HULL JSNA TOOLKIT
RELEASE 7:
Infectious Diseases

Mandy Porter, Robert Sheikh-Iddenden, and Des Cooper

February 2017
This document is one of a suite of reports that form the basis of Hull’s Joint Strategic Needs Assessment (JSNA). Each of these JSNA documents and summaries are available for perusal or downloading at www.hullcc.gov.uk/pls/hullpublichealth/. Further reports are also available.

Whilst this document contains a substantial quantity of information, it may not include everything you need. If you require any further information not included within this document, or require further explanation, please contact us and we’ll try to help.

Epidemiologists/Statisticians,
Public Health Sciences,
Hull Public Health,
Hull City Council,
Warehouse 8,
Guildhall Road,
Hull.
HU1 1HL

mandy.porter@hullcc.gov.uk (01482 616304)
robert.iddenden@hullcc.gov.uk (01482 616305)
des.cooper@hullcc.gov.uk (01482 616241)
HULL JSNA TOOLKIT: Infectious Diseases

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JSNA TOOLKIT: Infectious Diseases

1 SUMMARY

This release incorporates data provided by NHS Hull, Hull City Council and other partners and forms a foundation for the Joint Strategic Needs Assessment (JSNA) which can be found at www.hullcc.gov.uk/pls/hullpublichealth/. It is important to examine levels of health and ill-health as well as levels of risk factors and attitudes towards health in different populations for monitoring purposes including the monitoring of health-related targets, examining trends over time, comparison with other geographical areas, examining patterns of health and risk factors within the population of Hull (e.g. comparison of different groups such as those defined by deprivation), assessment and evaluation of programmes designed to improve health, assessing the existing and future need for health-related services following changes in health, ill-health or risk factors so that the Commissioning function can be adequately fulfilled. Further documents such as the health equity audits, reports from the adult and young people health and lifestyle surveys, social capital surveys, child obesity reports and Index of Multiple Deprivation report are available at www.hullcc.gov.uk/pls/hullpublichealth/. A local analysis of each of the indicators within the Public Health Outcomes Framework is also available at www.hullcc.gov.uk/pls/hullpublichealth/.

Public Health Outcomes Framework: Treatment completion for tuberculosis and mortality from communicable diseases are indicators within the Public Health Outcomes Framework.

Treatment completion for tuberculosis: 91.3% of drug-susceptible TB cases reported in Hull in 2012 completed treatment within 12 months. This was higher than for England and each of the comparator areas.

Mortality from communicable diseases (infectious and parasitic diseases, including influenza): Age-standardised (using the 2013 ESP) mortality from communicable diseases among men in Hull 2013-2015 was 16.4 deaths per 100,000 men, higher than the England and Yorkshire and Humber regional averages (11.5 and 10.7 respectively per 100,000 men), as well as higher than the 10 comparator average (14.0 per 100,000 men) with only two comparators having a higher DSR among men. Among women in Hull, the communicable disease DSR in 2013-15 was 10.1 per 100,000 women, a little higher than the England and Yorkshire and Humber regional averages (9.6 and 9.1 respectively per 100,000 women). The communicable disease DSR for Hull was lower than the 10 comparator average (12.0 per 100,000 women) with only two of the 10 comparators having a lower DSR.

Mortality from infectious diseases: In 2012-2014 the all age DSR for infectious and parasitic diseases (using the 2013 ESP) was 17.1 per 100,000 men and 9.7 per 100,000 women. The rate among Hull men was significantly higher than for England, and was...
13% higher than the comparator area average. Among women the rate in Hull was similar to England but 20% lower than the comparator area average.
2 INTRODUCTION

2.1 Other Reports

This revision of the JSNA Toolkit for Hull is a series of stand alone reports on specific diseases or conditions, people groups, risk factors for disease and other health and wellbeing related issues. Each of these individual reports sum to form the JSNA Toolkit, which informs the production of the JSNA. Each of the JSNA Toolkit documents may be accessed on, and downloaded from, www.hullcc.gov.uk/pls/hullpublichealth/. The full list of reports is as follows:

Executive Summary
Abbreviations
Glossary
Geographical Area
Demography and Demographics
Housing, Environment and Social Care
Deprivation and Associated Measures
General Health, Disabilities, Caring and Use of Services
Dental Health
Inpatient Hospital Admissions
Life Expectancy
Mortality
Overweight and Obesity
Physical Activity
Diet
Alcohol Consumption
Drug and Substance Abuse
Smoking
Vaccinations and Immunisations
Screening
All Circulatory Disease
Coronary Heart Disease
Stroke
Other Circulatory Diseases
All Cancers
Lung Cancer
Colorectal Cancer
Prostate Cancer
Breast Cancer
Diabetes
Chronic Kidney Disease
All Respiratory Disease
Asthma
Chronic Obstructive Pulmonary Disease
Epilepsy
Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/

Hypothyroidism
Palliative Care
Mental Health and Learning Disabilities (includes Social Capital)
Infectious Diseases
Digestive Diseases
Sexual Health
Accidents
Children and Young People
Older People

In order to avoid duplication between the individual reports, references will be made to other reports which may contain further information or explanation.

It is the intention to release the JSNA Toolkit documents on an on-going basis, with new information added to the documents and existing data updated as new information becomes available over time. The two tables in the APPENDIX starting on page 61 give the time period to which the data refers, when the information was last updated and the source for each table and figure within this document.

2.2 Terminology, Abbreviations, Statistical Methods and Terms

Further more technical information is available in the Glossary document on www.hullcc.gov.uk/pls/hullpublichealth/ which includes specific information on particular datasets (e.g. delays between death occurrence and registration in Public Health Mortality File, explanation of clinical episodes within Hospital Episode Statistics, further information on the Quality Outcomes Framework data, etc), abbreviations used within these JSNA Toolkit documents and other local reports, and an explanation of some statistical methods and statistical terms used within the JSNA Toolkit documents and other local documents, such as problems associated with synthetic or modelled estimates, problems associated with small numbers, explanations of confidence intervals, significance testing, standardisation, life expectancy, total period fertility rate, confounding and effect modification, etc. Some of this information is also included within the APPENDIX.

2.3 Data Sources

Where possible, we have used sources of data that are routinely available nationally, either as published material (e.g. the NHS Information Centre Indicator Portal (previously known as the Compendium of Clinical and Health Indicators or Compendium), the Census, labour market website (nomis), Quality and Outcomes Framework (QOF) data, Public Health Outcomes Framework indicators, etc), from Government websites (e.g. Department of Health) or other websites (e.g. those quoted as data sources for Public Health Outcomes Framework). Elsewhere we have used raw
Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/

data at patient or episode level (e.g. Public Health Mortality Files) to construct local indicators of health. Local information has been provided by colleagues within the NHS Hull Clinical Commissioning Group, the North Yorkshire and Humber Commissioning Support Unit, Hull City Council and other organisations. The prevalence of lifestyle behavioural risk factors comes from local surveys such as the local Health and Lifestyle and Social Capital Surveys, and comparison information from the annual Health Survey for England (Health Survey for England 2008) and the General Household Survey (Economic and Social Data Service 2008). Full information about each of the local surveys conducted is available at www.hullcc.gov.uk/pls/hullpublichealth/. Furthermore, the source of each table and figure is given in section 0 on page 62 (tables) and in section 6.10.2 on page 62 (figures). Also see section 6.1 on page 6.1.

We have provided the most up-to-date data available. Not all the data relate to the same time period. Different sets of data are published at different times of the year and the most recent data may not yet be published, or if the numbers of events are very low for rare diseases, the data for several years are combined to obtain a more reliable picture.

2.4 Deprivation

Unemployment, poor housing, lack of qualifications, crime and many other social and environmental factors all indirectly affect the health of the population. Different scales and scores have been produced which attempt to measure deprivation. In general, in relation to national averages, Hull has a higher unemployment rate, more poor housing, residents qualified to a lower level and higher levels of crime. Increased deprivation means that there is poorer health, but this is compounded as poor health also affects other measures such as employment and motivation to improve employment, education and the person’s environment such as housing. In addition, those who live in the most deprived area are more likely to have risk factors for ill health such as smoking, poor diet, lack of physical activity, etc. It is also generally more difficult to change lifestyle behaviour if the environment is more stressful resulting from poorer employment prospects and housing, increased debt, relationship problems, etc.

The Index of Multiple Deprivation (IMD) 2015 (Communities and Local Government 2015) score has been produced nationally and is a measure of deprivation derived for each lower layer super output area (LLSOA). There are 166 LLSOAs geographical areas defined within Hull following the 2011 Census. These geographical areas have a minimum population size of 1,000 and a mean population size of 1,500. The IMD 2015 index is based on seven domains which are weighted according to their relative importance in relation to the overall score (weights in brackets): (i) income deprivation (22.5%); (ii) employment deprivation (22.5%); (iii) health deprivation and disability (13.5%); (iv) education, skills and training deprivation (13.5%); (v) barriers to housing and services (9.3%); (vi) living environment deprivation (9.3%); and (vii) crime (9.3%). The IMD 2015 score measures deprivation, but is not such a good measure of affluence. As it is applied to a geographical area, it relates to average levels of deprivation within
an area. Therefore, there may be some residents of the area who are very much more deprived than the average and some very much better-off relative to the average.

Using the IMD 2015 score, Hull is ranked as the 3rd most deprived local authority out of 326 (bottom 1%). The IMD 2015 scores for all of England’s LLSOAs have been divided into five approximately equal-sized groups ranging from the 20% most deprived areas to the 20% least deprived areas. These five groups are referred to as national quintiles. However, as more than half (52%) of Hull’s LLSOAs are within the bottom 20%, local analyses have used Hull’s local quintiles.

Further detailed analysis of the IMD and changes over time is available in a separate IMD report available at www.hullcc.gov.uk/pls/hullpublichealth/. The Hull JSNA Toolkit: Deprivation and Associated Measures also includes additional information on deprivation as well as information on unemployment, benefit claimants, crime, etc.

2.5 Comparator Areas

Local analyses of comparator areas have been undertaken. The first analysis in 2007, which was updated in 2009, identified 10 comparator areas which were similar to Hull with regard some key measures such as deprivation, population, ethnicity, housing, etc. None of the comparators areas were very similar to Hull with regard to all the measures examined, which means that differences were evident for some comparator areas. The Office for National Statistics (ONS) grouped local authorities into groups, and Hull was in their Industrial Hinterlands group, but Hull was the least similar to the group average. Furthermore, ONS deemed that North East Lincolnshire was Hull’s nearest comparator, but this was in a different classification group. Local analyses have used the 10 comparators identified plus North East Lincolnshire as comparator areas. A further analysis of comparator areas was undertaken during 2013 following transfer of Public Health Science to Hull City Council. Hull City Council generally uses 15 comparator areas for their analyses. All their areas together with the 11 areas used previously were examined (some were included in both groups). It was felt that there were too many to use all 15 of Hull City Council comparators and a number of the indicators used to determine similarity were not important from the health or public health point of view. Whilst some of the 11 locally used comparators boundaries of local authority and NHS (i.e. Clinical Commissioning Group) no longer matched, it was decided to continue to use the 11 comparator areas previously used for consistency and comparability.

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1 Such as taxbase per head of population, percentage of daytime net flow, housing benefit caseload, percentage of households with less than four rooms, percentage of households in purpose-built flats rented from local authority, authorities with coast protection expenditure, etc.
The comparators are as follows:

1. Middlesbrough**
2. Stoke-on-Trent
3. Sandwell*
4. Salford
5. Wolverhampton
6. Sunderland
7. Plymouth*
8. Derby*
9. Leicester
10. Coventry*
11. North East Lincolnshire

*The boundary of the local authority does not match that of the CCG, so data relating to the Quality Outcomes Framework (see section 6.5 on page 33) is unavailable.

**Middlesbrough local authority and Redcar and Cleveland local authority form NHS South Tees CCG. All comparator QOF data trends use South Tees as a comparator area (historical data for the Middlesbrough Primary Care Trust (PCT) and Redcar and Cleveland PCT have been combined for comparability). Redcar and Cleveland local authority is one of the comparator areas used by Hull City Council so is quite similar to Hull in terms of certain characteristics.

2.6 Public Health Outcomes Framework Indicators

A local analysis of the outcome measures published as part of the Public Health Outcomes Framework (PHOF) is available at www.hullcc.gov.uk/pls/hullpublichealth/. The JSNA Toolkit reports also include information on the relevant PHOF indicators for the specific topic. Further details of the indicators is available in Table 11, which details which JSNA Toolkit report includes further analysis for each indicator.

