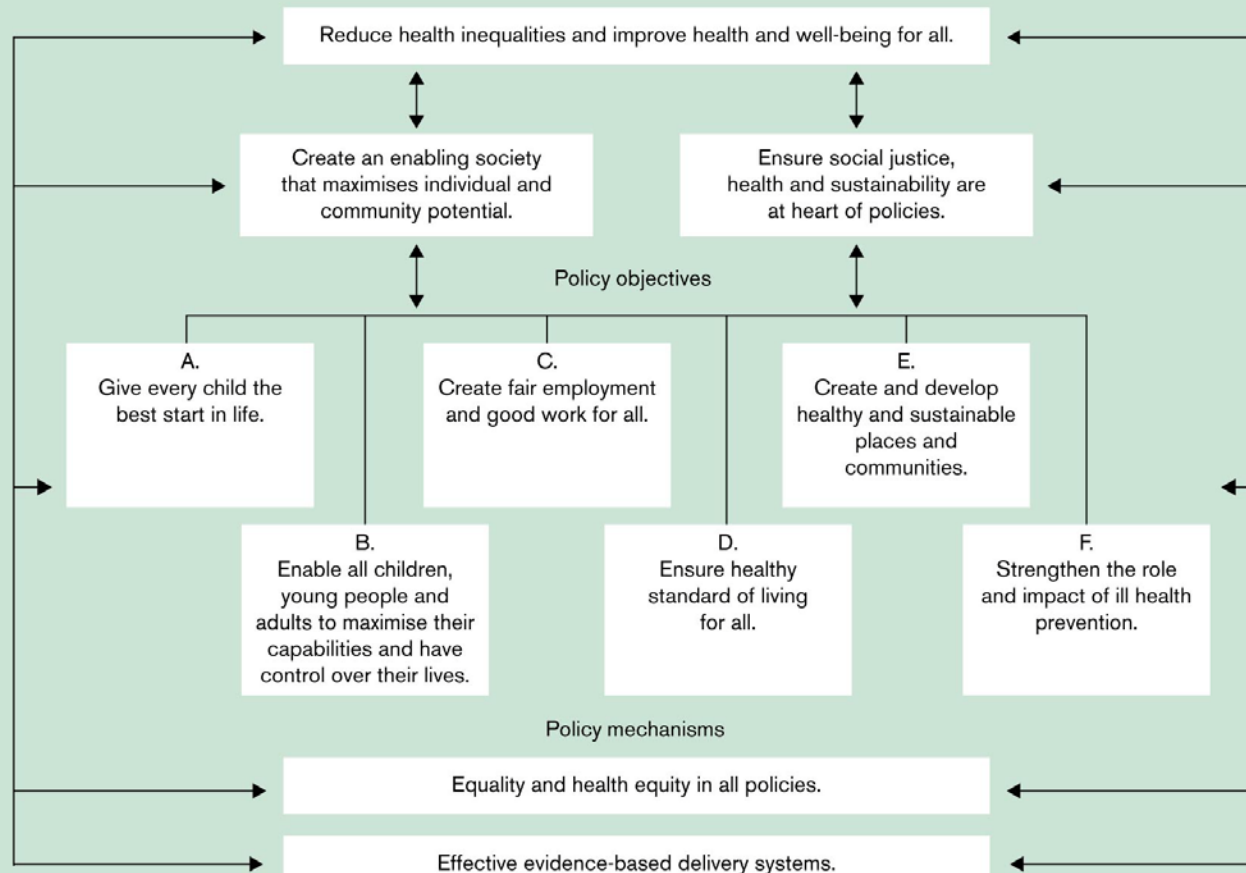
Indicator	England	South East	East of England	South West	East Midlands	London	North East	Yorkshire and The Humber	West Midlands	North West
1 Deprivation	19.9	5.9	6.2	9.2	16.6	28.5	33.6	27.2	27.4	31.7
2 Children in poverty *	22.4	15.4	16.9	16.9	19.5	33.9	26.0	23.0	24.8	25.0
3 Statutory homelessness	4.4	2.8	3.5	3.6	3.7	6.8	5.2	4.2	5.8	4.4
4 GCSE achievement (5 A*-C) *	60.1	62.0	61.2	59.5	57.9	60.9	60.5	57.8	59.3	60.3
5 Violent crime	19.3	18.6	14.6	17.2	18.3	24.3	18.8	20.8	19.7	19.7

- Deprivation is a lot higher than average.
- Over 33.9% of London's children are living in poverty, much greater than average.
- Homelessness and violent crime are high.
- Exam (GCSE) achievement is close to the England average.



