

Technical methods for the National CVD Profiles 2012

Introduction

The national CVD profiles are a resource of quantitative indicators of outcomes and process measures that directly relate to cardiovascular disease (CVD). The profiles focus on indicators for Coronary heart disease (CHD), Stroke and Heart Failure, as these were more directly relevant for key stakeholders, as well as the most accessible at the time of publication. Indicators on other conditions such as peripheral vascular disease are not included.

Geographies

For 2012, the profiles are produced for the 151 primary care trusts (PCT) in England as defined at the end of 2010, including England and Office for National Statistics cluster comparators. As well as PCT level, profiles are produced for the 28 Heart and Stroke networks in England.

The Heart and Stroke network boundaries have been defined by the creation of cardiac network geographic boundaries for England. The boundaries reflect the latest available outlines of network boundaries where these are known from network websites and local sources where required. It should be noted that networks are not necessarily defined by geographic boundaries. This method may not reflect catchment boundaries for networks as defined by acute provider patient flows, but allows the building of population based indicators and aggregating PCT level indicators that cannot be created using acute provider boundaries. Where some data sources were not available at small area level to enable building of network level data, a best fit method based on PCT boundaries has been used.

Sources

The profiles use a range of sources and these are explained more in the indicator metadata section at the end of this document.

Deprivation quintiles

In order to show indicators by a measure of deprivation and by a local geography such as a PCT, it is necessary to divide both population denominators and numerators into deprivation groups. The aim of the indicators that are broken by deprivation groups is to show 'within-geography' or relative deprivation of the local area, rather than deprivation based on the national distribution of best and worst. The reason for this is that there is not an equal distribution of deprivation within each PCT population, with some PCTs having a greater or lesser share of the national deprivation quintiles. This is highlighted on page 3 of the profiles showing the national deprivation structure for the local area. Local interventions that seek to address inequalities in care based on deprivation should understand the local distribution of that deprivation.

The Index of Multiple Deprivation in 2010 (IMD2010) score is published by the department of communities and local government (DCLG) for every lower super output area (LSOA) in England. For

each geography in England (ONS cluster, PCT and Heart & Stroke Network), the LSOAs were divided into 5 equal groups (quintiles), ranked by their IMD2010 scores in that geography, based on the count of LSOAs in each group. Where numerator and denominator data for an indicator was available at the LSOA level, these data were linked to each local quintile grouping to allow the 'within-geography' view of indicators by deprivation groups.

It should be noted that indicators by deprivation quintiles for one geography should not be directly compared to the same indicator by deprivation quintiles with comparison geography, as the underlying distribution of deprivation are likely to be different.

Population denominators

Population denominators are taken from two sources:

1. Published populations from the Office for National Statistics (ONS) are used for all populations from 2001 and later using the mid-year population estimates for LSOA's and PCTs as of October 2011.
2. For the year 2000 and lower ONS population mid-year estimates have been used for all PCTs where they are coterminous with local authority boundaries. For the 22 PCTs that are not coterminous, derived PCT populations from the United Kingdom Association of Cancer Registries (UKACR) have been used. These populations are jointly held by the University of Leeds, ONS and the UKACR. The UKACR population denominators for 1981-2000 are based on ward estimates reassigned to Lower Super Output Areas (LSOAs) created by Paul Norman at the University of Leeds.

For all indicators using the hospital episode statistics (HES) data and all indicators broken by deprivation groups, populations were created by aggregating LSOA populations, rather than use the PCT mid-year estimates provided by ONS. Not all LSOAs match directly to the statutory boundaries of the 2009 PCTs, so matching LSOAs to PCTs was undertaken using the best fit geography - where LSOAs overlap PCT boundaries, the LSOA was assigned using the LSOA with the largest amount of its population in any one PCT area.

Mortality data

Where possible, mortality statistics for trend data on CVD, CHD, stroke and heart failure have been taken from published sources from the NHS Information Centre Compendium of Population Health Indicators in order to match known statistics. However, the latest available 3 year aggregated (2008-2010) and single year (2010) statistics were not published by the Information Centre in time for the CVD profiles production. Therefore statistics have been created by SEPHO using the PHO Annual Districts Deaths database (ADDE) provided to public health observatories by ONS. In order to correctly allocate case data from the ADDE to the correct PCT boundaries (as of 2010), cases have been allocated using their postcode of residence (recorded in ADDE) to PCT boundaries using the August 2010 release of the NHS Gridlink postcode database, supplied by the organisational data service of Connecting for Health.

All mortality indicators broken by deprivation use LSOA populations as the denominator and are matched to PCT of residence using the best fit lookup described above.

Hospital Episode Statistics data

All sources on hospital episode statistics have been taken from the SEPHO regional HES service, supplied by the Health and Social Care Information Centre. All data in the HES have been allocated to the PCT residence using the best fit lookup described above.

General coding methods

Where possible, SEPHO has used standard coding methods to define the main conditions throughout the indicators here. A list of diagnoses and procedures defined by the national standard coding systems ICD-10 and OPCS4 are listed below.

Diagnoses	ICD-10 codes (primary position only)
CVD	I00-I99 and ICD-9 390-459
CHD	I20-I25 and ICD-9 410-414
CHD AMI	I21-I22
CHD non AMI	I20, I23-I25
Cerebrovascular	I60-I69 and ICD-9 430-438
Stroke	I61, I63, I64
Heart failure	I50

Procedures	OPCS4 codes (in all positions)
Angiography	K63, K65, U102, U105
Revascularisation:	
<i>Angioplasty</i>	K49 – K50, K75
<i>CABG</i>	K40 – K46 in all positions

Standardisation: DSR method

Standardisation adjusts indicators to take into account local population characteristics, and facilitates more robust comparisons across geographical areas by controlling for local population differences. It is a set of techniques used to remove as much as possible the effects of differences in age or other confounding variables when comparing two or more populations. The common method uses weighted averaging of rates specific for age, sex or other potentially confounding variable(s).

The two main methods are:

1. Directly standardised rates (DSRs);
2. Indirectly standardised rates.

Directly standardised rates (DSR)

Directly age-standardised rates show an overall rate that would occur in a standard population (with a fixed age-structure) if the standard population experienced the age-specific rates of the observed population. The directly standardised rate (DSR) is given by:

$$DSR = \frac{1}{\sum_i w_i} \times \sum_i \frac{w_i O_i}{n_i}$$

where:

O_i is the observed number of events in the local or subject population in age group i ;
 n_i is the number of individuals in the local or subject denominator population in age group i , or the population \times period at risk (e.g. 'person-years');
 w_i is the number (or proportion) of individuals in the reference or standard population in age group i .