Further information on the indicators relating to infectious disease is given in section 4 on page 24.
3 INFECTIONOUS DISEASES

3.1 Tuberculosis

3.1.1 Diagnosis Rates

Information on the number of cases of tuberculosis reported is available from the Health Protection Agency, now part of Public Health England ((Anderson, Moore et al. 2011; Public Health England 2014)) on the number of cases of tuberculosis reported, place of birth, site of disease, microscopy, culture and drug resistance as well as treatment outcome (see section 3.1.2 on page 16). The numbers of case reports and rates are also published in the Public Health Outcomes Framework (PHOF) and Table 1 and Table 2 present the three-year average tuberculosis case reports and rates respectively for Hull and comparator areas for 2001-2003 to 2013-2015 from the PHOF. Note that this is the rate of diagnoses and can only represent an estimate of the prevalence within the population as the diagnosis rate will be highly influenced by the proportion of people who are tested within each geographical area and this could differ substantially depending on access to services. Despite the wide confidence intervals, there is a large difference among the areas. This will be influenced by the testing rates, black and minority ethnic group population and the number of migrants into the area from other countries. The rates are higher among PCTs with a high prevalence of black and minority ethnic groups. Table 3 gives the characteristics of the tuberculosis cases reported during 2007-2009 for Hull and comparator areas. More recent data were not available by local authority.

Table 1: Three-year average tuberculosis case reports for Hull and comparator areas, 2001-03 to 2013-15

<table>
<thead>
<tr>
<th>Area</th>
<th>Average number of tuberculosis case reports, 2001-03 to 2013-15</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2001-03</td>
</tr>
<tr>
<td>Hull</td>
<td>13</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>64</td>
</tr>
<tr>
<td>Salford</td>
<td>17</td>
</tr>
<tr>
<td>Derby</td>
<td>50</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>32</td>
</tr>
<tr>
<td>Coventry</td>
<td>65</td>
</tr>
<tr>
<td>Plymouth</td>
<td>12</td>
</tr>
<tr>
<td>Sandwell</td>
<td>85</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>21</td>
</tr>
<tr>
<td>Sunderland</td>
<td>21</td>
</tr>
<tr>
<td>Leicester</td>
<td>219</td>
</tr>
<tr>
<td>NE Lincolnshire</td>
<td>6</td>
</tr>
</tbody>
</table>
Further information is available at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/)

**Table 2: Three-year average tuberculosis rates for Hull and comparator areas, 2001-03 to 2013-15**

<table>
<thead>
<tr>
<th>Area</th>
<th>Average tuberculosis rates per 100,000 (95% CI), 2001-03 to 2013-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull</td>
<td>5 (4, 7)</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>27 (23, 31)</td>
</tr>
<tr>
<td>Salford</td>
<td>8 (6, 10)</td>
</tr>
<tr>
<td>Derby</td>
<td>22 (18, 25)</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>13 (11, 16)</td>
</tr>
<tr>
<td>Coventry</td>
<td>22 (19, 25)</td>
</tr>
<tr>
<td>Plymouth</td>
<td>5 (3, 7)</td>
</tr>
<tr>
<td>Sandwell</td>
<td>30 (26, 34)</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>15 (12, 19)</td>
</tr>
<tr>
<td>Sunderland</td>
<td>7 (6, 9)</td>
</tr>
<tr>
<td>Leicester</td>
<td>77 (71, 83)</td>
</tr>
<tr>
<td>NE Lincolnshire</td>
<td>4 (2, 6)</td>
</tr>
</tbody>
</table>

**Table 3: Characteristics of tuberculosis case reports for Hull and comparator areas, 2007-2009**

<table>
<thead>
<tr>
<th>Area</th>
<th>Place of birth</th>
<th>Site of disease</th>
<th>Microscopy</th>
<th>Culture</th>
<th>Drug resistance***</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Non-UK born</td>
<td>Pulmonary*</td>
<td>Sputum-smear positive**</td>
<td>Culture confirmed</td>
<td>Isoniazid resistant</td>
</tr>
<tr>
<td>Hull</td>
<td>90 (87, 93)</td>
<td>39 (34, 44)</td>
<td>50 (40, 60)</td>
<td>52 (47, 57)</td>
<td>7 (4, 11)</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>57 (50, 64)</td>
<td>53 (46, 60)</td>
<td>65 (52, 76)</td>
<td>60 (53, 67)</td>
<td>2 (0, 7)</td>
</tr>
<tr>
<td>Salford</td>
<td>63 (53, 73)</td>
<td>53 (42, 63)</td>
<td>68 (51, 82)</td>
<td>63 (53, 73)</td>
<td>2 (0, 9)</td>
</tr>
<tr>
<td>Derby</td>
<td>71 (63, 78)</td>
<td>53 (45, 61)</td>
<td>53 (39, 66)</td>
<td>53 (44, 61)</td>
<td>12 (6, 21)</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>73 (63, 83)</td>
<td>53 (42, 64)</td>
<td>54 (33, 73)</td>
<td>75 (64, 83)</td>
<td>8 (3, 17)</td>
</tr>
<tr>
<td>Coventry</td>
<td>76 (70, 81)</td>
<td>60 (55, 66)</td>
<td>54 (40, 67)</td>
<td>46 (41, 51)</td>
<td>6 (3, 11)</td>
</tr>
<tr>
<td>Plymouth</td>
<td>62 (45, 78)</td>
<td>56 (40, 72)</td>
<td>63 (35, 85)</td>
<td>59 (42, 74)</td>
<td>13 (3, 32)</td>
</tr>
<tr>
<td>Sandwell</td>
<td>66 (60, 71)</td>
<td>54 (49, 60)</td>
<td>55 (45, 64)</td>
<td>52 (46, 57)</td>
<td>5 (2, 9)</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>60 (48, 71)</td>
<td>57 (46, 67)</td>
<td>58 (43, 84)</td>
<td>62 (51, 72)</td>
<td>5 (1, 15)</td>
</tr>
<tr>
<td>Sunderland</td>
<td>45 (29, 62)</td>
<td>77 (64, 87)</td>
<td>55 (38, 71)</td>
<td>67 (53, 78)</td>
<td>5 (1, 17)</td>
</tr>
<tr>
<td>Leicester</td>
<td>89 (86, 92)</td>
<td>48 (45, 52)</td>
<td>45 (37, 52)</td>
<td>46 (42, 50)</td>
<td>8 (5, 11)</td>
</tr>
<tr>
<td>NE Lincs*</td>
<td>44 (22, 69)</td>
<td>61 (36, 83)</td>
<td>100 (54, 100)</td>
<td>72 (27, 90)</td>
<td>8 (0, 36)</td>
</tr>
</tbody>
</table>

*With or without extra-pulmonary disease.
**Pulmonary cases only with known results.
***Among culture-confirmed cases with drug sensitivity results for at least isoniazid and rifampicin.
*One-sided, 97.5% confidence interval for final (multi-drug resistant) column.

More up-to-date information on the characteristics of tuberculosis cases at a local authority or CCG level have not been published. Instead, Public Health England publishes this data at the level of PHE region/centre.
3.1.1.1 Public Health Outcomes Framework

One of the indicators (3.05ii) within the public health outcomes framework published in January 2012 (Department of Health 2012; Department of Health 2012) relates to the incidence of tuberculosis.

Figure 1 shows a screenshot from the latest Public Health Outcomes Framework report produced by Hull Public Health Sciences (Porter 2015) are shown in this section for this indicator.

This report is updated regularly as and when new data are released. The full report may be downloaded from www.hullcc.gov.uk/pls/hullpublichealth/.
Figure 1: Public Health Outcomes Framework Indicator 3.05ii Treatment completion for tuberculosis – tuberculosis incidence

<table>
<thead>
<tr>
<th>Absolute numbers affected in Hull</th>
<th>National inequalities gap and linear predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Hull trends</td>
</tr>
<tr>
<td></td>
<td>The tuberculosis incidence has worsened from 5.1 per 100,000 population in 2000-02 to 6.5 per 100,000 population in 2013-15</td>
</tr>
<tr>
<td></td>
<td>National inequalities gap trends</td>
</tr>
<tr>
<td></td>
<td>The national inequalities gap (Hull minus England) has deteriorated from 7.7 per 100,000 population in 2000-02 to 5.5 per 100,000 population in 2013-15</td>
</tr>
</tbody>
</table>

**Hull ranking against comparator authorities and national comparison (tartan rug colour):**

- **Local inequalities gap**
  - 3rd out of 12 (Good)
- **Latest ward data**
  - Local data not available

Data points: Source: Health Protection Agency (HPA). Baseline period: 2009-11. Latest data: 2015-15. Assuming a decrease in incidence is good (although reverse could be true if picking up more cases). The page was last updated on 04/11/2016.
3.1.2 Successful Completed Treatment

One of the indicators within the public health outcomes framework published in January 2012 (Department of Health 2012; Department of Health 2012) relates to treatment completion for tuberculosis. This information is also available from the Health Protection Agency (Anderson, Moore et al. 2011). Table 4 presents the percentage of drug-susceptible TB cases reported in 2012 who completed treatment within 12 months for Hull and comparator local authorities. Data were not available for North East Lincolnshire, presumably because of small numbers. The completed treatment rates in Hull were higher than England and each of the comparator areas; however confidence intervals are wide as the numbers of cases are relatively small. While more recent data are available from PHOF, there is no more recent data for Hull.

Table 4: Percentage of drug-susceptible TB cases reported in 2012 who completed treatment by 12 months

<table>
<thead>
<tr>
<th>Area</th>
<th>Drug-susceptible TB cases reported in 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of cases</td>
</tr>
<tr>
<td>England</td>
<td>7,198</td>
</tr>
<tr>
<td>Hull</td>
<td>23</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>71</td>
</tr>
<tr>
<td>Salford</td>
<td>22</td>
</tr>
<tr>
<td>Derby</td>
<td>28</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>38</td>
</tr>
<tr>
<td>Coventry</td>
<td>114</td>
</tr>
<tr>
<td>Plymouth</td>
<td>19</td>
</tr>
<tr>
<td>Sandwell</td>
<td>108</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>24</td>
</tr>
<tr>
<td>Sunderland</td>
<td>18</td>
</tr>
<tr>
<td>Leicester</td>
<td>156</td>
</tr>
<tr>
<td>NE Lincolnshire</td>
<td>*</td>
</tr>
</tbody>
</table>

*Not available

3.1.2.1.1 Public Health Outcomes Framework

One of the indicators (3.05i) within the public health outcomes framework published in January 2012 (Department of Health 2012; Department of Health 2012) relates to the successful completion of treatment for tuberculosis. Figure 2 shows a screenshot from the latest Public Health Outcomes Framework report produced by Hull Public Health Sciences (Porter 2015) are shown in this section for this indicator. This report is updated regularly as and when new data are released. The full report may be downloaded from www.hullcc.gov.uk/pls/hullpublichealth/.
Figure 2: Public Health Outcomes Framework Indicator 3.05i Treatment completion for tuberculosis

3.05i Treatment completion for tuberculosis

The percentage of people completing treatment for tuberculosis within 12 months prior to 31st December, of all those whose case was notified the previous year.

### Hull trends

The percentage completing treatment for tuberculosis has improved from 79.0% in 2011 to 81.3% in 2012.

### National inequalities gap and linear predictions

The national inequalities gap (England minus Hull) has improved from 7.9 percentage points in 2011 to -7.7 percentage points in 2012.

### Hull ranking against comparator authorities and national comparison (tartan reg colour)

- Comparator ranking: missing
- Local data not available
- National inequalities gap: insufficient data
- Local data not available

3.2 Mortality

Mortality from communicable disease is included within the Public Health Outcomes Framework (PHOF) and is a combination of mortality from certain infectious and parasitic diseases (ICD 10 A00-B99) and influenza (ICD 10 J09-J11). Mortality information is also available separately for certain infectious and parasitic diseases, as well as pneumonia, from the Health and Social Care Information Centre Indicator Portal, and local information is available on cause of death from the Public Health Mortality File.

Table 5 shows the all age directly standardised mortality rates (DSRs) for mortality from infectious and parasitic diseases using the 2013 European Standard Population) for Hull and comparator areas for 2012-2014 from the Health and Social Care Information Centre Indicator Portal.