# Strategic Review of Health Inequalities (Marmot Review) – Conceptual framework

Figure 4 The Conceptual framework





## National indicators proposed by the Strategic Review of Health Inequalities (Marmot Review)

- Life expectancy (to capture years of life)
- Health expectancy (to capture the quality of those years)
- Readiness for school (to early years development)
- Young people not in education, employment or training (to capture skill development during the school years and the control that school has over lives)
- Household income (to capture the proportion of households that have an income sufficient for healthy living)
- The Review also proposed an indicator of wellbeing, once one is developed that is suitable for large-scale implementation.



# London borough inequality profiles

## Westminster

	Indicator	Borough Value	London Avg	England Avg	England Worst	Range	England Best
1	Life expectancy - male	83.4	78.6	78.3	73.7		84.4
2	Life expectancy - female	86.5	83.1	82.3	79.1		89.0
3	Disability-free life expectancy - male	63.4	61.9	61.7	50.5		68.8
4	Disability-free life expectancy - female	65.9	64.2	64.2	54.7		70.5
5	Good level of development - children	46.0	49.7	51.7	33.0		72.0
6	Young people who are NEET	5.3	5.8	7.0	13.8		2.6
7	Income deprivation	17.4	20.6	15.6	41.1		4.6

### Indicator Notes

1 & 2 Life expectancy at birth (years), 2007-2009

3 & 4 Disability-free life expectancy at birth (years), 2001

5 Percentage of children with a teacher assessment of a 'good level of development' in the year they turn five

6 Percentage of young people aged 16-19 who are not in education, employment or training

7 Percentage of people in income deprived households (as defined by receipt of selected benefits in the Income Domain of the Index of Multiple Deprivation 2007)



## The former national health inequalities targets in England

- By 2010 to reduce by at least 10% the gap in infant mortality between “routine and manual groups” and the population as a whole.
- By 2010 to reduce by at least 10% the gap between the fifth of local authorities with the lowest life expectancy at birth (Spearhead local authorities) and the population as a whole.



# Index of multiple deprivation (IMD)

- Lower layer super output area (LSOA) measure of multiple deprivation
- Local authority figures are weighted averages of the LSOAs
- Comprised from information on people living in the area
- Seven domains:
  - Income deprivation
  - Employment deprivation
  - Health deprivation and disability
  - Education, skills and training deprivation
  - Barriers to housing and services
  - Living environment deprivation
  - Crime
- A weighted area level aggregate of these specific dimensions

