Scottish Health and Wellbeing Profiles 2014

Technical Report

CONTENTS

Introduction

The Scottish Health and Wellbeing Profiles 2014 are intended to provide service providers, planners and policy makers with nationally comparable information to improve understanding of health issues relating to the people of Scotland, to set these issues in a national context and to take action to improve the health of communities. They provide information for both NHS boards (based on the revised health board boundaries as at 01 April 2014) and Local Authorities. The reports currently include: 14 health boards, 32 local authority spines and supplementary data. A Scotland Overview Report and Health Board information will be published Q2 2014.

This document provides technical information to supplement the information contained in the Definitions and Sources table, available in the online profiles tool. It includes extra detail on the 59 spine indicators, their derivation, descriptions of statistics and methods, differences from profiles 2010 and caveats about the information.

1.   Interpreting the Health Summary spine charts

Spine charts are commonly used in public health profiles to illustrate graphically a range of complex information in a way which it is intended will be quickly and easily understood. To aid comparison, in these profiles all the indicators are shown against the Scottish mean value (red line) as a reference. A modified 'traffic light' system has been applied to identify areas which are statistically significantly 'better' (blue) or 'worse' (red) than the Scottish average, or not significantly different from the Scottish average (white). An additional colour (orange), initially introduced in the 2010 Profiles, indicates where an area is significantly different from the Scottish average, but no judgement as to 'better' or 'worse' is appropriate. The 95% level of significance is used throughout.

To take some examples: in some cases (such as death rates) a higher level is clearly 'worse' (red) and a lower level 'better' (blue), while in other cases (such as immunisation coverage) a higher level is clearly 'better' (blue) and a lower level 'worse' (red). Four indicators (children looked after by the local authority, single adult dwellings, referrals to the Children's Reporter for violence-related offences and teenage pregnancies among under-20s) are coloured orange when significantly higher or lower than the Scottish average, as no judgement is made as to whether a higher or lower level is 'better' or 'worse'.

The 95% confidence interval for an indicator value for an area is used to compare that area against the overall Scotland value. The Scotland value is treated as an exact reference value, allowing the confidence interval for an indicator value to be used to test whether the value was statistically significantly different to the Scottish figure. If the interval does not include the Scottish value, the area is assessed as being statistically significantly different from Scotland (perhaps 'better' or 'worse', depending on the indicator); if the interval includes the Scottish value, the area is assessed as being similar to Scotland. This is illustrated in the example below.
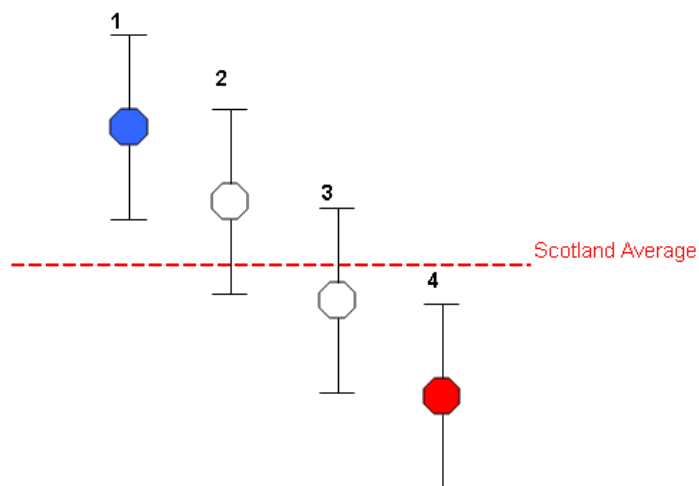
Area 1: Area is statistically significantly better than the Scotland Average.
Area 2: Area is similar to the Scotland Average.
Area 3: Area is similar to the Scotland Average.
Area 4: Area is statistically significantly worse than the Scotland Average.

When the comparator is changed from the Scotland Average to another area, the comparator is no longer treated as an exact reference value. Instead the confidence interval for the comparator value is used. Statistical significance is determined if the interval for the indicator value falls out with the interval for the comparator value. This is an approximate approach that has been used for the sake of simplicity; future versions of this tool may use more exact methods.

If the interval for the indicator value includes the comparator value (OR any value within the comparator interval), the area will be assessed as being not statistically significantly different. This is illustrated in the example below.
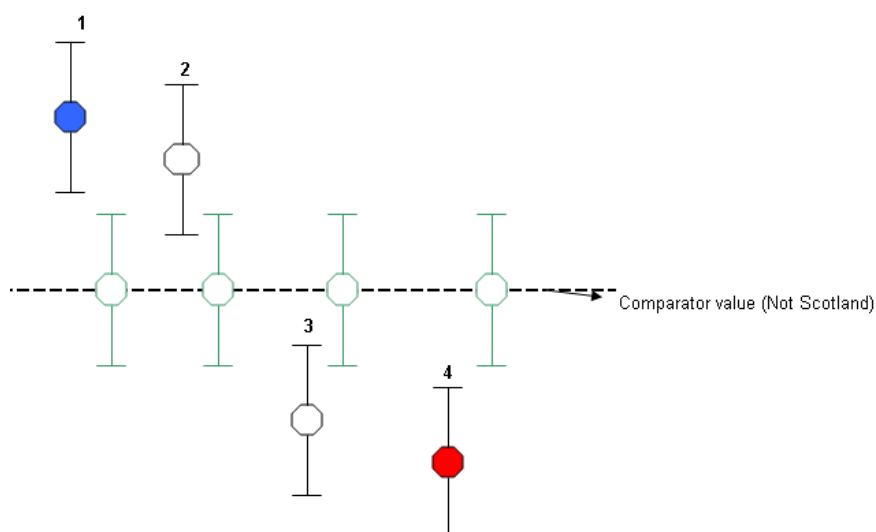
Area 1: Area is statistically significantly better than the Comparator value.
Area 2: Area is similar to the Comparator value.
Area 3: Area is similar to the Comparator value.
Area 4: Area is statistically significantly worse than the Comparator value.