Table 5: All age infectious and parasitic disease mortality DSRs (using the 2013 European Standard Population) for Hull and comparator areas 2012-2014

<table>
<thead>
<tr>
<th>Area</th>
<th>All age infectious and parasitic disease mortality DSRs 2012-14 (standardised to the 2013 European Standard Population)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males</td>
</tr>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>England</td>
<td>6,698</td>
</tr>
<tr>
<td>Hull</td>
<td>43</td>
</tr>
<tr>
<td>Yks &amp; Humber</td>
<td>640</td>
</tr>
<tr>
<td>Wolverh’pton</td>
<td>52</td>
</tr>
<tr>
<td>Salford</td>
<td>45</td>
</tr>
<tr>
<td>Derby</td>
<td>32</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>22</td>
</tr>
<tr>
<td>Coventry</td>
<td>59</td>
</tr>
<tr>
<td>Plymouth</td>
<td>49</td>
</tr>
<tr>
<td>Sandwell</td>
<td>70</td>
</tr>
<tr>
<td>Mid’sbrough</td>
<td>20</td>
</tr>
<tr>
<td>Sunderland</td>
<td>32</td>
</tr>
<tr>
<td>Leicester</td>
<td>44</td>
</tr>
<tr>
<td>Avg above 10</td>
<td>42</td>
</tr>
<tr>
<td>NE Lincs</td>
<td>25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>7,894</td>
</tr>
<tr>
<td>34</td>
</tr>
<tr>
<td>735</td>
</tr>
<tr>
<td>59</td>
</tr>
<tr>
<td>41</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>31</td>
</tr>
<tr>
<td>41</td>
</tr>
<tr>
<td>25</td>
</tr>
<tr>
<td>38</td>
</tr>
<tr>
<td>67</td>
</tr>
<tr>
<td>38</td>
</tr>
<tr>
<td>56</td>
</tr>
<tr>
<td>37</td>
</tr>
<tr>
<td>46</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>49</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
</tr>
<tr>
<td>----</td>
</tr>
<tr>
<td>14,592</td>
</tr>
<tr>
<td>77</td>
</tr>
<tr>
<td>1375</td>
</tr>
<tr>
<td>111</td>
</tr>
<tr>
<td>86</td>
</tr>
<tr>
<td>57</td>
</tr>
<tr>
<td>53</td>
</tr>
<tr>
<td>123</td>
</tr>
<tr>
<td>58</td>
</tr>
<tr>
<td>137</td>
</tr>
<tr>
<td>131</td>
</tr>
<tr>
<td>58</td>
</tr>
<tr>
<td>88</td>
</tr>
<tr>
<td>81</td>
</tr>
<tr>
<td>88</td>
</tr>
<tr>
<td>49</td>
</tr>
</tbody>
</table>

In 2012-14, from the Public Health Mortality File, 31 of the deaths in Table 5 occurred prior to the age of 75 years (21 men and 10 women), and 46 occurred at aged 75+ years (22 men and 24 women).

The Health and Social Care Information Centre Indicator Portal also publishes data on deaths from pneumonia which accounts for around 5% of deaths in Hull each year. Table 6 shows the under 75 standardised mortality ratios (SMR) for pneumonia for Hull and comparator areas for deaths during 2012-2014. The under 75 SMR for Hull was
Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/

136 for men and 128 for women. This means that men and women in Hull under the age of 75 years were 36% and 28% more likely to die from pneumonia than the England average. The SMRs for Hull were lower than those for the average of the 10 comparators areas.

Table 6: Under 75 pneumonia mortality SMRs for Hull and comparator areas 2012-2014

<table>
<thead>
<tr>
<th>Area</th>
<th>Under 75 pneumonia mortality SMRs, 2012-2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Males N</td>
</tr>
<tr>
<td>England</td>
<td>5,912</td>
</tr>
<tr>
<td>Hull</td>
<td>34</td>
</tr>
<tr>
<td>Yorks. &amp; Humber</td>
<td>675</td>
</tr>
<tr>
<td>Wolverhampton</td>
<td>36</td>
</tr>
<tr>
<td>Salford</td>
<td>43</td>
</tr>
<tr>
<td>Derby</td>
<td>29</td>
</tr>
<tr>
<td>Stoke-on-Trent</td>
<td>45</td>
</tr>
<tr>
<td>Coventry</td>
<td>37</td>
</tr>
<tr>
<td>Plymouth</td>
<td>27</td>
</tr>
<tr>
<td>Sandwell</td>
<td>43</td>
</tr>
<tr>
<td>Middlesbrough</td>
<td>33</td>
</tr>
<tr>
<td>Sunderland</td>
<td>38</td>
</tr>
<tr>
<td>Leicester</td>
<td>30</td>
</tr>
<tr>
<td>Avg. of above 10</td>
<td>36</td>
</tr>
<tr>
<td>NE Lincolnshire</td>
<td>27</td>
</tr>
</tbody>
</table>

In 2012-14, from the Public Health Mortality File, there were an additional 273 deaths (in relation to those quoted in Table 6) from pneumonia which occurred to persons aged 75+ years (100 men and 173 women).

Mortality rates from a range of communicable diseases, including influenza, are produced by Public Health England for the Public Health Outcomes Framework indicators (Public Health England 2015), and they are shown in Table 7 for deaths at all ages occurring during 2013-2015 for Hull and comparator areas. These age-standardised rates have been produced using the 2013 European Standard Population.

The communicable disease DSR for men in Hull in 2013-2015 was 16.4 deaths per 100,000 men, higher than the England and Yorkshire and Humber regional averages (11.5 and 10.7 respectively per 100,000 men), as well as higher than the 10 comparator average (14.0 per 100,000 men) with only two comparators having a higher DSR among men. Among women in Hull, the communicable disease DSR in 2013-15 was 10.1 per 100,000 women, a little higher than the England and Yorkshire and Humber regional averages (9.6 and 9.1 respectively per 100,000 women). The communicable disease DSR for Hull was lower than the 10 comparator average (12.0 per 100,000 women) with only two of the 10 comparators having a lower DSR.
Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/
Figure 3: Public Health Outcomes Framework Indicator 4.08 Mortality from communicable diseases
Figure 4: Public Health Outcomes Framework Indicator 4.08 Mortality from communicable diseases, males

4.08 Mortality rate from a range of specified communicable diseases, including influenza (males)

Age-standardised rate of mortality from communicable diseases per 100,000 male population. Directly standardised rate using 2013 European Standard Population. ICD 10 coding of deaths: A00-B99 and J09-J11.

<table>
<thead>
<tr>
<th>Absolute numbers affected in Hull</th>
<th>National inequalities gap and linear predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull trends</td>
<td>Hull regression line</td>
</tr>
<tr>
<td>England</td>
<td>England regression line</td>
</tr>
<tr>
<td>The mortality rate among men has worsened from 16.2 per 100,000 in 2001-03 to 16.4 per 100,000 in 2013-15</td>
<td></td>
</tr>
<tr>
<td>National inequalities gap trends</td>
<td>The national inequalities gap (Hull minus England) has widened from 3.9 per 100,000 in 2001-03 to 4.8 per 100,000 in 2013-15</td>
</tr>
</tbody>
</table>

| Hull ranking against comparator authorities and national comparison (tartan rug colour) |
| Comparator ranking: 7th out of 21 (Medium) | Source |
| National inequalities gap widened | Local inequalities gap deteriorated |

The local inequalities gap (most minus least deprived fifth) has deteriorated from 6.3 per 100,000 in 2004-06 to 15.2 per 100,000 in 2013-15

Figure 5: Public Health Outcomes Framework Indicator 4.08 Mortality from communicable diseases, females

<table>
<thead>
<tr>
<th>Absolute numbers affected in Hull</th>
<th>National inequalities gap and linear predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The total number of women in Hull is currently estimated to be 385656. This plot gives the estimated number of women dying in Hull. In general, as a decrease in the Indicator denotes an Improvement and as the average difference is positive, Hull is worse than England.</td>
<td>Hull trends</td>
</tr>
<tr>
<td>The baseline mortality rate among women in Hull is 14.9 per 100,000 (95% confidence interval: 11.1 to 19.6 per 100,000). The latest mortality rate among women in Hull is 10.1 per 100,000 (95% confidence interval: 7.0 to 14.1 per 100,000).</td>
<td>National inequalities gap trends</td>
</tr>
<tr>
<td>Hull ranking against comparator authorities and national comparator (tartan rug colour)</td>
<td></td>
</tr>
<tr>
<td>Comparator ranking: 4th out of 21 (Medium)</td>
<td>National inequalities gap narrowed</td>
</tr>
<tr>
<td>Local inequalities gap</td>
<td>Hull trends: improved National inequalities gap improved</td>
</tr>
<tr>
<td>Latest ward data</td>
<td></td>
</tr>
<tr>
<td>The local inequalities gap (most minus least deprived fifth) has improved from 6.8 per 100,000 in 2004-06 to 4.5 per 100,000 in 2013-15.</td>
<td>Numbers too small to present data at ward level</td>
</tr>
</tbody>
</table>

4 PUBLIC HEALTH OUTCOMES FRAMEWORK

Further information about the Public Health Outcomes Framework (PHOF) which was published in January 2012 (Department of Health 2012; Department of Health 2012) is given within section 6.7.3 on page 45.

4.1 3.05 – Tuberculosis

One of the PHOF indicators relates to the successful treatment of tuberculosis. This indicator is divided into two sub-indicators, one relating to incidence, one relating to completion of treatment.

4.1.1 3.05i – Treatment

Further information is given in Figure 2 in section 3.1.2.1.1 on page 17.

4.1.2 3.05ii – Incidence

Further information is given in Figure 1 in section 3.1.1.1 on page 15.

4.2 4.08 – Mortality from Communicable Diseases

One of the PHOF indicators relates to mortality from communicable diseases. This includes additional ‘inequalities’ indicators as the information is additionally provided for males and females.

Further information is given in section 3.2.1.1 in Figure 3 on page 21 for males and females combined; in Figure 4 on page 22 for males; in Figure 5 on page 23 for females.
5 REFERENCES


Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/


APPENDIX

6.1 Data Sources

The data sources for each table and figure included within this report are listed in section 0 on page 61.

Local and national data is available from the NHS Digital Information Portal (https://indicators.hscic.gov.uk/webview/) which was previously the NHS Information Centre Indicator Portal and prior to that the Compendium (of Clinical and Health Indicators). The information provided is quite varied, such as resident population estimates, information from the Quality and Outcomes Framework (GP disease and quality of care registers), age-specific and indirectly and directly standardised mortality rates for the main causes of death, cancer incidence, screening uptake rates, number of births, fertility rates, hospital episode statistics, standardised admission or procedural rates for a limited number of diseases or procedures, etc. The NHS Digital Indicator Portal provides information for different geographical areas (national – England, regional, and at local authority and/or CCG level). Some information, particularly mortality rates, is usually provided for males and females separately and combined, and for different age groups. The standardised mortality rates are generally provided for all ages and for those aged under 75 years, with (indirectly) standardised mortality ratios (SMRs) standardised to the English population and the directly standardised mortality rates standardised to the 2013 European Standard Population. This report generally uses the mortality rates from the NHS Digital Indicator Portal when presenting information for Hull overall, because these are the nationally recognised figures and it is also useful to have the equivalent comparison information for England, the local region and comparator areas. It is possible to also produce locally estimated figures. Occasionally, these figures differ very slightly from the nationally produced figures. A number of other datasets and reports are available from the NHS Digital (http://content.digital.nhs.uk/home).

For indicators within the Public Health Outcomes Framework (PHOF), England and the local authority level data can be downloaded at www.phoutcomes.info. The Excel data file also contains a “meta data” worksheet which contains information about the definition of the indicator and the data sources. In some indicators, reference is made to nationally available data which is available at geographical areas smaller than local authorities. For other indicators, it is possible to calculate the indicator at different geographical area using local data (e.g. using hospital records or mortality data).

A number of other datasets and reports are available from the Information Centre (www.ic.nhs.uk), including vaccination data (Information Centre for Health and Social Care 2011) and Stop Smoking Service data (Information Centre for Health and Social Care 2010).

Information relating to the Index of Multiple Deprivation 2015 was downloaded from the Communities and Local Government website (Communities and Local Government 2015). ACORN and Health ACORN classifications at postcode and output area level were purchased from CACI (www.caci.co.uk/insite). Customer profile types (housing types) were obtained from Hull City Council who derived the profiles.

The prevalence from the Quality and Outcomes Framework (QOF) GP disease registers (see section 6.5 on page 33 for more information) have been taken from Excel files downloaded from the Information Centre (Information Centre for Health and Social Care 2010).