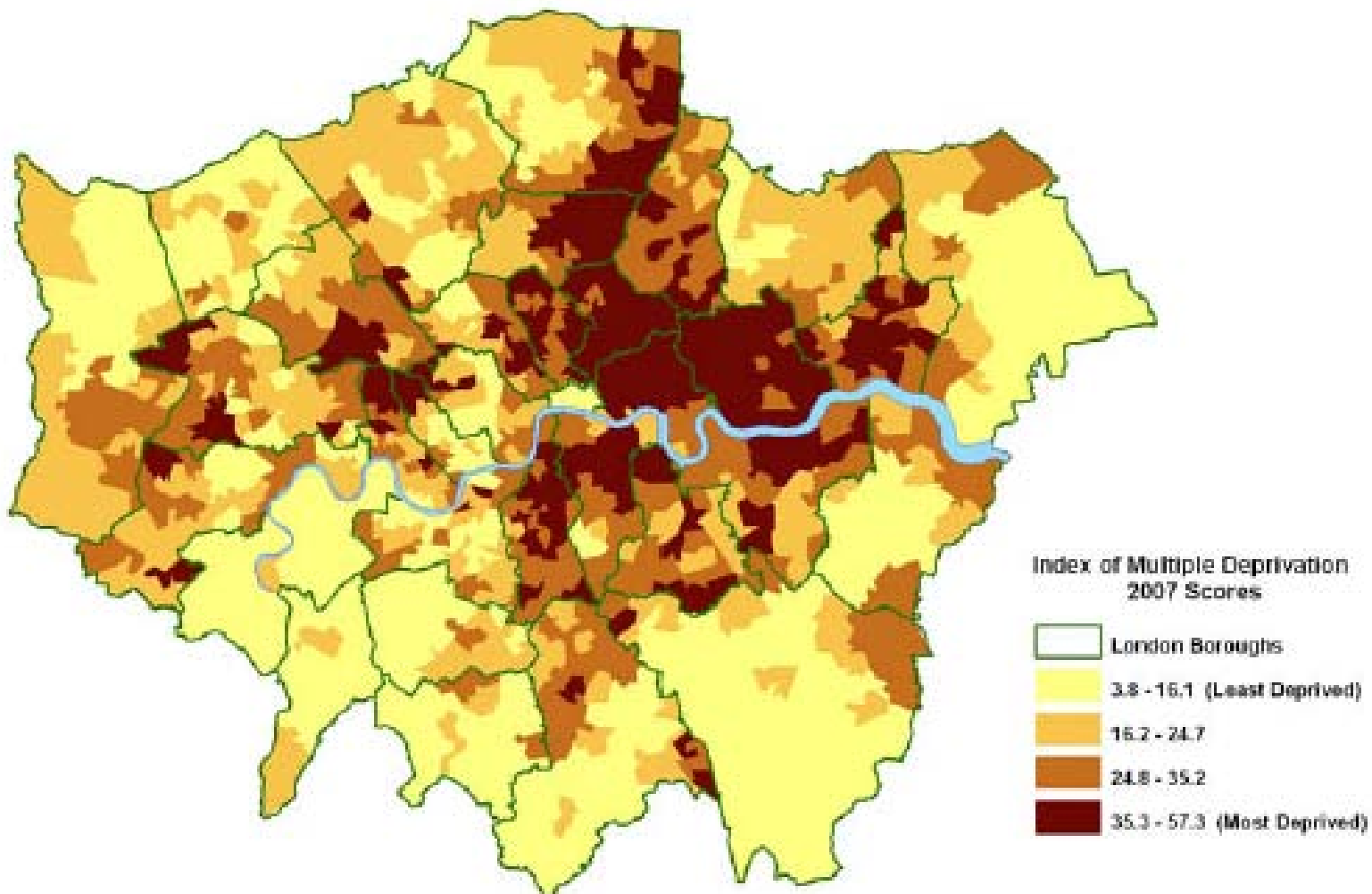


## IMD – weighting of the domains

Domain	Weighting
Income deprivation	22.5%
Employment deprivation	22.5%
Health deprivation and disability	13.5%
Education, skills and training deprivation	13.5%
Barriers to housing and services	9.3%
Crime	9.3%
Living environment deprivation	9.3%



# IMD by LSOA in London





# Spearhead local authorities in London





# Health Inequalities Intervention Toolkit

Spearhead Tool  
Life Expectancy Gaps

Spearhead Tool  
Commissioning Interventions

Infant Mortality Tool

Intervention Tool  
for All Areas

1. Spearhead Tool – Life expectancy gaps
2. Spearhead Tool – Commissioning interventions
3. Infant Mortality Tool
4. Intervention Tool for All Areas – Life expectancy gaps and commissioning interventions for all areas (not just spearheads)



# 1. Spearhead Tool – Life expectancy gaps

- Provides information on current life expectancy in spearhead local authorities
- Quantifies the current life expectancy gap at birth between individual spearhead local authorities and England
- Quantifies the diseases and age groups contributing to the life expectancy gap between spearhead local authorities and England
- Models the effect of five high impact interventions on closing the life expectancy gap



# Current life expectancy and gaps (2006-08) - examples

## Greenwich local authority

Current life expectancy status:

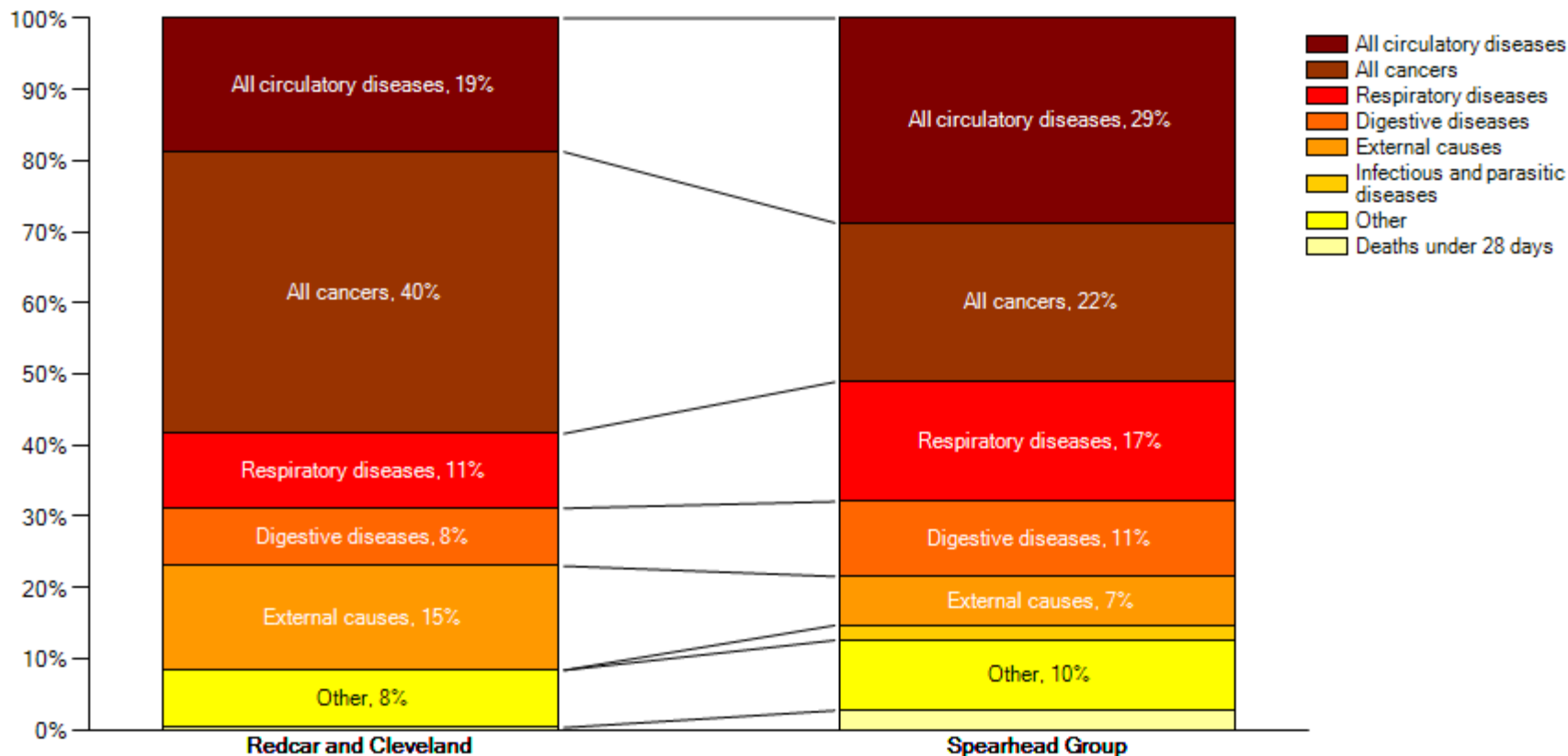
**Males Off Track**      **Females On Track**

Spearhead local authority	Male life expectancy (years)	Relative gap with England
England	77.9	
Spearhead Group	75.8	2.7%
Greenwich	75.4	3.2%