The 5th, 25th, 75th and 95th percentiles are also included in the spine charts to show the distribution of the indicators.

Different indicators have different lengths of bars representing the distribution, depending on the variability inherent in the data. Note that in some profiles, the illustration of the distribution may exceed the space allowed for the bar, and is therefore truncated. When the distribution is skewed, the light grey bar will be longer on one side of the dark gray bar than the other. For example, in the case of patients hospitalised with alcohol conditions at local authority, the rates are much more widely spaced at the higher ('worse') end than the lower ('better') end.

By default, each indicator is based on the most recent of the time periods given in the Definitions and Sources table (included in the online profile tool). These time periods were the most recent for which data were available at a Scotland level at the end of December 2013.

2.   Measures used in the profiles

The measures generally follow the statistics and methods recommended by the Association of Public Health Observatories (APHO).[1] The definitions given below are adapted from the APHO paper.

- **Proportions** are statistics where the denominator is the count of a 'closed' population, and the numerator is the count of members of this population that have a specified characteristic. If O is the observed number of individuals in the sample/population having the specified characteristic and n is the total number of individuals in the sample/population, then the estimated proportion is given by $p = O/n$. In these profiles, proportions have been multiplied by 100 to obtain **percentages** for presentation purposes.

- **Crude rates** are calculated in these profiles as follows. If O is the number of people experiencing an event (such as a hospital admission) in a population of size n during a period t, then the estimated crude rate is given by $r = O/nt$. The crude rates are expressed per 100,000 population or per 1,000 population, per year.

- **Directly age-sex standardised rates** have been calculated for some hospital patient and mortality indicators because the overall rate may vary with the age-sex structure of the populations. The direct standardisation method was used, with the age-sex specific rates of the local population applied to the age-sex structure of a standard population (in this case the European standard population 2013). This gives the overall rate that would have occurred in the local population if it had the same age-sex profile as the standard population. It allows valid comparisons to be made between local areas with differing

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[1] APHO Technical Briefing paper: http://www.apho.org.uk/resource/item.aspx?RID=48457. Date of publication 1st March 2008.

population age-sex structures. In the profiles, age-sex standardised rates are expressed per 100,000 population per year.

The European Standard Population (ESP), which was first used in 1976, was revised in 2013. European Age Standardised Rates (EASRs) using ESP1976 cannot be compared with EASRs using ESP2013. See Appendix I for further details.

3.   Confidence intervals

A confidence interval is a range of values that is normally used to describe the uncertainty around a point estimate of a quantity, for example a mortality rate. In the case of indicators based on a sample of the population, uncertainty arises from random differences between the sample and the population itself. The stated value should therefore be considered as only an estimate of the true or 'underlying' value. Confidence intervals quantify the uncertainty in this estimate and, generally speaking, describe how different the point estimate could have been if the underlying conditions stayed the same, but chance had led to a different set of data. The wider the confidence interval, the greater the uncertainty in the estimate.

Confidence intervals are given with a stated probability level. In the Scottish Health and Wellbeing Profiles this is 95%, and so there is a 95% probability (ie a 19 in 20 chance) that the confidence interval includes the 'true' value of the indicator. The use of 95% is arbitrary, but is conventional practice in medical and public health statistics. The 95% confidence interval for an indicator value for an area is used to compare the area against the overall Scotland exact reference value. When the comparator is changed from Scotland to another area, the comparator is no longer treated as an exact reference value. Instead the confidence interval for the comparator value is used as described in Section 1.

Appendix II comprises a table of the methods used to calculate confidence intervals for the different measures used in the profiles, following APHO recommendations.

4.   Geographies and populations

We have presented data for NHS Boards (based on the revised health board boundaries as at 01 April 2014) and local authorities. There are 14 NHS boards and 32 local authorities. Data is not available for all NHS Board level indicators.

All of the population estimates are provided by the National Records of Scotland (NRS). Local authority and health board indicator numerators have been used alongside the corresponding published population figures as denominators. In most cases 2011 based population estimates have been used (with the exception of 4 SIMD indicators which use the 2001 based population estimates – see Table 1 for those indicators affected).

5.   Further details on specific indicators

Please note that all the data presented in Profiles 2014 are residence-based, to aid public health interpretation. Thus hospitalisation rates are based on a patient's home address (rather than the location of the hospital); child immunisation rates are based on the child's home address (rather than the location of their GP practice); and prisoner population rates are based on the prisoner's address prior to their being imprisoned (rather than the location of the prison).

The raw data used to produce the indicators came from a variety of sources (see Definitions and Sources table in all the products). Where necessary, some indicators are based on more than one year of data. This is because numbers for a single year may be too small to give robust figures. Combining years allows more reliable figures to be produced.

For some indicators obtained from cohort/survey data, the percentages are presented but the numbers are not available.

5.1 Indicators 1 and 2 - Life expectancy (LE)

The Life expectancy indicators show estimated average life expectancy (for males and females) at birth in years.

Life expectancy (LE) at birth for an area is the number of years that a newborn baby would live if they experienced the age-specific mortality rates for that area, for the time period used, throughout their life. It is a theoretical measure that reflects recent mortality rates throughout life, rather than a true prediction of the life expectancy of the local population.

The calculations use abridged life tables, with LE calculations based on Chiang (II)[2] methodology. They use NRS mid-year population estimates and death registrations (by year of registration), with a 3-year period used to ensure reasonably robust estimates for small areas.

For further details of LE calculation, including imputation of death records, please see the Healthy life expectancy topic on the ScotPHO website (follow the link to the technical paper from http://www.scotpho.org.uk/home/Populationdynamics/hle/hle_introduction.asp).

5.2 Indicator 7 - Smoking attributable deaths

TBC

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[2] Chiang CL, The life table and its construction, in Chiang CL, Introduction to stochastic processes in Biostatistics. New York, John Wiley 1968.