The 95% confidence limits for the directly standardised rate DSR are given by:

$$DSR_{lower} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{lower} - O)$$

$$DSR_{upper} = DSR + \sqrt{\frac{Var(DSR)}{Var(O)}} \times (O_{upper} - O)$$

where:

O is the total observed count of events in the local or subject population;

O_{lower} and O_{upper} are the lower and upper confidence limits for the observed count of events;

$Var(O)$ is the variance of the total observed count O ;

$Var(DSR)$ is the variance of the directly standardised rate

Using Byar's approximation, the 95% confidence limits for the observed number of events are given by:

$$O_{lower} = O \times \left(1 - \frac{1}{9O} - \frac{z}{3\sqrt{O}}\right)^3$$

$$O_{upper} = (O + 1) \times \left(1 - \frac{1}{9(O + 1)} + \frac{z}{3\sqrt{(O + 1)}}\right)^3$$

See APHO Technical Briefings Nos 2 and 3 for more details on this processⁱ.

Indirectly standardised rates (ISR)

The CVD profiles 2012 includes one measure that is indirectly standardised, published from the Cardiac Devices audit. Indirect standardisation is used to calculate the expected rate for the local area population, given age specific event rates from a reference population (e.g. England & Wales).

Indicator metadata

The indicator metadata section describes the production of the individual indicator subjects included in the profiles, including sources and outline methods.

Subject:	Age structure of the population
Unit:	Numbers in quinary age bands up to 85+ (in thousands) and percent change
Time period covered:	2010 and 2030
Age group:	All ages
Data source:	Office for National Statistics
Description:	Mid-year estimates (MYE's) of population, by sex in 2010 and 2008-based projected populations in 2030 for all PCTs, SHAs and Cardiac & Stroke Networks in England, as well as England.
Definitions:	The MYE's refer to the usually resident population of an area on 30 June of each year. The usually resident population is defined by the standard United Nations definition for population estimates, and includes people who reside in the area for a period of at least 12 months whatever their nationality. Members of UK and non-UK armed forces stationed in the UK are included and UK forces stationed outside the UK are excluded. Students are taken to be resident at their term time address.
Methodology:	2008-based Sub national Population Projections for England (SNPP) were published on 27 May 2010. They give an indication of future trends in population for the period 2008-2033. These projections are consistent with the revised mid-2008 population estimates published on 13 May 2010 and the 2008-based national population projections published on 21 October 2009. See ONS website details below for details of how the population estimates and projections are calculated.
Source location:	http://www.ons.gov.uk/ons/rel/sape/pco-pop-est-exp/mid-2010-release/index.html http://www.ons.gov.uk/ons/rel/snpp/sub-national-population-projections/2008--based-projections/index.html
Produced by:	SEPHO
Date created:	November 2011

Subject:	National Deprivation Structure
Unit:	Percentage
Time period covered:	2010
Age group:	All ages
Data source:	Department of Communities and Local Government, Office for National Statistics
Description:	The level of deprivation of a population in an area, as measured by the percentage of people in that area living in the most deprived fifth of areas in England, based on the 2010 index of multiple deprivation (IMD2010).
Definitions:	IMD 2010 is a model of measuring deprivation in an area. It is underpinned by separate dimensions of deprivation; these dimensions are weighted and an overall deprivation score is given.
Methodology:	The IMD2010 score is published by DCLG for every lower super output area (LSOA) in England. National deprivation quintiles were calculated by ranking the LSOAs in order of IMD score and splitting the rank into 5 equal groups (quintiles) based on the count of LSOAs in each group. Populations for each LSOA were provided by ONS and these were linked to the IMD2010 LSOA score and the matching national deprivation quintile. Each LSOA was aggregated by deprivation and geography (PCT, Network and England) by matching LSOAs to PCTs using the best fit geography - where LSOAs overlap PCT boundaries, the LSOA was assigned using the best fit LSOA. Numerator: Number of people in a geography in each national deprivation quintile during 2010 based on LSOA populations published by ONS. Denominator: Total number of people in a geography during 2010 based on LSOA populations published by ONS.
Source location:	http://www.communities.gov.uk/publications/corporate/statistics/indices2010
Produced by:	SEPHO
Date created:	October 2011

Subject:	Population estimates by ethnic group
Unit:	Percentage
Time period covered:	2009
Age group:	All ages
Data source:	Office for National Statistics
Description:	Experimental population estimates by Black and minority ethnic groups (BME) for all age groups in 2009 for all PCTs, SHAs and Cardiac & Stroke Networks in England, as well as the England average.
Definitions:	The estimates are consistent with ONS 2009 mid-year population estimates
Methodology:	See ONS website below for details of how the population estimates by ethnic group were calculated. BME aggregation groupings are explained below: Total percentage BME groups is the sum of fields (Mixed: White and Black Caribbean, Mixed: White and Black African, Mixed: White and Asian, Mixed: Other Mixed, Asian or Asian British: Indian, Asian or Asian British: Pakistani, Asian or Asian British: Bangladeshi, Asian or Asian British: Other Asian, Black or Black British: Black Caribbean, Black or Black British: Black African, Black or Black British: Other Black, Chinese or Other Ethnic Group: Chinese, Chinese or Other Ethnic Group: Other) divided by All Groups.
Source location:	http://www.ons.gov.uk/ons/rel/peeg/population-estimates-by-ethnic-group--experimental-/current-estimates/index.html
Further information:	The BME calculation is consistent with the 2001 census method and may not reflect local calculations of BME that include White Irish and White Other groups.
Produced by:	SEPHO
Date created:	October 2011