# Life expectancy gap - by cause of death Redcar and Cleveland

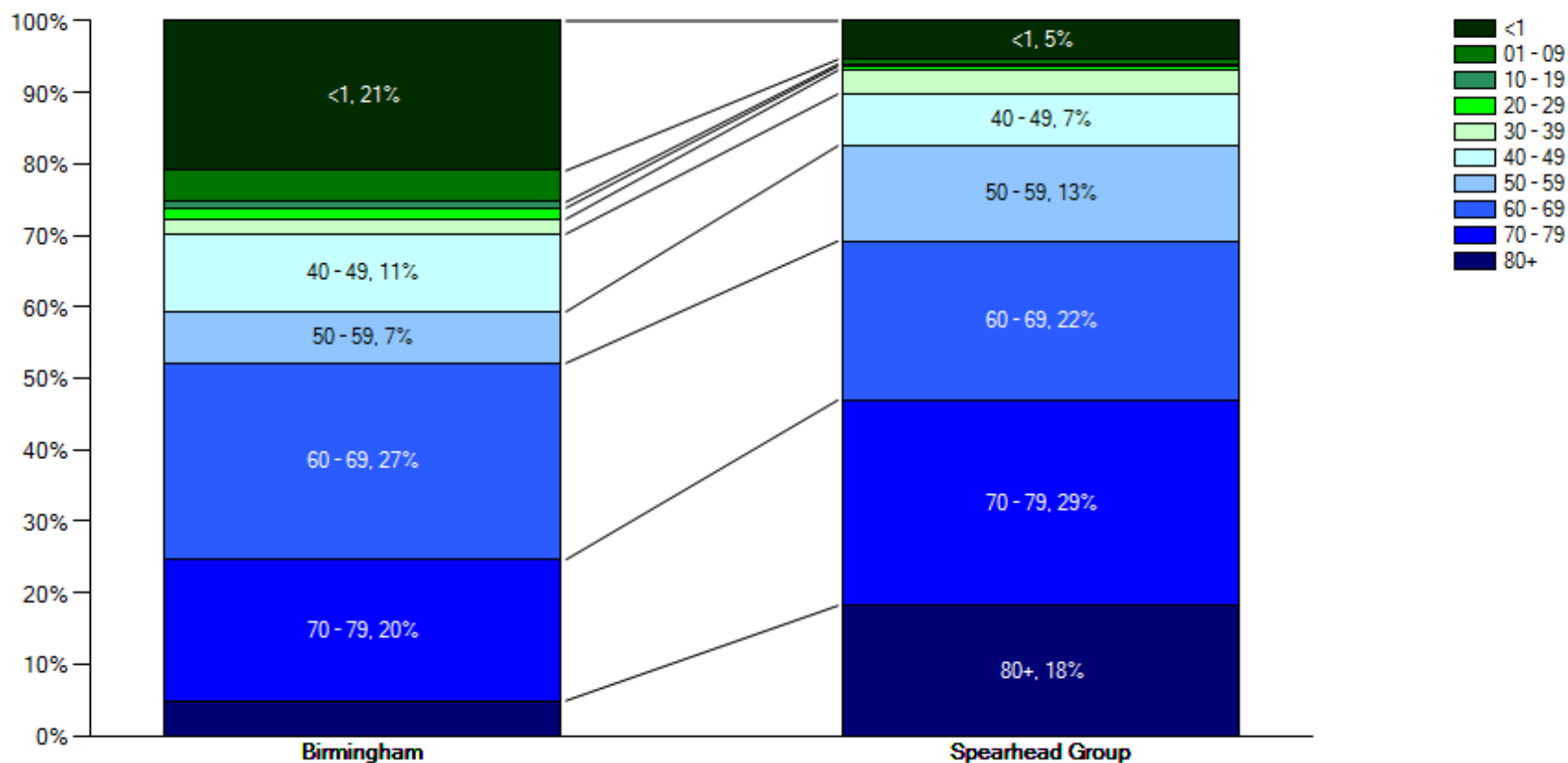
Breakdown of the life expectancy gap between Redcar and Cleveland and England, by cause, 2006-08 - Males