5.3 Indicators 9, 11 – Alcohol (Ind. 9) – and Drug (Ind. 11)-related hospital discharges

The indicator shown here is the European age-sex standardised rate (EASR) for general acute inpatient & day case discharges with (depending on the indicator) either an alcohol- or drug-related diagnosis (in any diagnostic position). Standardised rates are used to allow comparisons across geographical areas by controlling for differences in the age structure of local populations. They give the number of discharges (per 100,000 in this case) that would occur in a standard population if that population had the age-sex specific rates of the area being investigated. The rates are standardised to the 2013 European Standard population (ESP, see Appendix I for further details).

Hospital activity data are collected across the NHS in Scotland and are based on nationally available information routinely drawn from hospital administrative systems across the country. The principal data source for general acute inpatient & day case discharges is the SMR01 (Scottish Morbidity Record 01) dataset. SMR01 is an episode based patient record relating to all inpatient and day cases discharged from specialities other than mental health, maternity, neonatal and geriatric long stay specialities in NHS Scotland. A record is generated for each inpatient and day case episode, of which there are about 1,200,000 each year. Attendances at Accident and Emergency that do not result in an admission are not included. Each individual patient may have more than one stay and hence the number of people discharged within a year will be less than the total number of discharges. The SMR01 data set encompasses patient identification and demographic information, episode management information and general clinical information. Items such as waiting time for inpatient or day case admission and length of stay may be derived from the episode management information. When figures are broken down by geographical area or age the numbers in some categories can be very small, particularly for drugs. In these cases both differences between categories and trends over time should be interpreted with caution because they may be misleading.

Up to six diagnoses are recorded per admission, and episodes with either a main or a supplementary diagnosis resulting from alcohol or drug misuse are included. These conditions are identified using the International Classification of Diseases 10th Revision (ICD10) Codes. The codes can be found in Appendix IV. Note that some caution is necessary when using these data as alcohol (or drugs) misuse may only be suspected and may not always be recorded by the hospital. The figures presented here are based on all alcohol/drugs-related diagnoses throughout the hospital stay and will reflect prevalence in the catchment area as well as local policy with regard to hospital admission and discharge. The figures may also be affected by the completeness of coding locally. For this indicator the discharge date refers to the end of the patient's continuous hospital stay, which can be made up of a number of records depending if the patient has been transferred from one hospital to another or from one speciality to another during the stay. Areas may display inflated numbers and rates as a result of regional differences in coding which may not be initially apparent when looking at the numbers in isolation to local knowledge.

Numbers less than or equal to 10 have been suppressed.

5.4 Indicator 10 – Death from Alcohol Conditions

Alcohol related deaths (underlying cause) is expressed as a directly age-sex standardised rate per 100,000 population per calendar year.

Rates for this indicator are standardised to the European Standard population (ESP, see Appendix I for further details). Alcohol-related mortality is based on an extract from a dataset of all deaths reported to the National Records of Scotland (NRS, formerly General Register Office for Scotland) based on information collected on the medical certificate of cause of death together with any additional information provided subsequently by the certifying doctor. Cases counted for this indicator are these where the 'underlying cause' (the disease or injury which initiated the chain of morbid events leading directly to death) is itself entirely caused by alcohol (Examples of such conditions include alcoholic liver disease, alcoholic cardiomyopathy etc.). This definition is generally used for reporting high level trends in mortality data for national and international statistics. However, it does not include deaths where an alcohol-related condition was recorded as a contributory factor but was not selected as the underlying cause.
Further it does not include conditions (such as road traffic deaths) where a proportion of deaths are known to be due to alcohol. The codes included to define alcohol related conditions as an underlying cause of death are shown in Appendix V.

Numbers less than or equal to 10 have been suppressed.

5.5 Indicator 12 – Active travel to work

This indicator shows the number and percentage of adults travelling to work by either cycling or walking. The denominator is all adults travelling to work.

The indicator used the cohort of all adults employed, self-employed or in full-time education and not working from home taken from the random respondents to the Scottish Household Survey question RD3 (2012) "How do you usually travel to work (or school/college/university if in full time education)?" The options listed are: walking; driving car/van; passenger car/van; motorcycle/moped; bicycle ; school bus; works bus; ordinary bus; taxi; rail; underground; ferry; aero plane; horse-riding; other.

The indicator measures those adults who responded with either walking or cycling. The denominator is the total number of random adults answering this question (from the relevant local authority).

No suppression is required for this indicator.

5.6 Indicator 13 – Sporting participation

This indicator shows the number and percentage of adults participating in sporting activity.

This indicator used random adult respondents to the Scottish Household Survey question SPRT3a "In the last four weeks, have you done any of the activities listed on this card?" The activities listed are: walking; swimming; football; cycling; keepfit/aerobics; multigym use/weight training; golf; running/jogging; snooker/billiards/pool; dancing; bowls; walking; other; none. The indicator measures those who report taking part in any of the above (and includes walking). The denominator is the total number of random adults answering question (from the relevant local authority).

No suppression is required for this indicator.

5.7 Indicator 18 - Asthma and Indicator 44 - Assaults

The indicator shown here is the European age-sex standardised rate (EASR) for patients with (depending on the indicator) either an asthma or assault-related diagnosis (in any diagnostic position). Standardised rates are used to allow comparisons across geographical areas by controlling for differences in the age structure of local populations. They give the number of discharges (per 100,000 in this case) that would occur in a standard population if that population had the age-sex specific rates of the area being investigated. The rates are standardised to the 2013 European Standard population (ESP, see Appendix I for further details).

The indicators are reported at a patient level. They report the number of people who have had a hospital admission with the specified condition at least once during the year in question. The figure is divided by the relevant population size. The numbers are based on 3-year totals and the rates are based on a 3-year average.

