**NHS Digital**

**Indicator Supporting Documentation**

**IAP00459 Health inequalities (area deprivation) – Life expectancy at 75**

Application Form

Indicator and Methodology Assurance Service

**Title: Health inequalities (area deprivation) - Life expectancy at 75**

**Set or domain: NHS Outcomes Framework – Domain 1 – Preventing people from dying prematurely**

**IAS Reference Code: IAP00459**

**Version History**

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| --- | --- | --- | --- |
| Version | Date | Changed By | Change |
| V0.1 |  |  |  |
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Section 1 Introduction / Overview

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| --- | --- |
| **1.1 Title** | Health inequalities (area deprivation) - Life expectancy at 75 |
| **1.2 Set or domain** | 1b NHS Outcomes Framework – Domain 1 – Preventing people from dying prematurely |
| **1.3 Topic area** | Premature mortality, health inequalities |
| **1.4 Definition** | This indicator measures inequalities in life expectancy at 75 for men and women in England, based on area deprivation.  Life expectancy is supplied by ONS for each deprivation decile. The slope index of inequality (SII) is then calculated based on these figures. The SII is a measure of the social gradient in life expectancy, i.e. how much it varies with deprivation. It takes account of health inequalities across the range of deprivation and summarises this in a single number. This represents the range in life expectancy across the social gradient from most to least deprived, based on a statistical analysis of the relationship between life expectancy and deprivation across all deprivation deciles.  The SII is calculated using population-weighted linear regression. To allow for differences in population size between deciles, each is given a rank score based on the midpoint of its range in the cumulative distribution of the population. The deciles are first ordered from most deprived to least deprived. If decile 1 contains 12% of the population, its rank score would be 12/2=6. If decile 2 includes 10% of the population, its rank score would be 12+(10/2)=17. The life expectancy is plotted against this rank score and a population-weighted regression line is fitted to the data by the least squares method. The SII is the gradient of the resulting fitted line.  The SII is calculated only for the Deprivation Decile breakdown for Female and Male for pooled year periods, e.g. 2012-14 |
| **1.5 Indicator owner & contact details** | **Department of Health**  Andrew Parker  Principal Operational Research Analyst  Outcomes Analysis Team  Department of Health  [Andrew.Parker@dh.gsi.gov.uk](mailto:Andrew.Parker@dh.gsi.gov.uk) |
| **1.6 Publication status** | Not currently in publication |