Subject:	Synthetic estimates for lifestyle behaviours: PCT
Unit:	Percentage, with 95% confidence intervals
Time period covered:	2006-2008
Age group:	Adults (16 and over)
Data source:	Health Survey for England 2006-08
Description:	Synthetic estimates of smoking, binge drinking and adult obesity, for all PCTs. Binge drinking covers 2007-2008 only.
Definitions:	Smoking indicator: Estimated prevalence of smoking adults in adults Binge drinking: Binge drinking in adults is defined separately for men and women. Men are defined as having indulged in binge drinking if they had consumed 8 or more units of alcohol on the heaviest drinking day in the previous seven days; for women the cut-off was 6 or more units of alcohol. Adult obesity: Obesity in adults is defined for epidemiological purposes as body mass index (BMI) > 30 kg/m ² .
Methodology:	These are modelled estimates based on national survey data, updated in March 2011. The model is non-aetiological (not based on known casual factors). The estimates are modelled by the National Centre for Social Research (NatCen). They are based on pooling together three consecutive years of Health Survey for England data (2006-2008). The general population sample size in 2007 was about half the sample size in 2008. To ensure that each year's sample was given an approximately equal weight in the calculation of the 2007-2008 estimates, respondents in 2007 were weighted up by a factor of (approximately) two. For binge drinking only estimates are based on pooling together two consecutive years of Health Survey for England data (2007-2008). For information on the Health Survey for England, see the Health and Social Care Information website and detailed methodology on construction of the estimates see the Health Profiles technical document (link below).
Source location:	http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england http://www.apho.org.uk/resource/view.aspx?RID=105702
Further information:	These estimates were revised in February 2011 by NatCen and will not match the estimates published in the 2011 CVD profiles, which are based on an older method. Note that the smoking estimates will not match the estimates of smoking as produced by the national Health Profiles, as these are taken from the Integrated Household Survey. At the current time no smoking data from the Integrated Household Survey is available
Produced by:	SEPHO
Date created:	October 2011

Subject:	Estimates for lifestyle behaviours: England
Unit:	Percentage, with 95% confidence intervals
Time period covered:	2006-2008
Age group:	Adults (16 and over)
Data source:	Health Survey for England 2006-08
Description:	Estimates of smoking, binge drinking, and adult obesity for England. Binge drinking covers 2007-2008 only.
Definitions:	Smoking indicator: Estimated prevalence of smoking adults in adults Binge drinking: Binge drinking in adults is defined separately for men and women. Men are defined as having indulged in binge drinking if they had consumed 8 or more units of alcohol on the heaviest drinking day in the previous seven days; for women the cut-off was 6 or more units of alcohol. Adult obesity: Obesity in adults is defined for epidemiological purposes as body mass index (BMI) > 30 kg/m ² .
Methodology:	These are direct estimates based on pooling together three consecutive years of Health Survey for England data (2006-2008). The general population sample size in 2007 was about half the sample size in 2008. To ensure that each year's sample was given an approximately equal weight in the calculation of the 2007-2008 estimates, respondents in 2007 were weighted up by a factor of (approximately) two. For binge drinking only estimates are based on pooling together two consecutive years of Health Survey for England data (2007-2008). HSE numerator data are based on observed self-reported behaviour. Self-reported consumption/behaviour may be prone to respondent bias. For information on the Health Survey for England, see the Health and Social Care Information website and detailed methodology on construction of the estimates see the Health Profiles technical document (link below).
Source location:	http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles-related-surveys/health-survey-for-england The HSE was designed to be representative of the general, non-institutional population living in England. The current "full" sample size of the HSE comprises about 15,000 adults aged 16 and over.
Produced by:	SEPHO
Date created:	October 2010

Subject:	Percentage of smokers registered with GPs
Unit:	Percentage
Time period covered:	2010/11
Age group:	All ages
Data source:	QOF returns 2010/11 (The NHS Health and Social Care Information Centre).
Description:	Percent of patients registered with a GP with a registered long term condition who smoke in 2010/11 all PCTs, ONS clusters and England.
Definitions:	There are 2 smoking indicators used in the QOF: Smoking 3 and Smoking 4. Both indicators focus on those patients with any combination of the following long-term conditions: coronary heart disease, stroke or TIA, hypertension, diabetes, COPD, CKD, asthma, schizophrenia, bipolar affective disorder or other psychoses.
Methodology:	Smoking 03 is the percentage of patients with specified conditions (see definitions) whose smoking status has been recorded, whether Yes or No. Smoking 04 is the percentage of the patients with these conditions who smoke, who have been offered smoking cessation advice. Each indicator therefore has a numerator and denominator; Smoking 03 denominator = all patients with the specified conditions, Smoking 03 numerator = patients with these conditions who have smoking status recorded, Y/N. Smoking 04 denominator = number of patients with specified conditions who smoke, Smoking 04 numerator = number of patients with specified conditions who smoke, who have been offered treatment to give up. The prevalence of smoking (%) is calculated by: Number of patients who smoke (Smoking04 denominator) divided by the number of patients whose status is recorded (Smoking03 numerator).
Source location:	http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/qof-2010-11/qof-2010-11-data-tables
Further information:	This indicator is constructed from the numerator and denominator of two different indicators within the QOF collection. Although both the QOF indicators refer to the same underlying long-term condition population and time period (in the last 15 months), their original purpose is not to show smoking rates in the long-term conditions population. Caution is advised on the use of this indicator.
Produced by:	SEPHO
Date created:	November 2011

Subject:	Observed and estimated disease prevalence
Unit:	Percentage
Time period covered:	2010/11 and 2011
Age group:	All ages for observed prevalence, 16+ for estimated prevalence
Data source:	QOF returns 2010/11 (The NHS Health and Social Care Information Centre). Modelled estimates of CHD, Stroke & Hypertension for people aged 16+, ERPHO, 2011.
Description:	Observed (GP registered) prevalence of CHD, stroke, heart failure, hypertension and atrial fibrillation for all PCTs, SHAs and England, in 2010/11. Estimated prevalence of CHD, stroke and hypertension for all PCTs and England in 2011.
Definitions:	Observed prevalence is recorded from GP Quality and Outcomes Frameworks (QOF) returns of clinical indicators for the number of people on each clinical register in 2009/10. Indicators are: CHD: CHD01, heart failure: HF01, stroke: stroke01, hypertension: BP01, atrial fibrillation: AF01. Estimated prevalence is taken from modelled estimates of diseases created by the Eastern Region Public Health Observatory created in 2011, but is not the crude rate of disease, but the rate for people aged 16+.
Methodology:	Observed prevalence: The numerator is the crude number of people on disease registers in GP practices for the year. The denominator is the total number of patients registered in the practice reported on the QOF return for 2010/11. Estimate prevalence: The method for modelled estimate of prevalence in PCTs can be found below:
Source location:	http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/gof-2010-11/gof-2010-11-data-tables http://www.apho.org.uk/resource/view.aspx?RID=48308
Produced by:	SEPHO
Date created:	December 2011