The selection of diagnostic codes for these indicators used all six diagnostic positions (primary position and 5 secondary positions) on the hospital records. Completenesss of recording of secondary positions (co-morbidities) varies among hospitals with a balance being sought by some hospitals between quality of recording of the main position and quality and completeness of recording of the other (secondary) positions.

Under-recording may contribute to variations seen in the data for indicators 18 and 44. Please take this into consideration when interpreting these indicators.

A list of all ICD10 codes used for hospital based indicators can be found in Appendix III.

Note: The actual impact of the under-recording of relevant secondary positions for the profiles indicators is unknown because the secondary position is not used only to record relevant comorbidities, but is also used to record external causes of morbidity and mortality, and factors influencing health status and contact with health service.

Numbers less than or equal to 10 have been suppressed.

5.8 Indicator 22 - Patients prescribed drugs for anxiety/depression/ psychosis

This indicator shows the number and percentage of the population being prescribed drugs for anxiety, depression or psychosis.

The drugs selected were: British National Formulary (BNF) code 4.1.2 (Anxiolytics), BNF code 4.2 (Antipsychotics) and BNF code 4.3 (Antidepressants).

These indicators are derived from prescribing data at council area and Scotland level using patient based analysis.

Patient based analysis has been made possible through the recent availability of comprehensive patient identifiable data. All NHS patients have a unique Community Health Index (CHI) number which makes it possible to identify which prescription items have been dispensed for individual patients. The proportion of prescriptions with a valid CHI number recorded is now high enough to make patient based analysis possible.

The patient count only includes patients who have had items dispensed that have a valid CHI number attached. The CHI Capture rate for BNF Section 4.2, 4.3 and Sub Section 4.1.2 is 96.4% for 2012/13. As the CHI Capture rate is less than 100%, there is a small amount of underestimation in the number of patients who have had these drugs dispensed.

At council area level, the number of patients relates to the number of patients who have been dispensed at least one prescription item for anxiety/ depression/ psychosis during the course of the financial year, who are resident in that council area. At Scotland level, patients that are resident in Scotland and have been dispensed at least one item are included. The Scotland total does not match the sum of the Council Areas as some patients may be resident in more than one Council Area during the financial year. Any items prescribed in England are excluded.

The population estimates, used in the denominator for this prescribing indicator, are taken from the National Records of Scotland (NRS) population estimates. It should be noted that NRS population estimates are taken from a fixed point in time (as at 30th June), while patients counts are based on the total number of patients that were dispensed an item over the course of a full year.

The methodology for this indicator has been completely changed since it was last published in 2010. The previous methodology estimated the number of patients based on the numbed of Defined Daily Doses (DDDs) dispensed over the year. This assumed that the DDD was given to all patients and that all patients received the DDD for the whole year. The new methodology uses patients' unique Community Health Index (CHI) number to identify the actual number of patients who have been dispensed the selected drugs within the financial year. The previous methodology used GP list sizes to estimate the

population while the new methodology used NRS mid-year population estimates.

It is difficult to precisely quantify the impact the new methodology has had on the values. The overall percentage of patients on the selected drugs has increased since 2009. This is likely to be in part due to the use of a significantly more accurate methodology. The use of GP list sizes for the population also previously over-inflated the denominator, and thus led to a less accurate, lower, patient count. Estimating the number of patients using DDDs also underestimated figures as patients may be on a low dose, or prescribed medications for only a short period of time. The increase is also likely to be in part due to an increase in patients being prescribed these medicines.

Numbers less than or equal to 10 have been suppressed.

5.9 Indicator 26 – Adults claiming incapacity benefit/severe disability allowance/employment and support allowance

This indictor shows the number and percentage of all adults aged 16+ claiming incapacity benefit/severe disability allowance (SDA) or employment and support allowance (ESA).

Employment and Support Allowance (ESA) replaced Incapacity Benefit (IB) and Income Support paid on the grounds of incapacity for new claims from 27th October 2008. This had previously resulted in a reduction in the IB figures however recipients of ESA are now included in this indicator for the 2014 Health and Wellbeing Profiles.

The indicator shows the number and percentage of all adults aged 16+ claiming incapacity benefit, severe disability allowance (SDA) or employment and support allowance (ESA). The data is presented is from 2012 (DWP; quarter ending February).

No suppression is required for this indicator.

5.10 Indicator 30 – Single adult dwellings

This indicator shows the number and percentage of dwellings subject to a Council Tax discount of 25 per cent. This may include, for example, dwellings with a single adult, dwellings with one adult living with one or more children, or with one or more adults who are 'disregarded' for Council Tax purposes.

These are the number of dwellings which are entitled to a 'single adult' Council tax discount. This category includes one adult living alone or with children, or with other people who are 'disregarded' for Council Tax purposes.

These data are collected as part of Scottish Government's statistical support for local government's CTAXBASE data collection. They have been obtained from council area Council Tax billing systems.

Values for this indicator are not categorised as 'better' or 'worse' than the Scottish average within spine charts.

No suppression is required for this indicator.

5.11 Indicator 31 - Households in extreme fuel poverty

This indicator shows the number and percentage of all households that suffer 'extreme fuel poverty': defined as having to spend over 20% of household income on fuel (3-year total number and 3-year average measure).

This indicator comes from the Scottish House Condition Survey (SHCS; see sheet 8.12 in
http://www.scotland.gov.uk/Topics/Statistics/SHCS/latables2012).

There is general information on the indicator at
http://www.scotland.gov.uk/Publications/2013/12/3017/290984.

No suppression is required for this indicator.

5.12 Indicator 32 - Average tariff score of all pupils on the S4 roll

This indicator shows the average tariff score (pupil attainment) of all pupils enrolled in fourth year of secondary school (S4) of publicly funded secondary schools.