The GP registration file was available on the Primary Care Information System (PCIS), previously known as Open Exeter (Connecting for Health, 2009). This file included individual level data on all people registered with GPs within the Hull and East Riding of Yorkshire PCTs (plus a few practices outwith this area). The file included gender, date of birth, GP information and the postcode of the residence, and was merged with the NHS postcode lookup file so that other geographical information was available (e.g. lower layer super output areas). From this file, an estimate of the resident population could be derived for subpopulations of Hull, such as the number of residents based on ward or deprivation scores (derived from the Index of Multiple Deprivation 2015 score assigned to the lower layer super output area (LLSOA) geography which includes the residents’ postcodes, see Hull JSNA Toolkit: Deprivation and Associated Measures and section 2.4 on page 9 for more information about deprivation scores). However, since 2013, individual-level population data has not been available. Aggregated data is still available for each primary care practice, and has been used in some local analyses in particular analyses involving the registered or patient population of Hull such as the analysis of the QOF GP disease registers. For local analyses which require an estimate of the resident population, figures from the Office for National Statistics have been used who produce estimates at ward and LLSOA level as well as for Hull overall. Their estimates are produced for each gender separately and by single year of age. Breast and cervical cancer screening uptake rates are also available from PCIS at practice level.

The Public Health Mortality Files (PHMF) and the Public Health Birth Files (PHBF) are both available to PCTs and more recently Public Health analysts at the local authority from the Office for National Statistics (most recently via the Primary Care Mortality Database). These files contain individual records for all deaths and births respectively in Hull. The age, gender and postcode of each individual are included in the file. The PHMF includes the date of death, underlying cause of death and place of death. The PHMF has been used for analyses involving the calculation of the number of deaths from specific causes as well as the calculation of standardised rates when mortality

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2 For all primary care practices in England, the number of registered patients by gender and single year of age is available, as well as the total number of registered patients living in each LLSOA.
information has been presented for wards and other local geographical areas, or by deprivation quintiles. For these analyses, resident population estimates were derived from the GP registration file mentioned above (Connecting for Health, 2009). In some cases, the estimate for Hull has been presented, but this will not be the same as the figure produced in the NHS Information Centre Indicator Portal due to the differing population estimates. In these circumstances, the figure from the NHS Information Centre Indicator Portal should be used in preference to any locally derived figures. Using the resident population estimate from the GP registration file tends to produce a slightly higher life expectancy estimate and a slightly lower directly standardised mortality rate compared to the NHS Information Centre Indicator Portal, because the local population estimate (from the GP file) is slightly higher than ONS’s estimate.

Patient level data for daycase and inpatient admissions was obtained from local Hospital Episode Statistics (Office for National Statistics 2009; Information Centre for Health and Social Care 2014). Prior to April 2013, the HES dataset was provided by colleagues in the Performance team of NHS Hull. The file included patient’s gender, date of birth, dates of admission and discharge, primary and secondary causes of admission and information on any surgical procedures undertaken as well as the type of admission (daycase, elective or emergency). For more information about Hospital Episode Statistics data, see section 6.4 on page 32.

Projected population estimates were obtained from the Office for National Statistics (ONS) from www.statistics.gov.uk.

Local information on the prevalence of lifestyle and behavioural risk factors and measures of social capital was obtained from local surveys (see section 6.3 on page 30). National prevalence information was obtained from the General Lifestyle Survey (previously General Household Survey) (Economic and Social Data Service 2008), the Health Survey for England (Health Survey for England 2008) or Integrated Household Survey (Office for National Statistics 2013). Alternatively, for indicators within the Public Health Outcomes Framework, the data from the PHOF data tool was used (Public Health England 2015) or data from sources quotes from within the “metadata” worksheet within Excel data file downloaded from the PHOF data tool website.

Population projections relating to older people were obtained from the Projecting Older People Population Information System (POPPI) website (see www.poppi.org.uk).

Social care information was obtained from Projecting Adult Needs and Service Information (PANSI) (Oxford Brookes University and Institute of Public Care 2012).

Yorkshire & the Humber Public Health Observatory Programme Budgeting and Marginal Analysis toolkit was available from www.yhpho.org.uk.
6.2 Synthetic or Modelled Estimates

Synthetic or modelled estimates have been generated nationally, particularly in relation to estimating the prevalence of behavioural and lifestyle risk factors at local authority level. They are not based on ‘real’ data, but the estimates have been generated from a statistical model. There are a number of reasons why they can be misleading such as the poor quality or narrow focus of the original research, statistical problems with the model such as ‘over-fitting’ a model or lack of testing of the model, there are often problems with generalisability of the model, and there is often lack of transparency so it is not possible to assess the quality of the underlying research or the model or know when the model might be updated. Furthermore, just because the factors included in the model change (e.g. age distribution or number of benefit claimants), it does not necessarily mean that this will have a direct influence on the value obtained when the model is updated. The synthetic estimates that have been generated to estimate the smoking prevalence in Hull are misleading.

Further more detailed discussion of the problems with synthetic estimates is available in the JSNA Toolkit: Glossary report. A further detailed document on this specific topic available at www.hullcc.gov.uk/pls/hullpublichealth/.

6.3 Local Surveys

In order to have an impact on reducing inequity in health and preventing disease rather than just treating disease, it is necessary to influence people’s attitudes and behaviours towards health, and in order to accomplish this it is necessary to have knowledge about health-related attitudes and behaviours and people’s perceptions towards their health, as well as the prevalence of risk factors, such as smoking, and prevalence of diseases and medical conditions.

National data are available for some health and lifestyle issues from nationally conducted surveys, but since this covers the whole of England, historically relatively few people within the local area have participate in the survey but more recently the numbers within each local authority are much larger. Information from these national surveys is useful as local results can be compared with national results (usually for England), e.g. prevalence of smoking, prevalence of alcohol consumption or general health status. However, in many cases different questions and response categories, and differences in the survey designs, mean that it is not straightforward to compare the results directly.
A number of local quantitative and qualitative surveys have been conducted as follows:

- **Adult Health and Lifestyle Surveys**
  - 2003
  - 2007
  - 2009
  - 2011-12
  - 2014
- **Adult Black and Minority Ethnic Health and Lifestyle Surveys**
  - 2007
  - 2012
- **Young People Health and Lifestyle Surveys**
  - 2002
  - 2008-09
  - 2012
  - 2016
- **Veterans’ Health and Lifestyle Survey 2009**
- **Social Capital Surveys**
  - 2004
  - 2009
  - (2007, 2011-12 and 2014 Adult Health and Lifestyle Surveys also contained some questions on social capital)
- **Qualitative and Social Marketing Research**
  - Attitudes to Health Focus Groups 2007
  - Reflector Groups Following 2007 Adult Health and Lifestyle Survey
  - Reflector Groups Following 2008-09 Young People Health and Lifestyle Survey
  - Reflector Groups Following 2011-12 Adult Health and Lifestyle Survey
  - Reflector Groups Following 2012 Young People Health and Lifestyle Survey

Further information about each of these local surveys and all the survey reports can be found at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/)

Further (less detailed) information about each survey is also given in the Hull JSNA Toolkit: Summaries and Information, and some of the other Hull JSNA Toolkit reports where local survey data is presented, for example, those reports reporting health status or the prevalence of risk factors.
Some other quantitative and qualitative surveys, and patient and public involvement projects have also been conducted by colleagues in NHS Hull as follows:

- **Other Surveys**
  - 5-A-DAY Survey 2004
  - Community Groups Physical Activity Survey 2006-09 (see Hull JSNA Toolkit: Physical Activity for more information)

- **Patient and Public Involvement Projects**
  - Membership
  - Listening Exercise “We’re All Ears”

Further information about these other surveys and patient and public involvement projects are given within the Hull JSNA Toolkit Release 4 report.

A number of other research projects have examined attitudes towards risk factors and diseases for the purposes of informing local social marketing projects, and these are mentioned within the specific Hull JSNA Toolkit documents, e.g. Chronic Obstructive Pulmonary Disease, Breastfeeding.

### 6.4 Hospital Episode Statistics

Hospital Episode Statistics (HES) refers to the data generated during a stay in hospital. Inpatient admission rates provide useful information about the general level of illness and the use of hospital services within geographical areas. Patients admitted to a bed for elective surgery, but discharged the same day are classed as daycases, and these are included within inpatients in this document, unless otherwise stated. However, it is very important to note that admission rates depend on how willing people are to make use of medical services, the location and accessibility of services, as well as differences in referral patterns and practices within primary and secondary care. These factors may differ between geographical areas, and may explain different levels of hospital activity rather than differences in the prevalence of disease. For example, in general, people who live in more deprived areas are less likely to visit their GP than people with similar levels of symptoms who live in more affluent areas. Referral rates can vary dramatically among different GPs which can influence admission rates. Therefore, findings should be interpreted cautiously with regard to assessing the general level of illness. Nevertheless, analysis of inpatient admission rates will give an indication of the usage of hospital services by patients or residents of different geographical areas.

When a patient is admitted to hospital a “clinician episode” is generated. If the patient is transferred to the care of another clinician during their hospital stay, another clinician episode is generated. Thus, there could be one or many clinician episodes during a patient’s hospital stay. It is not necessarily the case that the primary and secondary diagnoses codes remain the same. A patient could be admitted for cancer treatment with this as the primary diagnosis, but they may develop respiratory problems during their stay and be transferred under the care of another clinician (generating another
Clinician episode and their primary diagnosis may change. Therefore, when examining hospital episode statistics with a specific primary or secondary diagnosis, or assessing the number of procedures or operations that have occurred, different results will be obtained depending on which clinician episode is examined. If all clinician episodes are examined then this will mean that all relevant diagnoses or procedures are included, but reporting on the number of clinician episodes is not as useful as reporting on the number of hospital stays/admissions or the number of patients.

The majority of admissions generate a single clinician episode, but a small number of admission can generate a number of clinician episodes. There were 266,244 clinician episodes for Hull residents over the three year period 2008/2009 to 2010/2011, and 224,590 (84%) were first clinician episodes, 29,886 (11%) were second clinician episodes, and 7,489 (2.8%) were third clinician episodes. The maximum number of clinician episodes during one patient’s hospital stay was 20.

These 266,244 clinician episodes were the result of 225,169 hospital admissions for Hull residents over the three year period, and a total of 98,221 patients were admitted to hospital during the three year period. Therefore, these patients were admitted on average 2.3 times over the three year period.

For specific disease the number of admissions and the number of patients admitted over the three year period could differ substantially. Therefore, when examining the data at ward or practice level, it is possible that one or two patients could inflate the numbers substantially. However, it was thought best to present the data in terms of the total number of admissions over a period of time rather than the total number of patients admitted, as admissions will reflect service usage. A small number of tables present diagnoses out of all clinician episodes.

6.5 **Quality and Outcomes Framework**

As part of the General Medical Services contract implemented in April 2004, the Quality Outcomes and Framework (QOF) was set out as a means for practices to measure achievement against a set of clinical and other indicators that reflected the quality of care provided to their patients. As part of QOF, practices obtained funds for producing and maintaining disease registers for specific diseases. The data from these registers have been used to measure diagnosed prevalence of disease within each of the Hull JSNA Toolkit disease-specific reports. These prevalence estimates are not adjusted in any way for the patient population, and practices with a relatively high percentage of elderly patients or patients living in the most deprived areas will tend to have a higher prevalence of disease. Other factors which can influence the practice prevalence rates and further information about QOF are given within the JSNA Toolkit: Glossary report.
6.6  General Practice Groupings

6.6.1  Background

The general practices in Hull differ with regard to their registered population in terms of deprivation and age of patients (and other characteristics). When assessing different characteristics of a practice in terms of health need, such as the prevalence of diagnosed disease, hospital admission rates or mortality rates, it is generally more useful to consider if a particular practice has a higher or lower prevalence or rate in relation to other similar Hull practices (comparing like-with-like\(^3\)) rather than compare each practice with the Hull average or a national figure.

The Index of Multiple Deprivation 2015 has been used to measure deprivation (see Hull JSNA Toolkit: Deprivation and Associated Measures and section 2.4 on page 9 for more information). Nationally, a deprivation score has been assigned to each of the lower layer super output areas (LLSOAs) within Hull. On average, 1,500 residents live in each of the 166 LLSOAs in Hull. This IMD 2015 score has been determined for each registered patient based on their postcode (and which of the 166 LLSOA they live within). There is an assumption that the average deprivation score for the LLSOA is representative for each registered patient and this might not be the case (the patients registered at a specific practice may be more deprived than the average for their area – see Hull JSNA Toolkit: Deprivation and Associated Measures for more information). The age distribution of all the patients registered with a practice is also known, so it is possible to calculate the average deprivation scores and average ages of the patients for each Hull practice.