Subject:	QOF performance
Unit:	Percentage
Time period covered:	2010/11
Age group:	All ages
Data source:	QOF returns 2010/11 (The NHS Health and Social Care Information Centre).
Description:	Percentage of patients on respective disease registers meeting QOF clinical indicators for all PCTs, SHAs and and England, 2010/11.
Definitions:	Clinical indicators for patients with CHD, heart failure, stroke, hypertension and atrial fibrillation. Indicators are: CHD 2, CHD 5, CHD 6, CHD 7, CHD 8, CHD 9, CHD 10, CHD 11, CHD 12, HF2, HF3, Stroke05, Stroke06, Stroke07, Stroke08, Stroke10, Stroke12, Stroke13. BP4, BP5, AF3.
Methodology:	The Quality and Outcomes Framework (QOF) is the annual reward and incentive programme detailing GP practice achievement results. QOF awards surgeries achievement points a number of organisation issues, as well as managing some of the most common chronic diseases e.g. CHD and stroke. GP practices report the percentage of people on each clinical register who meet certain clinical standards as outlined above. Further methodology on each of the clinical indicators and their construction can be found below:
Source location:	http://www.ic.nhs.uk/statistics-and-data-collections/audits-and-performance/the-quality-and-outcomes-framework http://www.ic.nhs.uk/statistics-and-data-collections/supporting-information/audits-and-performance/the-quality-and-outcomes-framework/gof-2010-11/gof-2010-11-data-tables
Produced by:	SEPHO
Date created:	November 2011

Subject:	Percentage of four week quitters per population
Unit:	Percentage
Time period covered:	2010/11
Age group:	16+
Data source:	Model-Based Estimates of Current Smoking for PCTs in England - National Centre for Social Research (NatCen), ONS 2010 mid-year population estimates, The NHS Health and Social Care Information Centre.
Description:	The number of smokers who quit at 4 weeks from local stop smoking programmes in 2010/11 as a proportion of the synthetic estimate of smokers in 2006-08 for all PCTs, SHAs, as well as the England average.
Methodology:	Stop smoking programmes currently run in every PCT in England. They recruit from many different areas and this can include intensive support through group therapy or one-to-one support to allow smokers to quit. If smokers in the programme self report no smoking after 4 weeks of intervention they are counted as quitters.
	Numerator: Number of 4 week quitters reported by each PCT stop smoking programme. Denominator: Estimated numbers of smokers in a PCT population as estimated by Model-Based Estimates of Current Smoking for PCTs multiplied by mid-year estimates of the population aged 16+.
Source locations:	The proportion of 4 week quitters calculated by the numbers of 4 week quitters divided by the estimated numbers of smokers. http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/nhs-stop-smoking-services http://www.ons.gov.uk/ons/rel/sape/pco-pop-est-exp/mid-2010-release/index.html
Further information:	The denominator uses the estimated number of smokers in the population, rather than the number in total treatment in smoking cessation programmes. This is used here as feedback from stakeholders suggested that the local number of smokers can have a significant impact on the numbers who go through Stop Smoking Services. Note that some local stop smoking services will have clients who are not resident within the local PCT, so the numerator and denominator will not always refer to exactly the same population group.
Produced by:	SEPHO
Date created:	November 2011

Subject:	Practices with high exception reporting rates
Unit:	Percentage
Time period:	2010/11
Data sources:	Quality and outcomes framework
Description:	A summary of the level of high exception reporting within each PCT, ONS CLUSTER and England average in 2010/11
Methodology:	Quality and outcomes framework data was downloaded from the information centre (IC) on the number of recorded exception reports within each quality indicator of the relevant clinical domains for 2010/11. Each practices with an exception reporting rate higher than the 99th percentile in any quality indicator was counted and a percentage was calculated from the number of practices in the PCT. This process was repeated within each clinical domain.
Sources	http://www.ic.nhs.uk/statistics-and-data-collections/audits-and-performance/the-quality-and-outcomes-framework/the-quality-and-outcomes-framework-exception-reporting-2010-11
Produced by:	SEPHO
Date created:	December 2011

Subject:	Effective exception rate (EER)
Unit:	Rate
Area covered:	All PCTs England
Data sources:	Quality and Outcomes Framework (QOF)
Description:	QOF effective exception rate (EER) within each PCT, ONS CLUSTER and England average in 2010/11
Methodology:	The effective exception rate was downloaded from the information centre (IC) and is calculated by dividing the total number of exceptions by the sum of the denominators (all patients to which the indicator applies) in each quality indicator of each clinical domain.
Definitions:	Clinical Domain refers to the group of quality indicators with a clinical area such as 'stroke'. Quality indicators are specific measures such as the percentage of stroke patients in whom the last blood pressure reading (measured in the previous 15 months) is 150/90 or less.
Further information:	http://www.ic.nhs.uk/statistics-and-data-collections/audits-and-performance/the-quality-and-outcomes-framework/the-quality-and-outcomes-framework-exception-reporting-2010-11
Produced by:	SEPHO
Date created:	December 2011