The average tariff score enables different types of certification to be considered together, making it easier to compare average educational attainment for different areas. The tariff score of a pupil is calculated by allocating a score to each level of qualification and award, using the Unified Points Score scale. For example, a Standard Grade at level 1 counts as 38 points, and at level 4 counts as 14 points.

Data for this indicator are restricted to secondary year 4 (S4) pupils attending publicly funded secondary schools. The data do not include: pupils attending publicly funded special schools and private independent schools; adults attending publicly funded secondary schools; and pupils educated outwith the school education system (e.g. at home).

No suppression is required for this indicator.

5.13 Indicator 43 - Referrals to the Children's Reporter for violence-related offences

This indicator provides information on the number of children, aged 8-15, and referred to the Scottish Children's Reporter Administration (SCRA) for 'violence-related offences'. Children and young people are referred to the SCRA because some aspect of their life is giving cause for concern. They may be referred from a variety of sources, including police, social work, education and health. Each referral is then investigated to determine whether

compulsory measures of intervention are required. Referrals may be on offending grounds or non-offending grounds, with the former being subdivided by type of offence. Profiles 2014 use a bespoke definition of what constitutes a 'violence-related' offence. The definition includes a broad range of offences, commonly associated with violence, as listed below:

- Assault
- Assault with attempt to rob
- Assault with intent to ravish
- Attempted murder
- Bodily injury
- Carrying offensive weapon
- Culpable homicide
- Indecent assault
- Knives (Sc) Act s.1
- Murder
- Possession of firearm with intent to injure/to rob
- Rape
- Serious assault
- Willful and malicious fire-raising.

Please be aware that children may be counted against more than one offence and/or local authority. Data are presented as a number and the crude rate per 1,000 population aged 8 to 15 years. Referrals to SCRA may include children aged over 15 years who are subject to a supervision requirement, but such referrals are excluded for the purpose of this indicator. In addition, it is important to note that very serious offences such as rape, murder, etc. are almost always dealt with by the Criminal Justice System and not the Children's Hearing System.

This indicator is included in the profiles as it provides a measure of violent behaviour in children and young people. Local referring practice may vary and this indicator may reflect the extent to which violent offences are reported and acted upon, as well as the actual rate of occurrence of such offences. Accordingly, local interpretation is crucial and values for this indicator are not categorised as 'better' or 'worse' than the Scottish average within spine charts. As with all indicators, additional caution should be used when interpreting information based on a small number of events. It should be noted that there has been a significant drop in the number of referrals to the Children's Reporter for violence related offences since the publication of the 2010 Profiles.

Numbers less than or equal to 5 have been suppressed.

5.14 Indicator 48 – Teenage pregnancies

This indicator shows teenage pregnancies as a 3-year total number and 3-year average crude rate per 1,000 females aged 15-19.

Data based on pregnancies for mothers under under 20 years have been presented within the ScotPHO profiles 2014 for several reasons:

(i) the relatively small number of pregnancies in those aged under 16 precludes presentation of robust data at the required geographies.
(ii) this information aligns to currently published ISD data.
(iii) this information may be useful for planning purposes locally.

It should be recognised that pregnancies in those aged 16 to 19 are not necessarily associated with poorer outcomes for mothers and infants. Accordingly, local interpretation of this indicator is vital, and values for this indicator are not categorised as 'better' or 'worse' than the Scottish average within spine charts.

To improve the robustness of the data set, data have been aggregated over three years. The source for this indicator is NRS registered births and stillbirths, and notifications of abortions to the Chief Medical Officer for Scotland under the Abortion Act 1967.

Numbers less than or equal to 10 have been suppressed.

5.15 Indicator 49 – Mothers smoking during pregnancy

This indicator shows women recorded as a 'current smoker' at antenatal booking appointment: 3-year total number and 3-year average percentage. Denominator: All women with a known smoking status at booking (those with a smoking status of 'unknown' have been excluded).

Data on smoking behaviour is based on self-reported information obtained from mothers at their ante-natal booking visit in the community or at hospital. The 'smoking at booking' data item was introduced in 1993/94 and it should be noted that, particularly in the earlier years and again more recently, this information is not always recorded and therefore can affect the results. Because of concerns about the quality of 'smoking at booking' data, care should be taken in interpreting the results.

Numbers less than or equal to 10 have been suppressed.

5.16 Indicator 51 – Babies exclusively breastfed at 6-8 weeks

This indicator shows number of babies reported by parent as being exclusively breastfed at 6-8 week review as a 3-year total number and 3-year average percentage. Denominator: total number of babies receiving a 6-8 week review. These statistics are derived from breastfeeding data recorded at the 6-8 week review, for NHS Boards in Scotland which participate in the Child Health Systems Programme Pre-School system (CHSP-PS).

Among participating NHS boards, the majority of 6-8 week reviews are carried out before babies are 9 weeks old. The maximum age limit for the 6-8 week review is recommended as 12 weeks. Variation in the timing of the 6-8 week review may affect the reported rates as there is a known drop-off in breastfeeding rates with time.

The number of Boards using the CHSP Pre-School system and recording data has increased since 2003/04 from 10 to all 14 NHS Boards in Scotland. Data for NHS Grampian and NHS Orkney for 2010/11 are partial. These Boards implemented the system in June 2010 and July 2010 respectively and therefore data are not available for babies born in the first quarter of 2010/11 who had a First Visit or 6-8 week review before the implementation date. Further information can be obtained from the 2013 ISD Breastfeeding Statistics report.

Please be aware that this indicator is now shown for financial years as opposed to the 2010 Health and Wellbeing profiles which reported on calendar year.

Numbers less than or equal to 10 have been suppressed.

5.17 Indicator 52 & 53 —Child dental health in primary 1 and primary 7

This indicator shows number and percentage of (depending on the indicator) either Primary 1 or Primary 7 children receiving a 'Category C' letter from Basic Inspection ("No obvious decay experience, but child should continue to see the family dentist on a regular basis.")