6.6.2  Historical Groupings

The primary care groups were originally defined using the IMD 2007 using the population as at April 2010 to calculate the average IMD score and average age of the patients and practices were grouped into eight different groups (in JSNA Toolkit Release 4). However, the local CCG preferred a four peer comparison groups with a small number of practices assigned to the same group for practical reasons, e.g. the practices share the same practice manager\(^4\). In 2013, these four groupings were derived from the average IMD 2010 score and average age of their patients to group practices into four different groups (least deprived, most deprived, middle deprivation group with younger population, middle deprivation group with older population).

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\(^3\) Theoretically it is possible to group practices using more characteristics than deprivation and age, however, as the number of characteristics increase, in practice, it becomes much more difficult to group the practices into similar groups.

\(^4\) The Clinical Commissioning Group (CCG) asked if practices could be grouped into four different groups with certain practices included in the same group as the practice manager was the same, and they did not want to produce different ‘peer group’ reports if their practices were in two or more peer groups.
In November 2015, a new Index of Multiple Deprivation 2015 was published (see Hull JSNA Toolkit: Deprivation and Associated Measures and section 2.4 on page 9 for more information), and the local CCG were forming their own groups of practices for different purposes. Their groups were based on economies of scale, and were based on which practices were currently working together or which practices might work together in the future. Thus their groupings were more geographically based.

Within the JSNA Toolkit reports, the reason for grouping practices was different, so a different set of groupings were produced using the GP registration file for April 2015. The public health deprivation primary care groupings were also calculated for practices that had since closed using the latest available population and deprivation information at the time, which might have been for example, based on the IMD 2007 and population data from the GP registration file as at October 2008.

### 6.6.3 Current Groupings

Since then April 2015 and October 2017, the number of general practices in Hull has drastically decreased from 57 practices to 40 practices with a number of practices working together and ultimately merging into larger practices.

In October 2017, new data was released by NHS Digital which gave the number of patients registered at each practice in England by single year of age (with the final category being 95+ years) for males and females separately and combined, and the number of patients living in each LLSOA who are registered with a specific practice for each practice in England. So it was necessary to update the deprivation groupings given the change in the number of practices in Hull.

In practice, a small number of mergers had taken place or were currently happening, but clinical systems had not yet merged. This meant that there were 45 practices in Hull in the national GP registration file for October 2017 rather than 40 practices. As these were due to be merged fully, and future reporting at practice level was required, the GP registered population estimates for these practices were combined into a single record. This applied to five practices in Hull with practices B81692 (The Quays), Y00955 (Riverside Medical Centre), Y02896 (Story Street Practice and Walk In Centre) having separate records in the national file, but had merged with B81017 (Kingston Medical Group) so were combined into a single record (B81017). Practice Y01200 (The Calvert Practice) had a separate record in the national file, but had merged with B81008 (East Hull Family Practice) so was combined with that practice into a single record (B81008).

As these five practices and others that had recently merged existed during the financial year 2016/17, there were also more than 40 individual practices for the QOF data for 2016/17. The data for practices that had subsequently merged were combined so that the QOF has been presented for 40 practices in Hull.
As data from some practices which had closed were merged with data from other practices to form the groups, it did not make sense to attempt to assign closed practices to the deprivation groups as their data had already been used to define the group for their current practice. There was also a question as to whether the group for a closed practice should be the same as the practice it has since merged with or whether it should be based on its deprivation data just prior to closure. Using either method would have been confusing, so it was decided not to assign deprivation groups to practices which had closed prior to October 2017.

The October 2017 public health deprivation primary care groupings are based on the average IMD 2015 scores and not the average age of the patients. It can be seen that within Figure 6, the average age of the patients does not differ greatly except for practices with an average deprivation score under 30 or so. Thus, to simplify the primary care groupings, it was decided to simply group on deprivation alone. As five groupings have generally been used in other analyses such as those relating to deprivation, it was decided to use five primary care groups.

In total, there were 297,237 patients registered with the 40 practices in Hull. If the practices were combined into five groups with approximately the same number of patients, then ideally there should be as close as possible to 59,447 patients registered to practices within each of the five deprivation groups. The 40 practices were sorted in order of deprivation, and the practice population were summed starting from the least deprived practice. For instance, the sum of the registered populations for the first nine least deprived practices was 53,439 patients and for the first ten least deprived practices the total registered population was 65,712. For each successive more deprived group, there was also a decision whether to use the number smaller or larger than 59,447 and both were used to examine potential groups. Sixteen different combinations of deprivation groupings were examined, and the combination where the total list size of the five groups was the most similar was chosen as the final ordering. This did mean that the differences in the average deprivation score for practices which were in adjacent groups could be very similar. It would have been difficult to group based on ‘different’ deprivation values and obtain similar sized groups in terms total registered population.

The cut-off values for the average IMD score were chosen to be 29, 36.3, 42 and 48.4. This meant that average IMD scores ranged from 17.3 to 28.7 for group A (least deprived group), from 29.5 to 36.3 for group B, from 36.4 to 41.0 for group C, from 42.8 to 48.3 for group D and from 48.4 to 55.5 for group E (most deprived group).

There were nine practices assigned to group A, six to group B, eight to group C, nine to group D and eight to group E.

Table 8 and Figure 7 give the assigned groups for each practice based on the average deprivation score of their registered patients. In the figure, larger ‘dots’ represent practices with larger practice populations.
Figure 8 illustrates the same information as Figure 7 but the different CCG practice groups are also shown together with the average deprivation and scores of the CCG group totals. CCG practice groups are shown with a different border colour.

Table 9 gives the CCG practice groups which relate to practices that are currently working together. The list relates to the current practice structure as at February 2018. Table 10 gives the total list sizes, average age of the registered patients and average IMD 2015 scores for the five CCG practice groups.

A map illustrating the location of general practices in Hull is given in Hull JSNA Toolkit: Geographical Area.
Figure 6: Average deprivation score and average age of registered patients for each general practice as at October 2017
Figure 7: Average deprivation score and average age of registered patients for each general practice as at October 2017 and assignment to peer groups (based on deprivation alone)
Figure 8: Average deprivation score and average age of registered patients for each general practice as at October 2017 and assignment to peer groups (based on deprivation alone) with average age and deprivation scores for each CCG practice shown (CCG practice groupings illustrated by colour of border of diamond)
Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/

Table 8: Average deprivation score and average age of registered patients for each general practice as at October 2017 and assignment to peer groups (based on deprivation alone)

<table>
<thead>
<tr>
<th>Practice</th>
<th>List size (Oct 17)</th>
<th>Average age</th>
<th>Average IMD score</th>
<th>Group</th>
<th>N</th>
<th>CCG grouping (as at February 2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B81021: Faith House Surgery</td>
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<td>28.20</td>
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<td>Y02747: Haxby - Kingswood &amp; Orchard Park</td>
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</table>
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<tr>
<th>Practice</th>
<th>List size (Oct 17)</th>
<th>Average age</th>
<th>Average IMD score</th>
<th>Group</th>
<th>N</th>
<th>CCG grouping (as at February 2018)</th>
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</thead>
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### Table 9: CCG practice groupings as at February 2018

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<th>CCG practice grouping (Feb18)</th>
<th>Practice code</th>
<th>Practice name</th>
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<th>Average IMD score</th>
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<td>43.79</td>
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<td>40.11</td>
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<td>Hastings Medical Centre</td>
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<td>46.96</td>
<td>25.85</td>
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<td></td>
<td>B81097</td>
<td>Holderness Health Open Door</td>
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<td>45.32</td>
<td>28.67</td>
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<td></td>
<td>B81104</td>
<td>Dr Nayar (Newland Health Centre)</td>
<td>6,831</td>
<td>26.98</td>
<td>23.82</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>B81635</td>
<td>Dr Jaiveloo’s Practice</td>
<td>3,295</td>
<td>44.84</td>
<td>19.76</td>
<td>A</td>
</tr>
<tr>
<td>CCG practice grouping (Feb18)</td>
<td>Practice code</td>
<td>Practice name</td>
<td>List size (Oct 17)</td>
<td>Average age</td>
<td>Average IMD score</td>
<td>Group</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------</td>
<td>---------------------------------------------------</td>
<td>-------------------</td>
<td>-------------</td>
<td>-------------------</td>
<td>-------</td>
</tr>
<tr>
<td>Modality</td>
<td>B81021</td>
<td>Faith House Surgery</td>
<td>7,585</td>
<td>42.48</td>
<td>28.31</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>B81027</td>
<td>St Andrews Group Practice</td>
<td>9,788</td>
<td>38.64</td>
<td>48.33</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>B81048</td>
<td>The Newland Group</td>
<td>15,047</td>
<td>37.10</td>
<td>31.87</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>B81049</td>
<td>New Hall Surgery</td>
<td>9,637</td>
<td>38.59</td>
<td>33.49</td>
<td>B</td>
</tr>
<tr>
<td></td>
<td>B81053</td>
<td>Diadem Medical Practice</td>
<td>12,095</td>
<td>39.42</td>
<td>42.83</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>B81056</td>
<td>The Springhead Medical Centre</td>
<td>16,853</td>
<td>41.09</td>
<td>17.29</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>B81095</td>
<td>Dr Cook (Field View)</td>
<td>3,637</td>
<td>46.16</td>
<td>27.88</td>
<td>A</td>
</tr>
<tr>
<td>City Health Federation</td>
<td>B81002</td>
<td>Dr Kumar-Choudhary's Practice</td>
<td>3,399</td>
<td>37.05</td>
<td>48.11</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>B81017</td>
<td>City Centre</td>
<td>15,027</td>
<td>35.41</td>
<td>54.15</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>B81074</td>
<td>CHP Ltd - Southcoates</td>
<td>3,052</td>
<td>42.50</td>
<td>38.51</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>B81089</td>
<td>CHP Ltd - Marfleet</td>
<td>3,356</td>
<td>38.66</td>
<td>52.62</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>B81645</td>
<td>East Park</td>
<td>3,713</td>
<td>38.36</td>
<td>36.41</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>B81675</td>
<td>Calvert / Newington</td>
<td>10,953</td>
<td>35.78</td>
<td>39.51</td>
<td>C</td>
</tr>
<tr>
<td>Medicas</td>
<td>B81008</td>
<td>East Hull Family Practice</td>
<td>26,751</td>
<td>38.88</td>
<td>38.88</td>
<td>C</td>
</tr>
<tr>
<td></td>
<td>B81040</td>
<td>Marfleet Group Practice</td>
<td>14,476</td>
<td>37.70</td>
<td>50.26</td>
<td>E</td>
</tr>
</tbody>
</table>
Further information is available at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/)

### Table 10: CCG practice grouping characteristics, October 2017

<table>
<thead>
<tr>
<th>CCG practice grouping (Feb 18)</th>
<th>Number of practices</th>
<th>List size (Oct 17)</th>
<th>Average age of patients</th>
<th>Average IMD score of patients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull GP Collaborative</td>
<td>12</td>
<td>68,807</td>
<td>37.01</td>
<td>42.55</td>
</tr>
<tr>
<td>Hull Health Forward</td>
<td>13</td>
<td>73,061</td>
<td>39.65</td>
<td>36.56</td>
</tr>
<tr>
<td>Modality</td>
<td>7</td>
<td>74,642</td>
<td>39.76</td>
<td>32.17</td>
</tr>
<tr>
<td>City Health Federation</td>
<td>6</td>
<td>39,500</td>
<td>36.76</td>
<td>46.57</td>
</tr>
<tr>
<td>Medicas</td>
<td>2</td>
<td>41,227</td>
<td>38.47</td>
<td>42.88</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>40</strong></td>
<td><strong>297,237</strong></td>
<td><strong>38.52</strong></td>
<td><strong>40.75</strong></td>
</tr>
</tbody>
</table>

### 6.7 Outcome Measures, Performance Targets and Progress Towards Targets

#### 6.7.1 Historical Indicators, Outcome Measures and Targets

Further information about historical outcome measures and targets, and progress towards historical targets is given in the JSNA Toolkit Release 4.