Subject:	Emergency admissions for CHD, stroke and heart failure
Unit:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2003/04 - 2010/11
Age group:	All ages
Data source:	Hospital Episode Statistics 2003/04 - 2010/11, The NHS Information Centre for health and social care, Office for National Statistics
Diagnosis codes used:	CHD: ICD-10 I20 - I25; stroke: I61, I63, I64; heart failure: I50 (Primary diagnosis only)
Description:	DSRs per 100,000 for CHD, stroke and heart failure emergency admissions between 2003/04 and 2010/11 for all PCTs, OAC clusters, Cardiac & Stroke Networks and England
Methodology:	Emergency admissions were extracted from the SEPHO HES database by LSOA, five year age band, gender and diagnosis code. PCTs, OAC clusters and Networks were created by matching LSOAs to PCTs, OAC clusters and Cardiac Networks. Where LSOAs overlap PCT boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2011) and aggregating these to PCT and Networks using the same best fit method. DSRs were calculated for all geographies for all persons for each year. DSRs were calculated by gender for the latest year only.
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Emergency admissions by quintile of relative deprivation for CHD, stroke and heart failure
Unit:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2003/04 - 2010/11
Age group:	All ages
Data source:	Hospital Episode Statistics 2003/04 - 2010/11, The NHS Information Centre for health and social care, Office for National Statistics, Communities and Local Government IMD 2010
Diagnosis codes used:	CHD: ICD-10 I20 - I25; stroke: I61, I63, I64; heart failure: I50 (Primary diagnosis only)
Description:	DSRs per 100,000 by relative quintile of deprivation for CHD, stroke and heart failure emergency admissions between 2003/04 and 2009/10 for all PCTs, SHAs, Cardiac & Stroke Networks and England
Methodology:	Emergency admissions were extracted from the SEPHO HES database by LSOA, five year age band, gender and diagnosis code. PCTs, OAC clusters and Networks were created by matching LSOAs to PCTs, OAC clusters and Cardiac Networks. Where LSOAs overlap PCT boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2011) and aggregating these to PCT and Networks using the same best fit method. DSRs were calculated for all geographies for all persons for each year. DSRs were calculated by gender for the latest year only. Both numerator data and population denominators were aggregated into relative deprivation quintiles (based on the IMD 2010 score) within their respective geographies. DSRs were calculated for all geographies by relative quintile of deprivation for all persons for every year.
Source locations:	http://www.communities.gov.uk/publications/corporate/statistics/indices2010
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Median times to primary angioplasty
Unit:	Median time in minutes
Time period covered:	2010
Age group:	All ages
Data source:	Myocardial Infarction National Audit Programme (MINAP)
Description:	Median time from call for help to emergency services to administration of reperfusion (both thrombolysis and primary angioplasty) for all patients initially diagnosed as STEMI, 2010 for all PCTs, ONS clusters and Cardiac & Stroke Networks in England, as well as the England average.
Definitions:	STEMI refers to: ST elevated myocardial infarction. Access and response times to improve treatment of heart attack has contributed to the fall in mortality over the past decade, with people now receiving more active treatment to increase blood flow to the heart in the early stages of a heart attack. The mainstay of this treatment is either <ol style="list-style-type: none"> 1. Thrombolysis: injecting drugs that break up the blood clot causing a sudden blockage 2. Primary Angioplasty (or PCI), which is a technology more recently introduced into routine practice in which a balloon is inserted into the blocked arteries to help widen them.
Methodology:	Data was extracted from the national MINAP database for those patients who received reperfusion treatment in the calendar years 2007 to 2009. Data was filtered for those patients with an admission diagnosis of STEMI (ADMD = 1) only and excludes this with 'probable MI' or 'acute coronary syndrome'. The patient's LSOA of residence and 2006 PCT are derived variables included in the MINAP database, based on their home postcode. LSOAs were grouped to form ONS clusters, Networks and the England average geographies. Median times were calculated for each geography based on the reperfusion strategy field included with the MINAP data extract (thr_gn3). Where reperfusion was primary Angioplasty, (thr_gn = 3) data was coded as primary angioplasty and median times calculated for this group for all geographies.
Further information:	http://www.ucl.ac.uk/nicor/audits/minap Advice from the MINAP team is that time to angioplasty is reducing, and this will be apparent when the next update is produced
Produced by:	SEPHO
Date created:	October 2011

Subject:	Proportion of non-STEMIs seen by member of cardiology
Unit:	Proportion (%)
Time period covered:	2010
Age group:	All ages
Data source:	Myocardial Infarction National Audit Programme (MINAP)
Description:	The percentage of all non-STEMI patients recorded in the MINAP audit who were seen by a Cardiologist in 2010 for all PCTs, ONS clusters and Cardiac & Stroke Networks in England, as well as the England average.
Definitions:	STEMI refers ST elevated myocardial infarction. A non-STEMI (or nSTEMI) refers to all other patients recorded by the MINAP audit who do not have final diagnosis of STEMI.
Methodology:	Data was extracted from the national MINAP database for those patients who were recorded in the MINAP database in the calendar year 2010. Data was filtered for those patients with an admission diagnosis of non-STEMI (F_diag2 = 2 OR F_diag2 = 4) which includes 'acute coronary syndrome'. The patient's LSOA of residence and 2006 PCT are derived variables included in the MINAP database, based on their home postcode. LSOAs were grouped to form ONS clusters, Networks and the England average geographies. Percentages were calculated for each geography based on the 'Care_by_cardiologist' field included with the MINAP data extract with the denominator used as the total count of this field.
Further information:	http://www.ucl.ac.uk/nicor/audits/minap The inclusion of this data was suggested by the MINAP team in 2011 , as a way of ensuring the focus on rapid intervention in STEMI cases was not detracting from the care received by other patients with heart attacks.
Produced by:	SEPHO
Date created:	October 2011

Subject:	Proportion of 30 day mortality
Unit:	Proportion (%) of all mortality within 30 days of admission
Time period covered:	2010
Age group:	All ages
Data source:	Myocardial Infarction National Audit Programme (MINAP)
Description:	The percentage of all patients who died within 30 days of admission, recorded in the MINAP audit in 2010 for all PCTs, ONS clusters, Cardiac & Stroke Networks in England, as well as the England average.
Methodology:	Data was extracted from the national MINAP database for those patients who were recorded in the MINAP database in the calendar years 2007 to 2009. The patient's LSOA of residence and 2006 PCT are derived variables included in the MINAP database, based on their home postcode. LSOAs were grouped to form ONS clusters, Networks and the England average geographies. Percentage mortality was calculated for each geography based on all mortality outcomes. The numerator includes patients who died during treatment (Status = 9) and; patients who died less than 31 days from discharge. The denominator is the total patients recorded in the MINAP database for 2010.
Further information:	http://www.ucl.ac.uk/nicor/audits/minap
Other information:	The MINAP audit collects mortality outcomes data on patients recorded within its database. The MINAP team request data linkage to ONS death records to determine a mortality outcome. The data extract provided to SEPHO includes care into 2011, but the outcomes are restricted to 2010 due to incomplete data on mortality outcomes for information in 2011.
Produced by:	SEPHO
Date created:	October 2011