The percentage of 'C' letters (indicating no obvious decay experience) received by P1 and P7 children should be interpreted with caution, because the proportion of the P1/P7 child population who received a Basic Inspection varies by local authority area. In the case of low/uneven reporting rates, data may not be robust at local authority level because the numerator is the number of children inspected, not the whole child population of the local authority. Additionally, comparison of P1 and P7 Basic Inspection results within a local authority area may be inappropriate, because of the different population and service profiles and reporting rates; as may be comparison between this year's indicators and those of previous years.

Further information can be obtained from the dental team at ISD.

Numbers less than or equal to 10 have been suppressed.

5.18 Indicator 54 —Child obesity in primary 1

This indicator shows the number and percentage of Primary 1 children whose BMI is within the top 5% of the 1990 UK reference range for their age and sex. Denominator is number and percentage of all children reviewed. Data is not available for all areas.

The Child Health Systems Programme - School aged Children (CHSP-S), from which these data are derived, was introduced in 1993 and the number of participating boards has increased over the years to all 14 NHS Boards. The data for 2011/12 covers all Local Authorities in Scotland for the first time.

The body mass index (BMI) statistics cover approximately 92% of children in Primary 1 in Scotland.

Further information can be obtained from the [ISD Primary 1 Body Mass Index (BMI) Statistics Report 2011/12](#).

No suppression is required for this indicator.

5.19 Indicator 56 – Bowel screening uptake

This indicator shows Bowel screening uptake for all eligible men and women invited (aged 50-74 years) as a 3-year average number and 3-year average percentage.

The Scottish Bowel Screening Programme commenced a phased roll out in June 2007 and by December 2009 all NHS Boards in Scotland were participating in the Programme. All men and women registered with a Community Health Index (CHI) number and aged 50-74 years are invited to participate and be screened every two years.

Eligible men and women are posted a guaiac-based faecal occult blood test kit (FOBT) which should be completed at home. This involves collecting 2 samples from each of 3 separate bowel movements. The kit is returned in a pre paid envelope to the central screening centre in Dundee and tested for hidden traces of blood in the stool. Individuals who have a positive FOBT result are referred to their local hospital for assessment and, where appropriate, offered a colonoscopy as the first line of investigation.

Detailed information about the Scottish Bowel Screening Programme can be found on the [ISD Bowel Screening web pages](#).

Numbers less than or equal to 10 have been suppressed.

5.20 Indicator 57 – Cervical screening uptake

TBC

5.21 Indicators 58 and 59 – Immunisation uptake at 24 months

This indicator shows the immunisation uptake for children at 24 months, expressed as a 3-year total number and 3-year average percentage of children for (depending on indicator) MMR or 5 in 1 vaccinations.

The results for the immunisation uptake indicators do not exactly match immunisation statistics published on the ISD website. This is because we used the child's address of residence rather than the address of the child's GP practice (all Profiles 2014 analyses are residence-based to aid public health interpretation). Additionally, some children do not have a postcode recorded

so they are included in the Scotland total figure but not at lower geographical levels.

Numbers less than or equal to 10 have been suppressed.

6.   Comparisons with Profiles 2010

We advise that Profiles 2010 and Profiles 2014 are not directly compared. For many of the 56 indicators which have been retained in Profiles 2014 from Profiles 2010, there have been some changes in definition or methodology which mean they are not comparable between the two sets of profiles (see Table 1 for details).

Table 1: Indicators which have been changed between Profiles 2010 and Profiles 2014

Indicator number	Indicator	Changes made between Profiles 2010 and Profiles 2014
3, 4, 6	Deaths All Ages; Early deaths from coronary heart disease (<75s); Early deaths from cerebrovascular disease (<75s).	Indicators are calculated using the 2013 European Standard Population (see Appendix I).
5	Early deaths from Cancer (<75s)	Change of time period from 5 year to 3 year. Indicator is calculated using the 2013 European Standard Population (see Appendix I).
9, 10	Alcohol conditions: discharges and deaths	Change of definition (See Indicators 9 and 10) Change of time period definition from 3 years to a single year. Indicators are calculated using the 2013 European Standard Population (see Appendix I).
11	Drug related discharges	Change of definition (See Indicator 11) Change of time period definition from 3 years to a single year. Indicator is calculated using the 2013 European Standard Population (see Appendix I).
14	Patients registered with cancer	Change of time period from 5 year to 3 year. Indicator is calculated using the 2013 European Standard Population (see Appendix I).
15-20	Hospital patient based indicators	Indicators are calculated using the 2013 European Standard Population (see Appendix I).
21	Road traffic accident casualties	Indicator is calculated using the 2013 European Standard Population (see Appendix I).
23	Psychiatric hospital patients	Change of definition to be based on admissions, due to issues with the

| | | reliability of SMR04 discharge data.

Indicator is calculated using the 2013 European Standard Population (see Appendix I). |
|---|---|---|
| 24 | Deaths from suicide | Indicator is calculated using the 2013 European Standard Population (see Appendix I). |
| 26 | Adults claiming incapacity benefit/severe disability allowance/employment support allowance | Change of definition. This now includes ESA (employment support allowance) data as incapacity benefit and severe disability allowance was stopped for new claimants in 2010. |
| 31 | Households in extreme fuel poverty | Change in time period from 4-year to 3-year aggregate due to change in the Scottish Housing Conditions Survey. |
| 35 | Working age adults with low or no educational qualifications | Change in denominator. Working age population now includes females aged 60 – 64 years. |
| 36 | Population income deprived | Uses 2001-base population mid-year estimate as denominator (for 2010). |
| 37 | Working age population employment deprived | Change in denominator. Working age population now includes females aged 60 – 64 years.