# Life expectancy gap - by age group Birmingham

(Equivalent gap between Spearhead Group and England shown for comparison)





## 2. Spearhead tool – Commissioning interventions

- Number of smokers quitting through NHS stop smoking services
- Number of people treated for high blood sugar
- Reduce the number of infant deaths
- Number treated for uncontrolled or undiagnosed hypertension (in those without coronary heart disease or stroke)
  - Number treated for high blood cholesterol among those already being treated for hypertension



## Why were these interventions chosen?

- They can be directly influenced by local primary care trusts and local authorities
- Data and information on these interventions are readily available
- Work at the Department of Health determined the effect of these interventions on health inequalities nationally. LHO applied this work to local data
- Inclusion of infant mortality links the spearhead tool with the infant mortality tool



# Commissioning interventions – an example Redcar and Cleveland, current levels

1,150 smoking quitters  
(29,500 smokers)

16,000 males with hypertension

Current male life expectancy **77.2 years**



# Commissioning interventions – an example

## Redcar and Cleveland, interventions

1,150 smoking quitters →→→→ **Increase to** 3,000

16,000 male hypertensives →→→ **Treat** 5,000



## Commissioning interventions – an example Redcar and Cleveland, interventions

1,150 smoking quitters →→→→ 3,000

16,000 male hypertensives →→→ 5,000

If planned interventions are achieved:

Male life expectancy **77.2** →→→ **77.4** years

Percentage narrowing in life expectancy gap with  
England →→→ 17%

**Achieved**



# Interpretation of commissioning intervention results

- It is a static model
  - It assumes no change in life expectancy in England
  - It assumes no change in life expectancy in the local area due to anything else
- Estimates what life expectancy would be if the interventions had an effect, assuming everything else is constant
  - The impact of smoking cessation is approximately 5+ years
  - The impact of all other interventions more immediate
- The effect of interventions is additive



## The former national health inequalities targets in England

- By 2010 to reduce by at least 10% the gap in infant mortality between “routine and manual groups” and the population as a whole.
- By 2010 to reduce by at least 10% the gap between the fifth of local authorities with the lowest life expectancy at birth (Spearhead local authorities) and the population as a whole.



## 3. Infant mortality tool

- Shows recent trends in infant mortality rates by socio-economic group
- Provides background data on factors that may be associated with deaths in infancy
- Quantifies the gap in infant mortality rates and the contribution of six potentially modifiable factors to the current infant mortality gap
- Allows users to specify modifications to these factors in order to assess the impact of such changes on the infant mortality gap



# Infant mortality tool - trends

LHO : Health Inequalities Intervention - Infant Mortality - Microsoft Internet Explorer provided by UKN Group for NHS London