Subject:	Angiography procedures (Trend, Sex, by quintile of relative deprivation)
Unit:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2003/04 - 2010/11
Age group:	All ages
Data source:	Hospital Episode Statistics 2003/04 - 2010/11, The NHS Information Centre for health and social care, Office for National Statistics, Communities and Local Government IMD 2010
OPCS4 codes used:	K63, K65, U102, U105 in all positions (emergency, elective and other)
Description:	DSRs per 100,000 for angiography procedures between 2003/04 and 2010/11 for all PCTs, OAC clusters, Cardiac & Stroke Networks and England
Methodology:	Angiography procedures were extracted from the HES database by five year age band, gender and diagnosis code. PCTs, clusters and networks were created by matching LSOAs to each geography and cluster. Where LSOAs overlap boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2011) and aggregating these to PCT, clusters and network boundaries using the same best fit method. 1. DSRs were calculated for all geographies: by gender for the latest year and for all persons for every year. 2. Both numerator data and population denominators were further aggregated into relative deprivation quintiles (based on the IMD 2010 score) within their respective geographies. DSRs were then calculated for all geographies by relative quintile of deprivation for all persons for every year.
Source locations:	http://www.communities.gov.uk/publications/corporate/statistics/indices2010
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Revascularisation procedures (Trend, Sex, by quintile of relative deprivation)
Unit:	DSR per 100,000 (with 95% confidence intervals)
Time period covered:	2003/04 - 2010/11
Age group:	All ages
Data source:	Hospital Episode Statistics 2003/04 - 2010/11, The NHS Information Centre for health and social care, Office for National Statistics, Communities and Local Government IMD 2010
OPCS4 codes used:	Angioplasty/PCI: K49 - K50, K75 in all positions. CABG: K40 - K46 in all positions. Angioplasty is split by non-elective and elective admissions.
Description:	DSRs per 100,000 for revascularisation procedures between 2003/04 and 2010/11 for all PCTs, OAC clusters, Cardiac & Stroke Networks and England
Calculation:	<p>Angioplasty and CABG procedures were extracted from the HES database by five year age band, gender and diagnosis code. PCTs, clusters and networks were created by matching LSOAs to each geography and cluster. Where LSOAs overlap boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2011) and aggregating these to PCT, clusters and network boundaries using the same best fit method.</p> <p>1. DSRs by gender for the latest year and for all persons for every year were calculated for:</p> <p>a) CABG, b) elective Angioplasty (admission method 11-13) and c) non-elective Angioplasty. Non-elective Angioplasty includes both emergency admissions and transfers (admission method 21 – 28 and 81).</p> <p>2. Both numerator data and population denominators for all revascularisations (Angioplasty & CABG) were further aggregated into relative deprivation quintiles (based on the IMD 2010 score) within their respective geographies. DSRs were calculated for all geographies by relative quintile of deprivation for all persons for every year.</p>
Source locations:	http://www.communities.gov.uk/publications/corporate/statistics/indices2010
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Heart transplants
Statistic:	Crude rate per 1,000,000
Time period:	2010/2011 financial year
Age group:	All ages
Data source:	NHS Blood and Transplant
Description:	Number of heart transplants per million of population (pmp) by SHA, 2010/2011
Numerator:	Number of surgical transplants of the heart.
Denominator:	ONS mid-year estimates of population for strategic health authorities, 2009
Methodology:	The numbers of heart transplants were taken from the UKTR database held by NHS Blood and Transplant. Of all transplants, only those recipients undergoing transplant between 1 April 2010 and 31 March 2011 were selected. Each transplant recipient was allocated to their SHA of residence based on the postcode of the recipient at the time of transplant. Crude rates of heart transplants were constructed using the ONS mid-year estimates of population at 2009.
Further notes:	<p>ODT's key role is to ensure that organs donated for transplant are matched and allocated to patients in a fair and unbiased way. ODT manage the UK Transplant Registry which includes details of all donors and patients who are waiting for, or who have received, a transplant. They also audit and analyse the results of all organ transplants in the UK and Republic of Ireland to improve patient care. Data on organ donors and transplant recipients are collected by NHS Blood and Transplant, and data reporting is mandatory under the Human Tissue Act 2004. Therefore data completeness is expected to be 100%.</p> <p>http://www.organdonation.nhs.uk/ukt/default.jsp</p>
Produced by:	NHS Blood and Transplant
Date created:	May 2011

Subject:	Access to devices (Pacemakers, ICD, CRT)
Unit:	Indirectly age-sex standardised rate
Time period:	2010
Age group:	All ages
Data source:	NICOR/CCAD
Description:	Age standardised rates of access to devices: new pacemakers, new implantable cardioverter-defibrillators (ICDs) and total cardiac resynchronisation therapy (CRT) devices, by PCT, 2010
Numerator:	Number of new pacemaker, ICD and total CRT implants by age and sex in 2010
Denominator:	PCT population by age and sex - ONS population projection for 2010.
Methodology:	Observed rates are calculated for each of the 3 devices and compared with expected rates based on national age/sex specific rates. <i>"The raw implant rate for a PCT is adjusted to account for its demographic structure to give a corrected implant rate per million population. A PCT with a population relatively older than the national average will have a higher relative need for a given implant rate whilst a PCT with a younger population will have a lower relative need, since the conditions for which device implants are indicated increase in prevalence with age."</i> (Heart Rhythm Devices: UK National Clinical Audit 2009, page 10)
Further notes:	The national rates per million population in 2009 were as follows: - New Pacemakers - 534 pmp - New ICD - 64 pmp - Total CRT - 101 pmp New devices are first time implants. Total device implants would include replacements
Produced by:	Network Devices Survey Group (Commissioned by DH Vascular Programme)
Date created:	December 2011

Subject:	Deaths at home or usual place of residence from heart failure
Statistic:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2006-2010
Age group:	All ages
Data source:	PHO annual death extracts 2006-10
ICD10 codes used:	Heart Failure: ICD10 I50
Description:	The proportion of all deaths from heart failure, where the death occurred at home for all PCTs, OAC clusters and Cardiac & Stroke Networks in England from 2006-10.
Methodology:	Mortality data were extracted from the ONS PHO annual death extracts from 2006 to 2010 for all deaths from heart failure. Where deaths were coded with a place of death of home, care homes (NHS and non-NHS), nursing homes, specialist care homes and religious establishments, these were divided by the total number of heart failure deaths for England, OAC cluster, PCT and Heart & Stroke Network in England.
Further notes:	Confidence intervals were calculated for the proportions using the Wilson score: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Percentage of stroke patients discharged to home or usual place of residence
Unit:	Percentage
Time period covered:	2010/11
Age group:	All split by 'under 75' and '75 and over'
Data sources:	Hospital Episode Statistics - HES Online
Description:	Percentage 'home' in relation to all 'home' or 'not home' in 2010/11 split by 'under 75' and '75 and over' by PCTs, SHAs and Cardiac & Stroke Networks in England, as well as the England average.
ICD-10 codes used:	ICD-10 I60 - I69 in primary position only
Methodology:	Data was extracted from the Hospital Episode Statistics (HES) system for all episodes where the primary diagnosis was stroke (ICS 10 code in I60 - I69) and analysed by PCT and discharge destination. 'Home' was defined as Discharge Destination 19 and 'Not home' was Discharge Destination codes 20 to 70. Caution is advised in the use of this indicator.
Further information:	http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=571
Produced by:	SEPHO
Date created:	November 2011