Uses 2001-base population mid-year estimate as denominator (for 2010). |
| 38 | Working age population claiming job seekers allowance | Change in denominator. Working age population now includes females aged 60 – 64 years. |
| 41 | Crime rate | Uses 2001-base population mid-year estimate as denominator (for 2010). |
| 42 | Prisoner population | In the 2010 Profiles this indicator was based on a snapshot of data as at 30th June 2008. The 2010 Profiles are based on a snapshot as at 30th April 2012 due to data availability.

Indicator is calculated using the 2013 European Standard Population (see Appendix I). |
| 44 | Assault discharges | Indicator is calculated using the 2013 European Standard Population (see Appendix I). |

46	People living in 15% most 'access deprived' areas	Uses 2001-base population mid-year estimate as denominator (for 2010).
48	Teenage pregnancies	Change in definition, previously based on mothers <18 years, now based on mothers <20 years.

APPENDIX I

The appendix explains why European Age Standardised Rates based on the 1976 and 2013 ESP are not comparable.

Example: General acute inpatient and day case discharges in Scotland with an Alcohol-related diagnosis in any position: 1997/98-2012/13.

Based on the number of discharges observed in each of the financial years, the following rates were calculated:

Crude Rate
In this example the crude rate is the number of people who are admitted to hospital or die from a specific condition in a country or region, divided by the total population of that country or region and the total time at risk. The rate is normally expressed 'per 1,000 per year", 'per 10,000 per year' or 'per 100,000 per year'. Comparing crude rates can be misleading if the age structures of the populations being compared are different. For example areas with larger percentages of younger people may have lower death rates than areas with larger percentages of older people. Differences based on comparisons of crude rates may reflect differences in age structure rather than real differences in the risk of disease. Age standardised rates take account of differences in age structure and allow comparisons to be made between different geographical areas that reflect real differences in risk rather than differences in age structure.
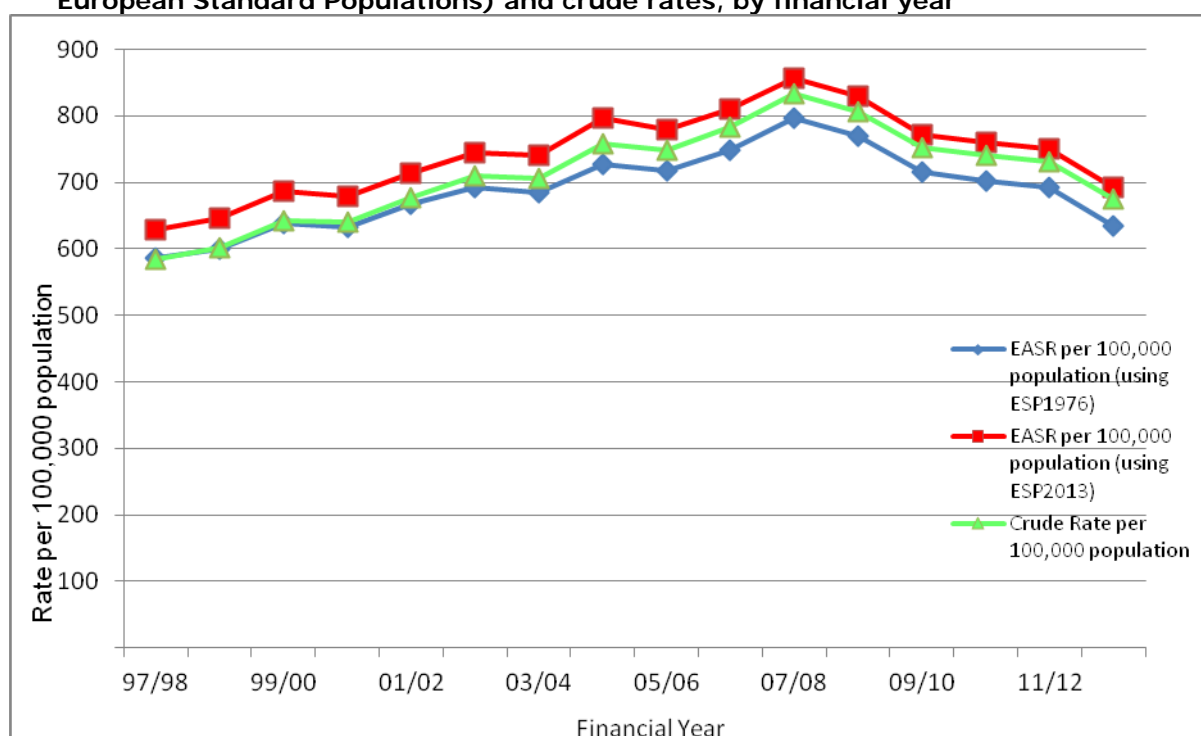
European Age Standardised Rate (EASR) using ESP1976
The age-specific rate is calculated for each 5 year age group by dividing the number of cases by the population and time at risk. The weighted average of all the age-specific rates is calculated to give the overall EASR. The weights are based on the population in each 5 year age group in the 1976 European Standard Population. The 1976 European Standard Population has a relatively young age structure. This has the effect of producing higher rates for conditions common in younger ages and lower rates for conditions common at older ages.

European Age Standardised Rate (EASR) using ESP2013
The age-specific rate is calculated for each 5 year age group by dividing the number of cases by the population and time at risk. The weighted average of all the age-specific rates is calculated to give the overall EASR. The weights are based on the population in each 5 year age group in the 2013 European Standard Population. The 2013 European Standard Population has a relatively old age structure. This has the effect of producing lower rates for conditions common in younger ages and higher rates for conditions common at older ages.

Comparison of European Age Standardised Rates[1,2] (using both 1976[3] and 2013[4,5] European Standard Populations) and crude rates, by financial year

Notes:

(1) The population estimates used in the calculation of rates above are based on the 2011 Census results.

(2) The European Standard Population (ESP), which was first used in 1976, was revised in 2013. European Age Standardised Rates (EASRs) using ESP1976 and ESP2013 are not comparable.