Section 2 Rationale

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| **2.1 Purpose** | The purpose of the indicator is to provide a measure of the inequality related to area deprivation in relation to life expectancy. This can be tracked over time to assess progress in reducing this inequality.  A number of indicators within the NHS Outcomes Framework have been selected for health inequality assessment[[1]](#footnote-1).  The indicator on which this indicator is based, 1b Life expectancy at 75, hereafter referred to as the ‘underlying indicator’ is an indicator in domain 1 – Preventing people from dying prematurely. This indicator is measured to ensure that the NHS is held to account for doing all that it can to prevent avoidable deaths in older people. This indicator captures all deaths at ages 75 and over.[[2]](#footnote-2) The health inequality indicator is an indicator which captures high level health inequalities and ensures that the NHS can be held to account for doing all that it can to reduce inequalities in avoidable deaths in older people.  Because of the linear relationship between the underlying indicator value and deprivation the Slope Index of Inequality (SII) has been selected to measure how much life expectancy varies with deprivation. The Relative Index of Inequality (RII) has been selected as this gives context to the SII, indicating whether a change observed in the SII represents an increase or decrease in the extent of inequality relative to overall performance in the indicator, i.e. the SII as proportion of the England indicator value |
| **2.2 Sponsor** | Anne Griffin (DH - Health inequalities unit)  [anne.griffin@dh.gsi.gov.uk](mailto:Anne.Griffin@dh.gsi.gov.uk)  Underlying indicator: Heather White, NHS Services Team, Department of Health  Tel: 020 7210 5811  e-mail: [Heather.White@dh.gsi.gov.uk](mailto:Heather.White@dh.gsi.gov.uk) |
| **2.3 Endorsement** | The Outcomes Framework Technical Advisory Group (OFTAG) has endorsed that summary measures of health inequality should be used to permit the measurement and monitoring of the extent of health inequality in the context of the NHS Outcomes Framework.  OFTAG have endorsed the use of SII as a measure of health inequality related to area deprivation on indicators and inequality dimensions for which it is judged appropriate. OFTAG have reviewed information on this specific indicator and judged that the SII (based on a linear model) is appropriate to use for life expectancy at 75, based on the observed relationship with deprivation.  A comparison between the linear model and an exponential model was performed for this indicator. The results showed that both models were a reasonable fit, with the exponential model similar to or slightly worse than the linear model[[3]](#footnote-3). SII and RII estimates based on different models track each other closely over time. |
| **2.4 Evidence and Policy base**  Including related national incentives, critical business question, NICE quality standard and set or domain rationale, if appropriate | The WHO has stated that "Avoidable health inequalities arise because of inequalities in society and in the conditions in which we are born, grow, live work and age, and the systems put in place to deal with illness. The conditions in which people live and die are, in turn, shaped by political social and economic forces.” For the purposes of this paper, we will use “health inequality” to refer to variation in health outcomes by any demographic, cultural, social or socio-economic factor (which fits with the WHO approach). This would include socio-economic group or deprivation, as well as other social or demographic characteristics.  On entering office as Prime Minister in July 2016, Theresa May made reference to health inequalities in life expectancy in her inaugural speech, to ‘fight the burning injustice that, if you’re born poor, you will die on average 9 years earlier than others’.  The Government’s commitment to reduce health inequalities is set out in the Department of Health’s Shared Delivery Plan: 2015-2020[[4]](#footnote-4), which includes an objective to achieve measurable and sustained reductions in health inequalities by 2020, particularly in life expectancy and healthy life expectancy. This indicator will clearly be beneficial in monitoring change at older ages in inequalities in life expectancy.  Health inequalities have become a significant topic in the NHS in recent years. The NHS England annual report 2015-16[[5]](#footnote-5) describes work undertaken to reduce health inequalities and includes the following criterion “Systematic focused action to reduce inequalities in access, outcomes and experience based on a defined and evolving set of metrics.“ under which it includes the development of this indicator.  The Government’s mandate to NHS England for 2016-17[[6]](#footnote-6) sets out a clear imperative to reduce health inequalities as part of Objective 1:  Through better commissioning, improve local and national health outcomes, particularly by addressing poor outcomes and inequalities.  It also states that:  “We expect NHS England to demonstrate improvements against the NHS Outcomes Framework, and work with CCGs to reduce variations in quality of care and outcomes at a local level. NHS England must secure measurable reductions in inequalities in access to health services, in people’s experience of the health system, and across a specified range of health outcomes.”  The Secretary of State for health sent a letter[[7]](#footnote-7) to leaders of the health system, including NHS England, in February 2016, setting out specific inequalities metrics which would be used for assurance for 2015-16 to 2020, and this included this indicator. |