Subject:	30 day Stroke readmissions
Unit:	Percentage
Time period covered:	2010/11
Area covered:	All PCTs England
Age group:	All ages
Data sources:	Hospital Episode Statistics - HES Online
Description:	Percentage of emergency stroke patients who were readmitted within 30 days as a percentage of all stroke admissions in 2010/11 by PCTs, ONS clusters, as well as the England average.
ICD-10 codes used:	ICD-10 I61, I63 and I64 in primary position only
Methodology:	Data was extracted from the Hospital Episode Statistics (HES) system for all episodes from 2010/11 where admission type was emergency and the primary diagnosis was Stroke (ICD 10 code in I61, I63 and I64). It was then analysed by PCT, all admissions between 01/04/10 and 31/03/11 following a prior emergency admission in the preceding 30 days were counted and a percentage was calculated using all admissions in the same 12 month period.
Further information:	http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=571
Produced by:	SEPHO
Date created:	November 2011

Subject:	Cardiovascular early mortality trend
Statistic:	DSR per 100,000 (with 95% confidence intervals)
Time period:	1995-97 to 2010-12
Age group:	Under 75 yrs
Data source:	NHS Information Centre, PHO annual death extracts 1995-10, Office for National Statistics
ICD10/9 codes used:	Cardiovascular disease: ICD 10 I00-I99 and ICD9 390-459, adjusted for years 1996 - 2000
Description:	Trend in mortality rates for CVD between 1995-97 and 2009-11 for all PCTs, SHAs and Cardiac & Stroke Networks and England.
Methodology:	Data was sourced from the NHS Information Centre (compendium) for single year trends of CVD between 1996 and 2009 for all PCTs, OAC clusters and England. Data was not available for 22 of the PCTs or Cardiac Networks for this time period and not for the latest 2010 year (at December 2011). To create these data, deaths were extracted from the ONS PHO annual death extracts by year of death, five year age band, gender and PCT between 1996 and 2010. The mortality numbers coded with ICD-9 codes were adjusted using ICD-10/9 comparability ratio published by ONS to enable comparability between ICD-9 and ICD-10 coded mortality over time. Using unrounded ONS population estimates by PCT (current as of October 2011), DSRs by gender and for all persons were calculated for each year and PCT between 1996 and 2010. The mortality DSRs for 2010 to 2012 were forecast using Holt-Winters exponential smoothing method. The values used to forecast were the mortality DSRs between 1996 and 2010 logarithmically transformed.
Source locations:	
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457 ICD-10/9 adjustment ratios for ICD-9 codes for years 1996 - 2000: Males 0-74yrs: 1.012 75-84yrs: 1.039 85+yrs: 1.069 Females 0-74yrs: 1.015 75-84yrs: 1.042 85+yrs: 1.057 PCT populations for 1996 to 2001 were sourced from the United Kingdom Association of Cancer Registries
Produced by:	SEPHO
Date created:	December 2011

Subject:	Contribution to CVD mortality
Statistic:	Number and percentage of deaths
Time period:	2008-2010
Age group:	Under 75 years and 75+ years
Data sources:	PHO annual death extracts 2007-10
ICD10 codes used:	All Deaths ICD10: A00-Z99, CVD ICD10: I00-I99, AMI: ICD10 I21-I22, Cerebrovascular ICD10: ICD10 I60-I69, CHD ICD10: ICD10 I20-I25, CHD non AMI: (CHD - AMI), Other CVD: Sum CVD - (CHD, cerebrovascular, heart failure).
Description:	Proportion of all circulatory, CHD, cerebrovascular, heart and other CVD deaths to all mortality and numbers of CVD deaths for all PCTs, SHAs and Cardiac & Stroke Networks in England from 2007-09.
Methodology:	Data on numbers were sourced from PHO annual deaths for males and females for all causes, all circulatory, CHD non AMI, CHD AMI, CHD, cerebrovascular, and other CVD from 2008 to 2010 for all geographies. Percentages of CVD, CHD non AMI, CHD AMI, stroke, heart failure and other CVD mortality were calculated by dividing these deaths over all mortality causes. Data for Cardiac & Stroke Networks were calculated by the network lookup from LSOAs created locally in SEPHO.
Further notes:	Confidence intervals were calculated for the proportions using the Wilson score: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Cardiovascular disease mortality rates
Statistic:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2008-2010
Age group:	All ages
Data source:	PHO annual death extracts 2008-10, Office for National Statistics
ICD10 codes used:	Cardiovascular disease: ICD10 I00-I99
Description:	Mortality rates for cardiovascular disease for all PCTs, OAC clusters and Cardiac & Stroke Networks in England in 2008-10 average.
Methodology:	Mortality data were extracted from the ONS PHO annual death extracts by five year age band, gender between 2008-2010. Using unrounded population estimates by PCT and quinary age group and sex (current as of October 2011) published by ONS, DSRs by sex and for all persons were calculated for England, OAC cluster, PCT and Heart & Stroke Network in England. All geographies were defined as at 2010.
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	CHD and Cerebrovascular disease mortality trend
Statistic:	DSR per 100,000 (with 95% confidence intervals)
Time period:	1996 - 2012
Age group:	All years
Data source:	NHS Information Centre, PHO annual death extracts 1995-10, Office for National Statistics, United Kingdom Association of Cancer Registries (UKACR)
ICD10/9 codes used:	CHD: ICD10 I20-I25 for years 2001 - 2010 and ICD-9 410-414 adjusted for years 1996 - 2000; Cerebrovascular disease: ICD10 I60-I69 for years 2001 - 2010 and ICD-9 430-438 adjusted for years 1996 - 2000
Description:	Trend in mortality rates for CHD and cerebrovascular disease between 1996 and 2012 for all PCTs, OAC cluster and Cardiac & Stroke Networks and England.
Methodology:	Data was sourced from the NHS Information Centre (compendium) for single year trends of CHD and Stroke between 1996 and 2009 for all PCTs, OAC clusters and England. Data was not available for 22 of the PCTs or Cardiac Networks for this time period and not for the latest 2010 year (at December 2011). To create these data, deaths were extracted from the ONS PHO annual death extracts by year of death, five year age band, gender and PCT between 1996 and 2010. The mortality numbers coded with ICD-9 codes were adjusted using ICD-10/9 comparability ratio published by ONS to enable comparability between ICD-9 and ICD-10 coded mortality over time. Using unrounded ONS population estimates by PCT (current as of October 2011), DSRs by gender and for all persons were calculated for each year and PCT between 1996 and 2010. The mortality DSRs for 2010 to 2012 were forecast using Holt-Winters exponential smoothing method. The values used to forecast were the mortality DSRs between 1996 and 2010 logarithmically transformed.
Further notes:	ICD-10/9 adjustment ratios for ICD-9 codes for years 1996 - 2000: CHD: Male 1.005, Female 1.007 Stroke: Male 1.073, Female 1.046 (for under 75 years only) PCT populations for 1996 to 2000 were sourced from the United Kingdom Association of Cancer Registries, 2010
Produced by:	SEPHO
Date created:	December 2011