(3) European Age-Sex Standardised Rate (EASR), calculated using ESP1976 and using 5 year age groups 0-4, 5-9 up to an upper age group of 85+.

(4) European Age-Sex Standardised Rate (EASR), calculated using ESP2013 and using 5 year age groups 0-4, 5-9 up to an upper age group of 90+.

(5) The upper age group for the 2013 European Standard Population structure is 95+. However, due to Scotland population estimates data being unavailable for the 95+ age group for all required geographies, the upper age group used is 90+. This is an amalgamated age group containing both the 90-94 and 95+ age groups.

It can be seen that the EASR (using ESP1976) is the lowest of the three rates. The Crude rate is slightly higher than this, and the EASR (using ESP2013) is a little higher still. Alcohol-related discharges are more frequent among older age groups. As explained above, because ESP2013 uses an older population, it gives additional weight to discharges at older ages. This explains why the ESP2013 rates are higher than the other two rates. The ESP1976 rates are lower than the crude rates because they use a younger age structure and so give less weight to discharges at older ages. The trends shown for each method of calculating rates are similar, suggesting that there has not been an appreciable change in the age distribution of the discharges. EASRs (using ESP1976) are not comparable with EASRs (using ESP2013). For example, comparing the EASR (using ESP1976) for 09/10 in a report issued in 2013, to an EASR (using ESP2013) relating to the same financial year 09/10, in a report issued in 2014, is meaningless.

APPENDIX II

Methods used to calculate confidence intervals

For indicator presented as:	Method	Comments/ Assumptions	References
Proportions and Percentages	Wilson Score method	Wilson Score performs well when the numerator and/or denominator is small.	Wilson EB. Probable inference, the law of succession, and statistical inference. *J Am Stat Assoc* 1927; **22**: 209-12.
Crude rates	Byar's approximation	Performs well with low rate and large denominator (i.e. the variability in the observed event *O* is described by the Poisson distribution). This method is simple to calculate and gives very accurate approximations to the exact Poisson probabilities even for small counts.	
Directly age-sex standardised rates	Dobson	Rates assume the Poisson distribution.	Dobson A et al. Confidence intervals for weighted sums of Poisson parameters. *Stat Med* 1991; **10**: 457-62.

APPENDIX III

Codes selected for death and hospital patient indicators

Indicator number	Indicator	Codes
4, 16	Coronary heart disease deaths and hospital patients	ICD10: I20-I25 (principal diagnosis only)
5,14	Cancer registrations and deaths	ICD10: C00-C97 (excl C44)
6,17	Cerebrovascular disease deaths and hospital patients	ICD10: I60-I69, G45 (principal diagnosis only)
9	Alcohol related discharges	See Appendix IV
10	Deaths from Alcohol conditions	See Appendix IV
11	Drug related hospital discharges	See Appendix V
15	COPD hospital patients	ICD10: J40-J44, J47 (principal diagnosis only)
18	Asthma hospital patients	ICD10: J45, J46 (all diagnostic positions)
19	Emergency admission hospital patients	Old type admission code 4,5,6,7,8
20	Multiple admission hospital patients	Patients aged 65+ with 2 or more emergency admissions (see codes above) in a year. Excludes dental hospital and geriatric long stay admissions.
21	Road traffic accident casualty patients	Type of admission code 32 for hospital admissions (principal diagnosis only) ICD10: V01-V89 for deaths
24	Deaths from suicide or undetermined intent	ICD10: X60-X84, Y10-Y34,Y87.0, Y87.2

44	Assault hospital patients	ICD10: X85-Y09 (all diagnostic positions)

APPENDIX IV

ICD-10 codes used to count the number of alcohol-related discharges

ICD10 code	Description
F10	Mental & behavioural disorders due to use of alcohol
K70	Alcoholic liver disease
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol undetermined intent
Y90	Evidence of alcohol involvement determined by blood alcohol level
Y91	Evidence of alcohol involvement determined by level intoxication
E24.4	Alcohol induced Pseudo-Cushing's syndrome
E51.2	Wernicke's Encephalopathy
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
G72.1	Alcoholic myopathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K86.0	Alcohol-induced chronic pancreatitis
O35.4	Maternal care for (suspected) damage to foetus from alcohol
P04.3	Foetus and newborn affected by maternal use of alcohol
Q86.0	Fetal alcohol syndrome (dysmorphic)
R78.0	Finding of alcohol in blood
T51.0	Toxic effect of ethanol
T51.1	Toxic effect of methanol
T51.9	Toxic effect of alcohol, unspecified
Y57.3	Alcohol deterrents
Z50.2	Alcohol rehabilitation
Z71.4	Alcohol abuse counselling and surveillance
Z72.1	Alcohol Use

ICD-10 codes used to count the number of drug-related discharges

ICD-10 Code	Description
F11	Mental and behavioural disorders due to use of opoids
F12	Mental and behavioural disorders due to use of cannabinoids
F13	Mental and behavioural disorders due to use of sedatives or hypnotics
F14	Mental and behavioural disorders due to use of cocaine
F15	Mental and behavioural disorders due to use of other stimulants, including caffeine
F16	Mental and behavioural disorders due to use of hallucinogens
F18	Mental and behavioural disorders due to use of volatile solvents
F19	Mental and behavioural disorders due to multiple drug use and use of other psychoactive substances

APPENDIX V

**ICD-10 codes used to count the number of alcohol-related deaths (underlying cause);
as also used by the National Records of Scotland (NRS).**

ICD-10 code	Description
F10	Mental & behavioural disorders due to use of alcohol
K70	Alcoholic liver disease
K73	Chronic hepatitis, not elsewhere classified
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol undetermined intent
G31.2	Degeneration of nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K74.0	Hepatic fibrosis
K74.1	Hepatic sclerosis
K74.2	Hepatic fibrosis with hepatic sclerosis
K74.6	Other and unspecified cirrhosis of liver
K86.0	Alcohol-induced chronic pancreatitis