#### 6.7.2 Problems Associated With Some Outcome Measures

Further information about some of the problems associated with specific measures, such as using life expectancy and the all age all cause mortality rate as outcome measures are given in Hull JSNA Toolkit: Mortality report.

#### 6.7.3 Public Health Outcomes Framework

##### 6.7.3.1 Introduction

The current key indicators for public health are those specified in the Public Health Outcomes Framework (PHOF) which was published in January 2012 (Department of Health 2012; Department of Health 2012).

From the Introduction to the Public Health Outcomes Framework 2013 to 2016 document produced in January 2012⁵, “The responsibility to improve and protect our health lies with us all – government, local communities and with ourselves as

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individuals. There are many factors that influence public health over the course of a lifetime. They all need to be understood and acted upon. Integrating public health into local government will allow that to happen – services will be planned and delivered in the context of the broader social determinants of health, like poverty, education, housing, employment, crime and pollution. The NHS, social care, the voluntary sector and communities will all work together to make this happen. The new Public Health Outcomes Framework (PHOF) that has been published is in three parts. Part 1 introduces the overarching vision for public health, the outcomes we want to achieve and the indicators that will help us understand how well we are improving and protecting health. Part 2 specifies all the technical details we can currently supply for each public health indicator and indicates where we will conduct further work to fully specify all indicators. Part 3 consists of the impact assessment and equalities impact assessment."

The vision for the PHOF is “to improve and protect the nation’s health and wellbeing, and improve the health of the poorest fastest”. There are two overarching outcomes to “increase healthy life expectancy and to reduce differences in life expectancy and healthy life expectancy between communities.” There are also four domains:

- **Domain 1 – Improving the wider determinants of health**
  - Objective: improvements against wider factors that affect health and wellbeing, and health inequalities.

- **Domain 2 – Health improvement**
  - Objective: people are helped to life healthier lifestyles, make healthy choices and reduce health inequalities

- **Domain 3 – Health protection**
  - Objective: the population’s health is protected from major incidents and other threats, while reducing health inequalities

- **Domain 4 – Healthcare public health and preventing premature mortality**
  - Objective: reduced numbers of people living with preventable ill health and people dying prematurely, while reducing the gap between communities."

A small number of the PHOF outcomes are still under development, but where data is available it has been published nationally on www.phoutcomes.info. A number of the indicators also have sub-indicators, and data has been published males and females separately in addition to main indicator for some of the indicators. There are approximately 200 indicators or sub-indicators. A list of the main indicators is available in Table 11 in section 6.7.3.3. Local analysis of the PHOF indicators is available at www.hullcc.gov.uk/pls/hullpublichealth/ as well as in Hull’s JSNA Toolkit documents specified in Table 11.

6.7.3.2 **National Profile for Hull and “Tartan Rug”**

Nationally, profiles for each local authority have been produced and can be downloaded from www.phoutcomes.info. These are referred to as ‘tartan rugs’ as each indicator is colour coded for the local authority depending on whether its value is statistically
significantly higher or lower than England’s value. Pale blue is used where the local authority’s value is significantly higher than England’s, amber where there is no significant difference, and dark blue where the local authority’s value is significantly lower than England’s.

6.7.3.3 Local Analysis

A local analysis of indicators within the PHOF has been undertaken. The following documents have been produced:

- Each indicator summarised on single row on a single table
- Each indicator summarised on single page of a document
- Performance card summarising key local PHOF outcome measures

Examples of the three reports are given in Figure 9, Figure 10 and Figure 11.

There are three different local ‘summaries’ available for the PHOF indicators. One document summaries the information in the form of a table with one indicator or sub-indicator per line within a table. One document summarises the information for each indicator on a single page. The final ‘performance card’ document summaries a small number of indicators for PHOF indicators within the Hull – Healthier Together: Health and Wellbeing Board Strategy 2014-2020 (Hull City Council and NHS Hull Clinical Commissioning Group 2014) for three separate outcome groups: (i) the best start in life; (ii) healthier, longer, happy lives, and (iii) safe and independent lives.

For the first document, the table contains the following information on each indicator: indicator number; name of the indicator; latest period; preferred direction of the indicator (i.e. whether an increase or decrease in the indicator denotes improvement); latest values of the indicator for both Hull and England; Hull’s ranking out of 12 comparators; ‘tartan rug colour’; and whether the trends, national inequalities gap and local inequalities gap have improved over time or not.

The ‘tartan rug’ colour is given indicating whether the value of the indicator for Hull is statistically significantly higher (pale blue), statistically significantly lower (dark blue) or similar (amber) compared to England. A significant lower indicator might denote a worse situation for some indicators whereas for other indicators a significantly higher indicator might denote a worse situation. Therefore, for the local ‘tartan rug’, whether the value of Hull’s indicator is ‘worse’, ‘identical’ or ‘better’ than England has also been noted. Although the ‘tartan rug’ colour may differ for one or two indicators within this report from those published nationally as within this document they are based on overlapping or non-overlapping 95% confidence intervals, and the ‘tartan rug’ colours might be determined differently for those published nationally.

Another document summarises each indicator on a single page. The summary text information is similar to that within the summary table, but five charts are also included on the ‘one page per indicator’ report (depending on available data). The five charts
Further information is available at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/).

are: (1) trends in the total number of people affected / who have the indicator in Hull compared to the numbers that would have the indicator if Hull had the same prevalence as England; (2) the latest figures for Hull and its comparator geographical areas; (2) trends over time for Hull; (3) trends over time for Hull and England together with projected future trends assuming linear trends continue; (4) differences among the five local deprivation quintiles (based on the Index of Multiple Deprivation 2010) over time; and (5) latest data for the 23 wards in Hull.

Within these documents, the comparator areas used for Hull are Coventry, Derby City, Leicester City, Middlesbrough, North East Lincolnshire, Plymouth, Salford, Sandwell, Stoke-on-Trent, Sunderland and Wolverhampton.

The scorecard contains a single figure showing the trends over time, the baseline and latest values of the indicator for Hull and England, the ‘tartan’ rug colour and whether the trends and national and local inequalities gaps have improved over time or not.

These documents are all available at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/).

**Figure 9: Example of local PHOF analysis – summary table**

<table>
<thead>
<tr>
<th>Indicator (baseline period / latest period / units of measurement)</th>
<th>Hull baseline value</th>
<th>Hull latest value</th>
<th>England latest value</th>
<th>Comparator ranking</th>
<th>Tartan rug colour</th>
<th>Not always baseline to latest (could be longer period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 Male healthy life expectancy (2006-11 / 2014-16 / years)</td>
<td>57.9</td>
<td>56.5</td>
<td>53.3</td>
<td>12th out of 12 (Poor)</td>
<td>worse</td>
<td>worsened widened insufficient data</td>
</tr>
<tr>
<td>0.1 Female healthy life expectancy (2006-11 / 2014-16 / years)</td>
<td>56.8</td>
<td>56.0</td>
<td>53.9</td>
<td>12th out of 12 (Poor)</td>
<td>worse</td>
<td>worsened widened insufficient data</td>
</tr>
<tr>
<td>0.1 Male life expectancy at birth (2006-11 / 2014-16 / years)</td>
<td>75.9</td>
<td>76.5</td>
<td>79.5</td>
<td>11th out of 12 (Poor)</td>
<td>worse</td>
<td>improved widened narrowed</td>
</tr>
<tr>
<td>0.1 Female life expectancy at birth (2006-11 / 2014-16 / years)</td>
<td>80.2</td>
<td>80.1</td>
<td>83.1</td>
<td>11th out of 12 (Poor)</td>
<td>worse</td>
<td>improved widened widened</td>
</tr>
<tr>
<td>0.2e Male life expectancy at age 65 (2008-12 / 2014-16 / years)</td>
<td>10.4</td>
<td>16.0</td>
<td>18.8</td>
<td>12th out of 12 (Poor)</td>
<td>worse</td>
<td>improved widened widened</td>
</tr>
<tr>
<td>0.2e Female life expectancy at age 65 (2008-12 / 2014-16 / years)</td>
<td>19.3</td>
<td>18.9</td>
<td>21.1</td>
<td>11th out of 12 (Poor)</td>
<td>worse</td>
<td>improved widened widened</td>
</tr>
<tr>
<td>0.2 Male slope index of inequality in male life expectancy at birth (2010-12 / 2014-16 / years)</td>
<td>11.7</td>
<td>11.2</td>
<td>9.3</td>
<td>9th out of 12 (Poor)</td>
<td>worse</td>
<td>improved narrowed insufficient data</td>
</tr>
<tr>
<td>0.2 Female slope index of inequality in female life expectancy at birth (2010-12 / 2014-16 / years)</td>
<td>8.2</td>
<td>9.5</td>
<td>7.3</td>
<td>10th out of 12 (Poor)</td>
<td>worse</td>
<td>worsened widened insufficient data</td>
</tr>
<tr>
<td>0.2 Male slope index of inequality in male life expectancy at birth (2010-12 / 2014-16 / years)</td>
<td>11.7</td>
<td>11.2</td>
<td>9.3</td>
<td>9th out of 12 (Poor)</td>
<td>worse</td>
<td>improved narrowed insufficient data</td>
</tr>
</tbody>
</table>
Figure 10: Example of local PHOF analysis – one page per indicator

1.0.1 Children in low income families (all dependent children under 20)

The percentage of dependent children aged under 20 in relative poverty (living in households where income is less than 60% of median household income before housing costs) data is snapshot as at 31st August of that year.

<table>
<thead>
<tr>
<th>Absolute numbers affected in Hull</th>
<th>Hull relative to England, the local region and comparator authorities</th>
<th>National inequalities gap and trend projections</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Comparator ranking: 19th out of 42 (Pover)</td>
<td>National inequalities gap: The national inequalities gap (Hull minus England) has widened from 9.0 percentage points in 2006 to 11.1 percentage points in 2014</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Local inequality gap</th>
<th>Latent word data</th>
<th>Summary statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hull's baseline value: The baseline percentage of all dependent children in relative poverty in Hull is 55.6% (95% confidence interval: 54.9% to 56.3%)</td>
<td>Hull's latest value: The latest percentage of all dependent children in relative poverty in Hull is 55.6% (95% confidence interval: 54.9% to 56.3%)</td>
<td>Hull trend: Improved</td>
</tr>
</tbody>
</table>

The local inequalities gap (most versus least deprived third) has narrowed from 40.0 percentage points in 2000 to 32.5 percentage points in 2013.

The percentage of all dependent children in relative poverty ranges from 34.6% in Kings Park & 32.6% in Orchard Park & Greenwood, a difference of 1% percentage points.


Torture colour key (compared to England): **Statistically Significant**, **Significantly Higher**.
Figure 11: Example of local PHOF analysis – performance ‘scorecard’

Information relating to each specific outcome measure has also been included within the JSNA Toolkit documents. *Table 11* details which JSNA Toolkit documents gives more information for each of the PHOF indicators.
Further information is available at [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/)

**Table 11: List of which JSNA Toolkit documents include information on each of the Public Health Outcomes Framework indicators**