Subject:	CVD mortality trend by deprivation quintile
Statistic:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2001 - 2009
Age group:	All ages
Data source:	PHO annual death extracts 2001-2009, Office for National Statistics
ICD10/9 codes used:	Cardiovascular disease: ICD10 I00-I99, CHD: ICD10 I20-I25, Stroke: ICD10 I60-I69
Description:	Trend in mortality rates for CVD, CHD and stroke between 2001 and 2009 for all relative quintile deprivation groups in PCTs, SHAs and Cardiac & Stroke Networks and England.
Methodology:	Data was sourced from ONS PHO annual death extracts for single year trends of CVD, CHD and Stroke between 2001 and 2009. Deaths were extracted from the ONS PHO annual death extracts by year of death, five year age band, and LSOA between 2001 and 2009. PCTs, SHAs and Networks were created by matching LSOAs to PCTs using the best fit. Where LSOAs overlap PCT boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2010) and aggregating these to PCT and ONS CLUSTER boundaries using the same best fit method. Both numerator data and population denominators were aggregated into relative deprivation quintiles (based on the IMD 2007 score) within their respective geographies. DSRs were calculated for all geographies by relative quintile of deprivation for all persons for every year.
Source locations:	http://www.communities.gov.uk/communities/neighbourhoodrenewal/deprivation/deprivation07/
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Programme budgeting expenditure
Unit:	Expenditure per head of population (£)
Time period:	2010/11
Age group:	All ages
Data source:	Department of Health
Definitions:	Cardiovascular disease, CHD and cerebrovascular disease
Description:	Spend per head for CVD, CHD and cerebrovascular disease in 2010/11 for all PCTs, ONS clusters and Cardiac & Stroke Networks and England.
Methodology:	The expenditure for CVD, CHD and cerebrovascular disease by PCT was divided by the unified weighted population of the PCT, broken by the type of expenditure.
Further information:	http://www.dh.gov.uk/en/Managingyourorganisation/Financeandplanning/Programmebudgeting/DH_075743
Further notes:	The unified weighted PCT population is adjusted using the national weighted capitation formula, taking into account age and its additional need over and above that accounted for by age. The formula has separate components for hospital and community health services (HCHS), prescribing and primary medical services. This weighting is used to calculate PCT funding allocations.
Produced by:	SEPHO
Date created:	January 2012

Subject:	Admissions for carotid endarterectomy procedures and valve procedures
Unit:	DSR per 100,000 (with 95% confidence intervals)
Time period:	2009/10-2010/11
Age group:	All ages
Data source:	Hospital Episode Statistics 2009/10 - 2010/11, The NHS Information Centre for health and social care, Office for National Statistics
OPCS codes used:	Valves: A134, K041, K18, K25 - K35, K38, Z321 - Z328 Carotid Endarterectomy: L309, L293, L295, L301, L311, L294, L299, L303, L314, L308, L312, L319, L298, L302, L304, L305, L313, L318 (Primary procedure only)
Description:	DSRs per 100,000 for CHD, stroke and heart failure emergency admissions between 2009/10 and 2010/11 for all PCTs, OAC clusters, Cardiac & Stroke Networks and England
Methodology:	Admissions were extracted from the SEPHO HES database by LSOA, five year age band, gender and diagnosis code. PCTs, OAC clusters and Networks were created by matching LSOAs to PCTs, OAC clusters and Cardiac Networks. Where LSOAs overlap PCT boundaries, the LSOA was assigned using the best fit LSOA. Population denominators were calculated using ONS population estimates by LSOA and quinary age group (current as of October 2011) and aggregating these to PCT and Networks using the same best fit method. DSRs were calculated for all geographies for all persons for each year. DSRs were calculated by gender for the latest year only.
Further notes:	Confidence intervals were calculated using Byars method: http://www.apho.org.uk/resource/item.aspx?RID=48457
Produced by:	SEPHO
Date created:	December 2011

Subject:	Percentage of patients admitted to hospital following a stroke who spend 90% of their time on a stroke unit by PCT
Time period:	July to September 2011
Age group:	All ages
Data source:	Department of Health: Vital Signs returns
Methodology:	The indicator is constructed as part of the NHS Vital Signs returns by PCTs to the department of health. The indicator gives the proportion of stroke patients who spend more than 90% of their time on a stroke unit during a hospital spell. Numerator: Patients with a length of stay (LOS) for that patient on a stroke ward for any episode, within the spell of care, where the primary diagnosis is stroke (ICD-10 I61, I63, I64). This is divided by the LOS of any episode, within the spell, where the primary diagnosis is that of stroke regardless of ward setting. The number of patients where this calculation is greater than or equal to 0.9 is the numerator. Denominator: Patients admitted to a stroke unit with a primary stroke diagnosis (ICD-10 I61,I63,I64), in any episode within a hospital spell, July to September 2011.
Produced by:	SEPHO
Date created:	December 2011

Subject:	Percentage of transient ischaemic attack (TIA) cases with a higher risk who are treated within 24 hours by PCT
Time period:	July to September 2011
Age group:	All ages
Data source:	Department of Health: Vital Signs returns
Methodology:	The indicator is constructed as higher risk patients treated outside of an inpatient admission. Higher risk TIA cases are defined as those with an ABCD2 score of 4 or above. Numerator: TIA patients with higher risk TIA if they attended an out-patient appointment at a TIA or neurovascular clinic, or an urgent appointment, on an out-patient basis in July to September 2011. Denominator: Number of people who have a TIA who are at higher risk of stroke in July to September 2011
Produced by:	SEPHO
Date created:	December 2011

Subject:	Expenditure per head vs outcomes, 2010/11
Data source:	Programme budgeting data and CVD mortality data
Description:	Scatter plot comparing spend with outcomes
Methodology:	The data for indicators '3 year CVD mortality for all ages', 'CHD mortality for all ages' and 'cerebrovascular mortality' were converted into z-scores. This was then plotted on a scatter chart against the z-scores of the corresponding spend per weighted head of population on these diseases from programme budgeting spend in 2010/11.
Further notes:	The scatterplot relationship will look different depending upon which outcomes are used and the mortality outcomes used here do not necessarily represent the single best representation. See the Spend and Outcomes tool for further more detailed representation of possible outcomes measures: http://www.yhpho.org.uk/default.aspx?RID=49488
Produced by:	SEPHO
Date created:	January 2012

ⁱ <http://www.apho.org.uk/resource/browse.aspx?RID=39306>