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

Justine Fitzpatrick
Assistant Director, LHO
18th November 2010
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**: In depth analysis/interpretation of health data
- **Support health practitioner and intelligence networks**: 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.

Adapted from “Saving Lives - Our Healthier Nation” a “Choosing Health – Making Healthier Choices Easier”
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.
<table>
<thead>
<tr>
<th>English PHO lead areas</th>
<th>North East</th>
<th>East Midlands</th>
<th>North West</th>
<th>London</th>
<th>West Midlands</th>
<th>Eastern</th>
<th>South West</th>
<th>South East</th>
<th>Yorkshire and Humber</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>Mental health</td>
<td>Food and nutrition</td>
<td>Drug misuse</td>
<td>Ethnic minorities</td>
<td>Environment</td>
<td>Primary care</td>
<td>Sexual health</td>
<td>Physical activity and obesity</td>
<td>Children and young people</td>
</tr>
<tr>
<td></td>
<td>Offender health</td>
<td>Renal disease</td>
<td>Alcohol</td>
<td>Health inequalities</td>
<td>Older people</td>
<td>Sustainable development</td>
<td>Injuries</td>
<td>Transport</td>
<td>Diabetes</td>
</tr>
<tr>
<td></td>
<td>Europe and International</td>
<td>Teenage pregnancy</td>
<td>Crime and violence</td>
<td>Tobacco</td>
<td>Social care</td>
<td>Chronic obstructive pulmonary</td>
<td>End of life</td>
<td>Coronary heart disease</td>
<td>Health economics</td>
</tr>
<tr>
<td></td>
<td>Learning disabilities</td>
<td>Cancer</td>
<td>Dental health</td>
<td></td>
<td>Primary care</td>
<td>disease</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yorkshire and Humber</td>
<td>Children and young people</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Primary care</td>
<td></td>
<td>End of life</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Sustainable development</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Chronic obstructive pulmonary</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**North East**
- Mental health
- Offender health
- Europe and International
- Learning disabilities

**East Midlands**
- Food and nutrition
- Renal disease
- Teenage pregnancy
- Cancer

**North West**
- Drug misuse
- Alcohol
- Crime and violence
- Dental health

**London**
- Ethnic minorities
- Health inequalities
- Tobacco

**West Midlands**
- Environment
- Older people
- Social care

**Eastern**
- Primary care
- Sustainable development
- Chronic obstructive pulmonary disease

**South West**
- Sexual health
- Injuries
- End of life

**South East**
- Physical activity and obesity
- Transport
- Coronary heart disease
- Stroke

**Yorkshire and Humber**
- 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
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

Chief Medical Officer for England

National Steering Group for PHOs

Regional Director of Public Health

APHO Executive

London Health Observatory

LHO Advisory Board
<table>
<thead>
<tr>
<th>Topic</th>
<th>Activity</th>
<th>Web address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Inequalities</td>
<td>The health inequalities intervention toolkit (March 2010)</td>
<td><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></td>
</tr>
<tr>
<td></td>
<td>Further updates to the local basket of inequalities indicators (until April only)</td>
<td><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></td>
</tr>
<tr>
<td></td>
<td>London analysis of indicators related to the Marmot review national indicators</td>
<td>Coming soon</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>A paper summarising possibilities for the ethnicity indicator in Health Profiles 2011</td>
<td>Coming soon</td>
</tr>
</tbody>
</table>
London health profile – Health determinants in London compared to England average

- 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

Policy objectives:
- A. Give every child the best start in life.
- B. Enable all children, young people and adults to maximise their capabilities and have control over their lives.
- C. Create fair employment and good work for all.
- D. Ensure healthy standard of living for all.
- E. Create and develop healthy and sustainable places and communities.
- F. Strengthen the role and impact of ill health prevention.

Policy mechanisms:
- Equality and health equity in all policies.
- Effective evidence-based delivery systems.
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

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

**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**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income deprivation</td>
<td>22.5%</td>
</tr>
<tr>
<td>Employment deprivation</td>
<td>22.5%</td>
</tr>
<tr>
<td>Health deprivation and disability</td>
<td>13.5%</td>
</tr>
<tr>
<td>Education, skills and training deprivation</td>
<td>13.5%</td>
</tr>
<tr>
<td>Barriers to housing and services</td>
<td>9.3%</td>
</tr>
<tr>
<td>Crime</td>
<td>9.3%</td>
</tr>
<tr>
<td>Living environment deprivation</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

IMD by LSOA in London
Spearhead local authorities in London
Health Inequalities Intervention Toolkit

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

<table>
<thead>
<tr>
<th>Spearhead local authority</th>
<th>Male life expectancy (years)</th>
<th>Relative gap with England</th>
</tr>
</thead>
<tbody>
<tr>
<td>England</td>
<td>77.9</td>
<td></td>
</tr>
<tr>
<td>Spearhead Group</td>
<td>75.8</td>
<td>2.7%</td>
</tr>
<tr>
<td>Greenwich</td>
<td>75.4</td>
<td>3.2%</td>
</tr>
</tbody>
</table>
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

- All circulatory diseases, 19%
- All cancers, 40%
- Respiratory diseases, 11%
- Digestive diseases, 8%
- External causes, 15%
- Other, 8%

- All circulatory diseases, 29%
- All cancers, 22%
- Respiratory diseases, 17%
- Digestive diseases, 11%
- External causes, 7%
- Other, 10%
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 →→→→ 3,000

16,000 male hypertensives →→→→ 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

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 1st 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

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

<table>
<thead>
<tr>
<th>Location</th>
<th>Description</th>
<th>Infant deaths per 1,000 live births 2006-08</th>
</tr>
</thead>
<tbody>
<tr>
<td>London</td>
<td>Routine and manual group</td>
<td>5.0</td>
</tr>
<tr>
<td>England and Wales</td>
<td>All births within marriage and joint registrations</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Gap</strong></td>
<td></td>
<td>0.41</td>
</tr>
</tbody>
</table>

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%
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 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)