<table>
<thead>
<tr>
<th>Domain and indicator</th>
<th>Hull JSNA Toolkit:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicators corresponding to overarching outcomes</strong></td>
<td></td>
</tr>
<tr>
<td>0.1 Healthy life expectancy</td>
<td>Life Expectancy</td>
</tr>
<tr>
<td>0.2 Differences in life expectancy and healthy life expectancy between communities</td>
<td>Life Expectancy</td>
</tr>
<tr>
<td><strong>Domain 1: Improving the wider determinants of health</strong></td>
<td></td>
</tr>
<tr>
<td>1.01 Children in poverty</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.02 School readiness</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.03 Pupil absence</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.04 First-time entrants to the youth justice system</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.05 16-18 year olds not in education, employment or training (NEETS)</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.06 People with mental illness or disability in settled accommodation</td>
<td>Mental Health</td>
</tr>
<tr>
<td>1.07 People in prison who have a mental illness or significant mental illness*</td>
<td>Mental Health</td>
</tr>
<tr>
<td>1.08 Employment for those with a long-term health condition including those with a learning difficulty / disability or mental illness</td>
<td>Mental Health</td>
</tr>
<tr>
<td>1.09 Sickness absence rate</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.10 Killed or seriously injured casualties on England’s roads</td>
<td>Accidents</td>
</tr>
<tr>
<td>1.11 Domestic abuse</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.12 Violent crime (including sexual violence)</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.13 Re-offending</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.14 The percentage of the population affected by noise</td>
<td>Housing, Environment and Social Care</td>
</tr>
<tr>
<td>1.15 Statutory homelessness</td>
<td>Housing, Environment and Social Care</td>
</tr>
<tr>
<td>1.16 Utilisation of green spaces for exercise / health reasons</td>
<td>Housing, Environment and Social Care</td>
</tr>
<tr>
<td>1.17 Fuel poverty</td>
<td>Deprivation and Associated Measures</td>
</tr>
<tr>
<td>1.18 Social isolation among adult social care users and their carers</td>
<td>Housing, Environment and Social Care</td>
</tr>
<tr>
<td>1.19 Older people’s perception of community safety**</td>
<td>Mental Health</td>
</tr>
<tr>
<td><strong>Domain 2. Health improvement</strong></td>
<td></td>
</tr>
<tr>
<td>2.01 Low birth weight of term babies</td>
<td>Children and Young People</td>
</tr>
<tr>
<td>2.02 Breastfeeding</td>
<td>Children and Young People</td>
</tr>
<tr>
<td>Domain and indicator</td>
<td>Hull JSNA Toolkit:</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>2.03 Smoking status at time of delivery</td>
<td>Smoking</td>
</tr>
<tr>
<td>2.04 Under 18 conceptions</td>
<td>Sexual Health</td>
</tr>
<tr>
<td>2.05 Child development at 2-2.5 years</td>
<td>Children and Young People</td>
</tr>
<tr>
<td>2.06 Excess weight in 4-5 and 10-11 year olds</td>
<td>Overweight and Obesity</td>
</tr>
<tr>
<td>2.07 Hospital admissions caused by unintentional and deliberate injuries in children</td>
<td>Accidents</td>
</tr>
<tr>
<td>2.08 Emotional wellbeing of looked-after children</td>
<td>Children and Young People</td>
</tr>
<tr>
<td>2.09 Smoking prevalence – 15 year olds</td>
<td>Smoking</td>
</tr>
<tr>
<td>2.10 Hospital admissions as a result of self-harm</td>
<td>Mental Health</td>
</tr>
<tr>
<td>2.11 Diet</td>
<td>Diet</td>
</tr>
<tr>
<td>2.12 Excess weight in adults</td>
<td>Overweight and Obesity</td>
</tr>
<tr>
<td>2.13 Proportion of physically active and inactive adults</td>
<td>Physical Activity</td>
</tr>
<tr>
<td>2.14 Smoking prevalence – adult (over 18s)</td>
<td>Smoking</td>
</tr>
<tr>
<td>2.15 Successful completion of drug treatment</td>
<td>Drug and Substance Abuse</td>
</tr>
<tr>
<td>2.16 People entering prison with substance dependence issues who are previously not known to community treatment</td>
<td>Drug and Substance Abuse</td>
</tr>
<tr>
<td>2.17 Recorded diabetes</td>
<td>Diabetes</td>
</tr>
<tr>
<td>2.18 Alcohol-related admissions to hospital</td>
<td>Alcohol Consumption</td>
</tr>
<tr>
<td>2.19 Cancer diagnosed at stage 1 and 2</td>
<td>Cancer</td>
</tr>
<tr>
<td>2.20 Cancer screening coverage</td>
<td>Screening</td>
</tr>
<tr>
<td>2.21 Access to non-cancer screening programmes</td>
<td>Screening</td>
</tr>
<tr>
<td>2.22 Take up of the NHS Health Check Programme – by those eligible</td>
<td>Screening</td>
</tr>
<tr>
<td>2.23 Self-reported wellbeing</td>
<td>Mental Health</td>
</tr>
<tr>
<td>2.24 Falls and injuries in the over 65s</td>
<td>Older People</td>
</tr>
</tbody>
</table>

Domain 3. Health protection

| 3.01 Air pollution | Housing, Environment and Social Care |
| 3.02 Chlamydia diagnoses (15-24 year olds) | Sexual Health |
| 3.03 Population vaccination coverage | Vaccinations and Immunisations |
| 3.04 People presenting with HIV at a late state of infection | Sexual Health |
| 3.05 Treatment completion for tuberculosis | Infectious Diseases |
| 3.06 Public sector organisations with board-approved sustainable development management plans | Housing, Environment and Social Care |

Domain 4. Healthcare public health and preventing premature mortality

| 4.01 Infant mortality | Mortality |
| 4.02 Tooth decay in children aged 5 years | Dental Health |
| 4.03 Mortality from causes considered preventable | Mortality |
| 4.04 Mortality from all cardiovascular disease | All Circulatory Disease |
| 4.05 Mortality from cancer | All Cancers |
| 4.06 Mortality from liver disease | Digestive Diseases |
| 4.07 Mortality from respiratory disease | All Respiratory Disease |
| 4.08 Mortality from communicable diseases | Infectious Disease |
| 4.09 Excess under 75 mortality in adults with serious mental health | Mental Health |
| 4.10 Suicide | Mental Health |
| 4.11 Emergency re-admissions within 30 days of discharge from hospital | Inpatient Hospital Admissions |
**Domain and indicator** | **Hull JSNA Toolkit:**
--- | ---
4.12 Preventable sight loss | General Health, Disabilities, Caring and Use of Services
4.13 Health-related quality of life for older people | Older People
4.14 Hip fractures in over 65s | Older People
4.15 Excess winter deaths | Mortality
4.16 Dementia and its impacts | Mental Health

*No data published at local authority level.*

**Indicator removed from PHOF, however, included in local analysis template as one of the sub-indicators is an indicator within the local Health and Wellbeing Board Strategy.**

### 6.8 Definitions and Classifications

#### 6.8.1 Disease Definitions Using International Classification of Diseases

The International Classification of Disease (ICD) is the international standard method used to diagnose and define disease status. The version currently being used is version 10 (since 2001). The disease definitions are also given in relation to the indicators within the Public Health Outcomes Framework (PHOF), see section 6.7.3 on page 45 for more information. *Table 12* gives the ICD codes for the different diseases used in this document. Prior to 2001, ICD version 9 was used, but versions 9 and 10 are not easily cross-linked for all diseases and medical conditions. Therefore, for these tables and figures, there have been some adjustments so that trends over time are more comparable so the information being presented is comparing like-with-like. These adjustments have been made by the Office for National Statistics and the details of such adjustments are not given within this report.
### Table 12: International Classification of Diseases: classifications used

<table>
<thead>
<tr>
<th>Disease or medical condition</th>
<th>ICD 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths considered preventable (PHOF 4.03)</td>
<td>A15-19, B17.1, B18.2, B20-24, B90, C00-16, C18-22, C33-34, C43, C45, C50, C53, E10-14, F10-16, F18-19, G31.2, G62.1, I20-26, I42.6, I71, I80.1-80.3, I80.9, I82.9, J09-11, J40-44, K29.2, K70, K73-74 (excl. K74.3-74.5), K86.0, U50.9, V01-Y34, Y60-69, Y83-84 for under 75s except E10-14 (aged under 50 only) and B20-24, U50.9, V01-Y34, Y60-69, Y83-84 (all ages).</td>
</tr>
<tr>
<td>Alcohol-related (locally defined)</td>
<td>See Hull JSNA Toolkit: Alcohol Consumption</td>
</tr>
<tr>
<td>Alcohol-related (Jones, Bellis et al. 2008)</td>
<td>Cancer (PHOF 4.05i) C00 to C97</td>
</tr>
<tr>
<td>Cancer deaths considered preventable (PHOF 4.05ii)</td>
<td>C00-C16, C18-C22, C33-C34, C43, C45, C50, C53 for under 75s</td>
</tr>
<tr>
<td>Bladder cancer</td>
<td>C67</td>
</tr>
<tr>
<td>Brain cancer</td>
<td>C71</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>C50</td>
</tr>
<tr>
<td>Cervical cancer</td>
<td>C53</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>C17 to C21*</td>
</tr>
<tr>
<td>Haematological cancers</td>
<td>C81 to C96</td>
</tr>
<tr>
<td>Kidney cancer</td>
<td>C64</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>C33 to C34**</td>
</tr>
<tr>
<td>Oesophagus cancer</td>
<td>C15</td>
</tr>
<tr>
<td>Ovary</td>
<td>C56</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>C61</td>
</tr>
<tr>
<td>Pancreatic cancer</td>
<td>C25</td>
</tr>
<tr>
<td>Skin cancer</td>
<td>C43 to C44***</td>
</tr>
<tr>
<td>Stomach</td>
<td>C16</td>
</tr>
<tr>
<td>Uterus</td>
<td>C54****</td>
</tr>
<tr>
<td>Cardiovascular disease (PHOF 4.04i)</td>
<td>I00 to I99</td>
</tr>
<tr>
<td>Cardiovascular deaths considered preventable (PHOF 4.04ii)</td>
<td>I20-I26, I42.6, I71, I80.1-I80.3, I80.9, I82.9 for under 75s</td>
</tr>
<tr>
<td>Coronary heart disease</td>
<td>I20 to I25</td>
</tr>
<tr>
<td>Stroke</td>
<td>I60 to I69^</td>
</tr>
<tr>
<td>Communicable disease (PHOF 4.08)</td>
<td>A00-B99, J09-J18 (all ages)</td>
</tr>
<tr>
<td>Dementia</td>
<td>F00 to F03</td>
</tr>
<tr>
<td>Diabetes</td>
<td>E10 to E14</td>
</tr>
<tr>
<td>Fractured neck of the femur (PHOF 1.14)</td>
<td>S72.0, S72.1, S72.2</td>
</tr>
<tr>
<td>Injuries among children – unintentional and deliberate (PHOF 2.07)</td>
<td>S00-T79 and/or V01-Y36</td>
</tr>
<tr>
<td>Injuries due to falls (PHOF 2.24)</td>
<td>Primary diagnosis codes S00-T98 and secondary cause W00-W19</td>
</tr>
<tr>
<td>Injury, poisoning and certain other consequences of external causes</td>
<td>S00-T98</td>
</tr>
<tr>
<td>Liver disease (PHOF 4.06i)</td>
<td>B15-B19, C22, I81, I85, K70-K77, T86.4</td>
</tr>
<tr>
<td>Disease or medical condition</td>
<td>ICD 10</td>
</tr>
<tr>
<td>------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td>Liver disease deaths considered preventable (PHOF 4.06ii)</td>
<td>B17.1, B18.2, C22, K70, K73-K74 (excluding K74.3-K74.5) for under 75s</td>
</tr>
<tr>
<td>Chronic liver disease including cirrhosis</td>
<td>K70, K73 to K74</td>
</tr>
<tr>
<td>Mental/behavioural disorders (drugs)</td>
<td>F10-F19</td>
</tr>
<tr>
<td>Intentional self-harm</td>
<td>X60 to X84</td>
</tr>
<tr>
<td>Respiratory disease (PHOF 4.07i)</td>
<td>J00-J09</td>
</tr>
<tr>
<td>Respiratory disease deaths considered Preventable (PHOF 4.07ii)</td>
<td>J09-J11, J40-J44 for under 75s</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>J40 to J44</td>
</tr>
<tr>
<td>Suicide or event of undetermined intent</td>
<td>X60 to X84 and Y10 to Y34 excl Y33.9</td>
</tr>
<tr>
<td>Suicide (PHOF 4.10)</td>
<td>X60-X84 (all ages), Y10-Y34 (ages 15+ only)</td>
</tr>
<tr>
<td>Violent crime – hospital admissions (PHOF 1.12i)</td>
<td>X85-Y09</td>
</tr>
</tbody>
</table>

*Also defined as C18-C20 if otherwise stated in specific table/figure.  
**Also defined as just C34 if otherwise stated in specific table/figure.  
***Melanoma of the skin only is defined as C43 and is stated in specific table/figure.  
****Also defined as C54 and C55 if otherwise stated in specific table/figure.  
#Although the ICD10 coding for stroke differs in the NHS Information Centre Indicator Portal depending on if mortality or hospital admission data are being analysed.

### 6.9 Statistical and Epidemiological Methods and Terms

Knowledge of these statistical methods is essential for many tables and figures in order to interpret the information correctly.

More detailed information on these topics is also given within the Hull JSNA Toolkit: Glossary document, including other topics not covered here, e.g. variation, incidence and prevalence, health scores and scales, etc.