http://www.lho.org.uk/NHII/InfantMortality/Trends\_SHA.aspx?sha=q36#ToolStart

File Edit View Favorites Tools Help

LHO : Health Inequalities Intervention - Infant Mortality

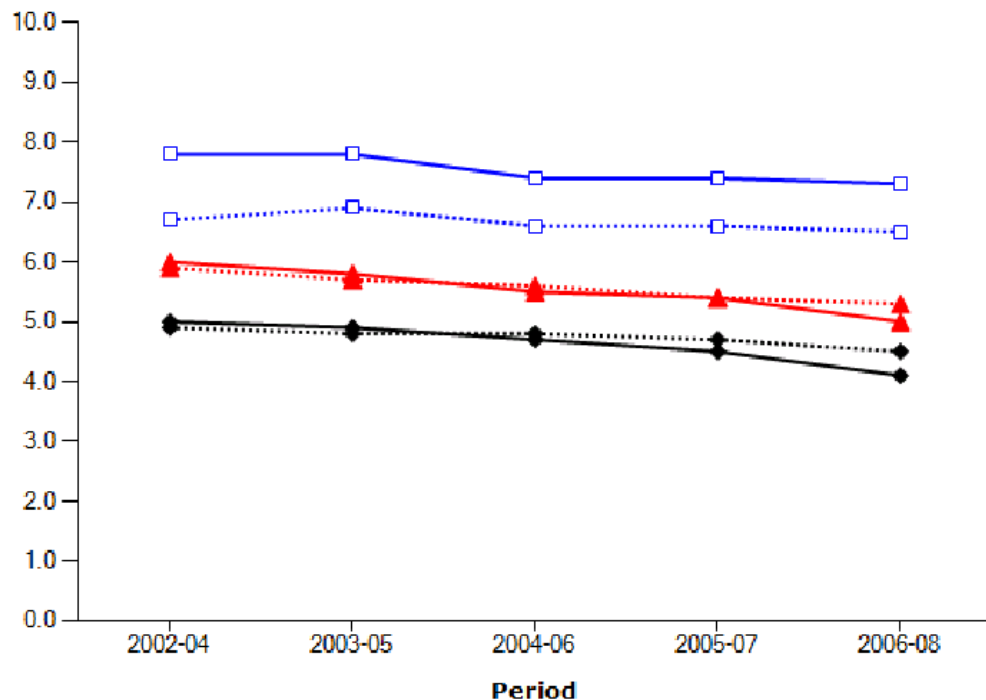
Page Safety Tools

London

View chart data

## Three-year average infant mortality rates, 2002-04 to 2006-08

Rate per 1,000 live births



All births within marriage and joint registrations:

- London
- ◆— England and Wales

Of which routine and manual:

- ▲— London
- ◆— England and Wales

Sole registrations:

- London
- ◆— England and Wales



## Infant mortality tool - background data

- Infant mortality rates by ethnic group
- Low birth weight live births
- Children living in poverty
- Mothers smoking during pregnancy
- Mothers initiating breastfeeding
- Children immunised by their 1<sup>st</sup> birthday



## Infant mortality tool - factors contributing to the infant mortality gap

- Teenage conceptions
- Sudden unexplained death in infancy
- Smoking in pregnancy
- Obesity in women of reproductive age
- Poverty
- Not initiating breastfeeding



## Why were these interventions chosen?

- They can be directly influenced by local primary care trusts and local authorities
- Data and information on these interventions are readily available
- Work at the Department of Health determined that these interventions account for a large proportion of the infant mortality gap in England as a whole. LHO applied this work to local data.



# Infant mortality tool – factors contributing to the gap

LHO : Health Inequalities Intervention - Infant Mortality - Microsoft Internet Explorer provided by UKN Group for NHS London

http://www.lho.org.uk/NHII/InfantMortality/GapFactors\_SHA.aspx?sha=Q36#ToolStart

London

**Infant mortality in the routine and manual group in the London SHA is higher than for all births within marriage and joint registrations in England and Wales**

	Infant deaths per 1,000 live births 2006-08
London - Routine and manual group	5.0
England and Wales - All births within marriage and joint registrations	4.5
Gap	0.41

**The factors that contribute to the gap\* are:**

Teenage pregnancy	2%
SUDI - sudden unexplained death in infancy	27%
Smoking in pregnancy	1%
Obesity	21%
Poverty	49%
Not breastfed	0%
Other (factors not modelled)	0%

Percent



# Infant mortality tool – modify interventions Yorkshire and Humber

Reduce to

30% women smoking in pregnancy →→→→→ 25%

If planned interventions are achieved:

Reduction in infant mortality gap →→→→ 7.3%

**Not enough**



## Feedback

- Tool looks very nice, although now so many different components it is sometimes hard to follow.
- The information on the breakdown of the gaps is more useful than the modelling of interventions.
- Users would prefer more interventions, even if the methodology is not as robust.
- Users would like even more local information and would like to be able to download their own data.
- It is important to keep the tool up to date.



## Conclusions from post project review

- Tool was very well received by the commissioner (Department of Health)
- Tool took longer than expected to produce:
  - Scope changed over time
  - Many dependencies – DH and IT company
- Introduce more formal user testing in future
- Undertake more extensive communications to promote use in future



## Further information

Further information on the London Health Observatory [www.lho.org.uk](http://www.lho.org.uk)

Further information on PHOs in the UK [www.apho.org.uk](http://www.apho.org.uk)