There is also a statistical presentation on [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/) which covers the following topics (with detailed ‘notes’ pages):

- What is statistics?  
- Variability  
- Confidence intervals  
- Problems of small numbers  
- Standardisation  
- Causality  
- Questions to ask (when examining/interpreting data/statistics)

This document also gives examples of variability in relation to numbers surveyed and the implication on the width of confidence intervals.
Another document on [www.hullcc.gov.uk/pls/hullpublichealth/](http://www.hullcc.gov.uk/pls/hullpublichealth/) provides more detailed information on standardisation, including worked examples of both indirect and direct standardisation.

### 6.9.1 Confounding, Effect Modification and Interaction

Confounding occurs when another factor (or factors) influences the association of interest. This occurs when this other factor is associated with both the risk factor of interest and the outcome of interest. Age, gender and deprivation are frequently confounders. Failure to take into account or consider confounders when examining associations can lead to biased results – known as confounding bias. Therefore, it is important to adjust for, or consider confounders when interpreting statistical and epidemiological data.

It is also possible that one factor modifies the effect of one factor on another (effect modification). For example, it could be that there is a strong association between two factors at younger ages, but at older ages the association could disappear. Age is modifying the association between the two factors of interest.

Interaction between two different factors can also occur which influence the relationship with another factor. For example, there could be twice the risk of developing a disease for a smoker compared to a non-smoker, and twice the risk of developing the same disease if the person is overweight compared to someone who is within the ‘desirable’ weight category, but for an overweight smoker the risk of developing the disease may be ten times greater than a person who is a non-smoker and not overweight.

### 6.9.2 Confidence Intervals

A confidence interval (CI), calculated using statistical methods, gives a range of likely values for the parameter of interest. Since one cannot generally survey all people for all years within all geographical areas of interest, it is common practice to obtain necessary data from a sample of the population. However, different samples will result in different estimates for the measure of interest due to natural variation of measurement data (assuming all other influences remain constant). Therefore, it is useful to have a range of values for the measure of interest (e.g. percentage or mean, difference between two means or measure of risk, etc) rather than a single value to get an idea of the range of likely values. The usual CI calculated is the 95% CI, in which we are 95% confident that the interval obtained (from the sample) will contain the true underlying measure of interest (of your population of interest).

Interpreting confidence intervals is an essential to interpreting statistical and epidemiological data. Interpretation also needs to be considered in relation to clinical significance.
When dealing with small numbers of events (see section 6.9.3 on page 57), it is very important to consider the implications of this and present and assess the width of CIs to determine how much confidence there is in the estimate presented. If there is too much variability or the numbers are too small, and the confidence intervals are wide, then it is not possible to present any conclusions, and it is possible that findings could be misleading with incorrect assumptions being drawn.

6.9.3 Small Number of Events

When comparing the mortality rates for specific relatively rare cancers, for example, skin cancer, differences in the mortality rates can occur which appear to be large, but are actually only based on a very small number of deaths. This can lead to incorrect conclusions being drawn. Therefore, it is important to consider the confidence (see section 6.9.2 on page 56) of the estimate before drawing conclusions.

6.9.4 Percentiles, Quartiles, Quintiles and Medians

Percentiles divide a distribution of ordered numerical values into groups. The 10th percentile is the value of a numerical variable for which 10% of the people or sample of values fall below. For example, if from a survey of employees at a particular company the 10th percentile for annual income is £10,000, then this would mean that 10% of the employees for this particular company were earning £10,000 or less (and 90% were earning £10,000 or more). Deciles, quintiles and quartiles are alternative names for specific percentiles. Deciles divide the observations into 10 groups (tenths) as illustrated in the example above which present one of these (10%). The quintiles divide the sample or observations or people into five groups (fifths) whereas the quartiles divide the observations into four groups. The median is the name given to the middle quartile or 50th percentile.

6.9.5 Standardisation

The prevalence of ill-health, risk factors and disease and mortality within a particular population will depend on the age and gender structure of that population (as well as many other factors such as deprivation).

In terms of the provision of resources in relation to the prevalence of ill-health, disease and risk factors in the population, it is most helpful to report on the prevalence without taking into account the age and gender distribution of the population. This is because it is necessary to treat and have the provision to treat the existing population, regardless of the age and gender structure. However, if one wishes to assess whether one population has an excess rate of disease or if there is a difference in the prevalence of disease among different levels of deprivation, it is necessary to take the age and gender structure into consideration. Otherwise any differences found may be simply due to differences in the age and gender structure of the different populations, and not due to
the factor of interest, e.g. deprivation. The age and gender structure can be taken into consideration by using standardisation. Two different methods are used to standardise: direct\(^6\) or indirect\(^7\) standardisation.

### 6.9.6 Impact of Changes to European Standard Population on Directly Standardised Rates

Age standardised rates allow comparison between populations which may contain different proportions of people of different ages. The European Standard Population (ESP) is a widely used artificial population structure for the calculation of directly age standardised rates. The replacement of the ESP first used in 1976 with an updated version published in 2013 resulted in an increase of all-cause mortality rates for England and Wales by 85%, with similar increases seen for Hull. Figures using the 1976 and 2013 ESPs are therefore not comparable. Information about this change in methods can be found on the ONS website at: [http://www.ons.gov.uk/ons/about-ons/get-involved/consultations/consultations/implementation-of-the-2013-european-standard-population/index.html](http://www.ons.gov.uk/ons/about-ons/get-involved/consultations/consultations/implementation-of-the-2013-european-standard-population/index.html). A comparison of directly standardised mortality rates for Hull derived using the 1976 and 2013 European Standard Populations, for a selection of causes of death, is shown in **Table 13** for all age DSRs and **Table 14** for under 75 DSRs.

**Table 13:** All age directly age-standardised mortality rates per 100,000 Hull residents 2010-12 using the 1976 and 2013 European Standard Populations, selected causes of death

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Gender</th>
<th>All age directly age-standardised mortality rates per 100,000 Hull residents, using the 1976 and 2013 European Standard Populations</th>
<th>ESP 1976</th>
<th>ESP 2013</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>All causes</td>
<td>Men</td>
<td></td>
<td>747.2</td>
<td>1,351.3</td>
<td>+80.8</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td></td>
<td>552.7</td>
<td>1,023.3</td>
<td>+85.1</td>
</tr>
<tr>
<td>CHD</td>
<td>Men</td>
<td></td>
<td>116.7</td>
<td>209.5</td>
<td>+79.5</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td></td>
<td>54.5</td>
<td>110.2</td>
<td>+102.2</td>
</tr>
</tbody>
</table>

\(^6\) Involves applying the age/gender specific rates of disease/prevalence of a risk factor observed in the study (e.g. Hull) population to a 'standard' population. For direct standardisation, the 'standard' population is generally the 2013 European Standard Population. The resulting directly standardised (mortality) rate (DSR) is frequently given as the number of deaths per 10,000 or 100,000 population.

\(^7\) Involves applying the age/gender specific rates of disease/prevalence of a risk factor observed in the 'standard' population to the study (e.g. Hull) population. For indirect standardisation, the 'standard' population is generally England (latest mortality rates). This results in a standardised mortality (or morbidity) ratio with 100 denoting the same mortality (morbidity) rate as England after adjusting for the differences in the age/gender structure of the local study population and a value of more than 100 denoting increased mortality relative to England (e.g. an SMR of 150 denotes a mortality rate 50% higher than England after adjusting for the age/gender structure of the local population).
Table 14: Under 75 directly age-standardised mortality rates per 100,000 Hull residents 2010-12 using the 1976 and 2013 European Standard Populations, selected causes of death

<table>
<thead>
<tr>
<th>Cause of death</th>
<th>Gender</th>
<th>Under 75 directly age-standardised mortality rates per 100,000 Hull residents, using the 1976 and 2013 European Standard Populations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>ESP 1976</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ESP 1976</td>
</tr>
<tr>
<td>Stroke</td>
<td>Men</td>
<td>46.5</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>35.4</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>Men</td>
<td>66.7</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>55.6</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>Men</td>
<td>25.7</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>14.8</td>
</tr>
<tr>
<td>Breast cancer</td>
<td>Men</td>
<td>24.6</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>21.5</td>
</tr>
<tr>
<td>Prostate cancer</td>
<td>Men</td>
<td>21.5</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td></td>
</tr>
<tr>
<td>COPD</td>
<td>Men</td>
<td>51.7</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>45.4</td>
</tr>
<tr>
<td>Dementia</td>
<td>Men</td>
<td>22.9</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>25.7</td>
</tr>
<tr>
<td>Alcohol related deaths</td>
<td>Men</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Women</td>
<td>6.5</td>
</tr>
<tr>
<td>Cause of death</td>
<td>Gender</td>
<td>Under 75 directly age-standardised mortality rates per 100,000 Hull residents, using the 1976 and 2013 European Standard Populations</td>
</tr>
<tr>
<td>----------------------</td>
<td>--------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Alcohol related</td>
<td>Men</td>
<td>15.3 17.5 +14.4</td>
</tr>
<tr>
<td>deaths</td>
<td>Women</td>
<td>6.8 7.3 +7.4</td>
</tr>
</tbody>
</table>

### 6.9.7 Occurrence Versus Registration of Deaths

Deaths and mortality rates produced by the NHS Information Centre Indicator Portal and local analyses involving the Public Health Mortality File (PHMF) are based on year of registration of the death rather than year of death. In most cases, the calendar year in which the death occurred will be the same as the calendar year in which the deaths were registered, although there can be considerable delays between occurrence and registration for deaths where an investigation by a local coroner is required.

### 6.9.8 Moving Average

A moving average is an average or mean value over a number of years, with the years ‘moving’ over time. A three-year moving average is very common (where the value presented is the mean value over three years). A moving average is very useful in summarising data where the number of events are small on an annual basis and there are potentially large fluctuations in the rate of events. Calculating the moving average smooths out the fluctuations and makes interpretation easier so that the overall trend can be better seen.

### 6.9.9 Significance Testing

It is often useful to compare a particular summary parameter (for instance, mean, median, measure of risk) among different groups. Since there is natural variation associated with virtually all measurements and since we generally only have a sample and have not measured the entire population, it is necessary to distinguish between differences which are close enough together to be explained by chance and differences which are ‘unlikely’ to be explained by chance. Such a comparison can be undertaken using a statistical test which takes into the account chance variation. However, even if a difference is statistically significant, the differences might not be sufficiently large enough to be of clinical importance.
6.10 **Time Period for Information, Date Last Updated and Source for Each Table and Figure**

The data refer to the dates or years as indicated (Q refers to quarters generally based on financial years so April-June is referred to as Q1). Where dates or years are in brackets after the specified dates, it means that the data was applied to the specified time period by applying rates from the dates or years in brackets. For example, [2012-2035 (2012)] might be the population predicted for the years 2012-2035 from the population estimate of 2012. For example, [2007 (2013)] might be the prevalence of diabetes estimated for the Hull population for the year 2013 from national prevalence figures from the year 2007, i.e. national prevalence estimates for the year 2007 were applied to the most recent population estimates for Hull (2013). Where a range of years is given, the data may be either combined from a number of years (particularly if the event is relatively rare and small numbers might be a problem) or the data is presented over a period of time to assess the trend over time. Where there is a source in brackets, this is generally secondary such as the source of data for the prevalence which was then applied to local population estimates or national age-specific mortality rates which were then applied to local data to calculate a standardised mortality ratio, etc.

Further information about data sources is also given in **section 6.1 on page 27**.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Description of source</th>
</tr>
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<tbody>
<tr>
<td>PHOF</td>
<td>Public Health Outcomes Framework <a href="http://www.phoutcomes.info/">www.phoutcomes.info/</a></td>
</tr>
<tr>
<td>TB</td>
<td>Tuberculosis information from Public Health England (Public Health England 2014) and Health Protection Agency (Anderson, Moore et al. 2011)</td>
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### 6.10.1 Tables

<table>
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<tr>
<th>Reference</th>
<th>Page</th>
<th>Data time period</th>
<th>Last updated</th>
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<td>2001-03, 2004-06, 2007-09, 2011-13, 2013-15</td>
<td>Feb 17</td>
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<td>2007-2009</td>
<td>Mar 12</td>
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<td>Sep 15</td>
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<td>18</td>
<td>2012 – 2014</td>
<td>Jan 16</td>
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### 6.10.2 Figures

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<td>PHOF</td>
</tr>
<tr>
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<td>Feb 17</td>
<td>PHOF</td>
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<td>Feb 17</td>
<td>PHOF</td>
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<tr>
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<td>23</td>
<td>2001-03 – 2013-15</td>
<td>Feb 17</td>
<td>PHOF</td>
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Further information is available at www.hullcc.gov.uk/pls/hullpublichealth/

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