Section 3 Data

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| **3.1 Data source** | The output of the NHS Outcomes Framework indicator 1b – Life expectancy at 75 (the underlying indicator). This is taken from ONS fully calculated, ONS use:  Lower super output areas (LSOAs) are grouped into deprivation deciles according to the 2015 Index of Multiple Deprivation (IMD). Abridged life tables are then calculated for each deprivation decile to arrive at the life expectancy data presented.  NHS Digital download mid-year population estimates from the ONS website and make the data available to internal analytical teams through a centralised database. The Clinical Indicators team query this database to produce population estimates for those aged 75 and over by gender and lower super output area; these are aggregated over three year period to produce population estimates by deprivation decile |
| **3.2 Justification of source and others considered** | This indicator is a measure of the range of deprivation in life expectancy at 75 for men and women in England; therefore the underlying indicator is the data source.  It is proposed that IMD 2015 is used for the calculation of the area deprivation health inequality for all years.  The Outcomes Analysis Team provided analysis to consider whether single IMD allocation should be used for all years, or whether to use the IMD closest to the year of indicator data in question. The former approach answers the question, what improvement has been achieved in inequalities between those areas that were the most and least deprived at a fixed baseline? The latter approach answers the question, what is the health inequality across the contemporary deprivation distribution and how has this changed over time? The risk of using a fixed IMD is that the inequality measure may not reflect the true level of inequality between the most and least deprived areas in later periods, because the ranking no longer reflects the true deprivation ranking . The risk of changing IMD is that there will be step changes in the value of inequalities indicator that reflect a new version of the IMD with a revised definition, rather than a step change in practise. The analysis identified that the choice of the IMD definition has a relatively small impact on the inequality measure. In view of this, it was decided to use fixed IMD so that changes in the measure reflect changes in the relative health status of communities over time, not changes in our measurement of deprivation.  This application has been revised such that populations for all those aged 75 and over are used in the SII calculation instead of the population aged 75 to 79 that was previously used. This is in order to reflect the population who are described by the indicator value. It will bring the calculation in line with ONS and Public Health England (PHE) calculations of SII at birth which use the whole population rather than the new-born population. The effect of this change has been analysed and the difference to SIIs is never more than 0.02 in values that originally ranged from 1.79 to 2.87. |
| **3.3 Data availability** | The data required for the health inequality measure is generated by ONS and published by NHS Digital, usually in February each year.  The underlying indicator is made available to all users, free of charge, on the indicator portal[[8]](#footnote-8), on the NHS Digital website and on data.gov. |
| **3.4 Data quality** | The underlying indicator generates all required inputs, these are complete. The health inequality indicators are generated from the results of the underlying indicator.  The data quality and assurance processes for the underlying indicator are described in the IMAS application form for life expectancy at 75.  The underlying indicator is published in February each year, from data supplied by the ONS the previous autumn. |
| **3.5 Quality assurance** | At the point of data supply from the ONS, NHS digital are able to calculate the health inequality measures and review inputs and outputs for consistency with previously supplied data. |
| **3.6 Quality improvement plan**  If appropriate | N/A |
| **3.7 Data linkage** | None |
| **3.8 Quality of data linkage** | N/A |
| **3.9 Data fields** | The data are selected from the output of the underlying indicator. Columns required are: Indicator value (life expectancy at 75), deprivation decile, gender, population. |
| **3.10 Data filters** | None |
| **3.11 Justifications of inclusions and exclusions**  and how these adhere to standard definitions | There are none, the data required is selected from the output of the underlying indicator. |
| **3.12 Data processing** | The generation of health inequality measures is performed by NHS Digital. |

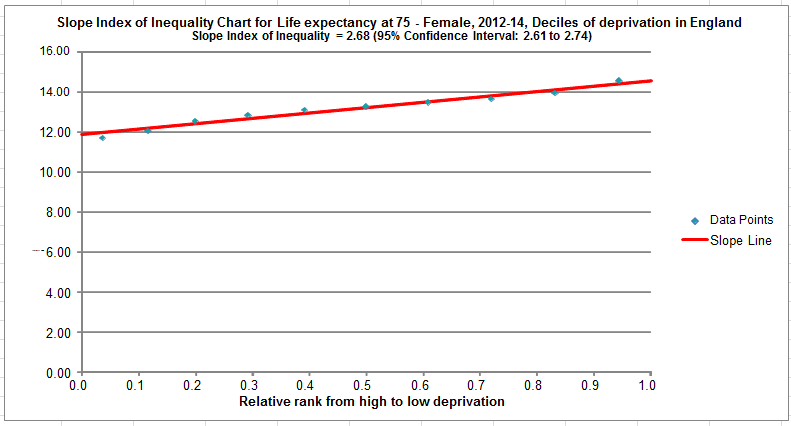
Section 4 Construction

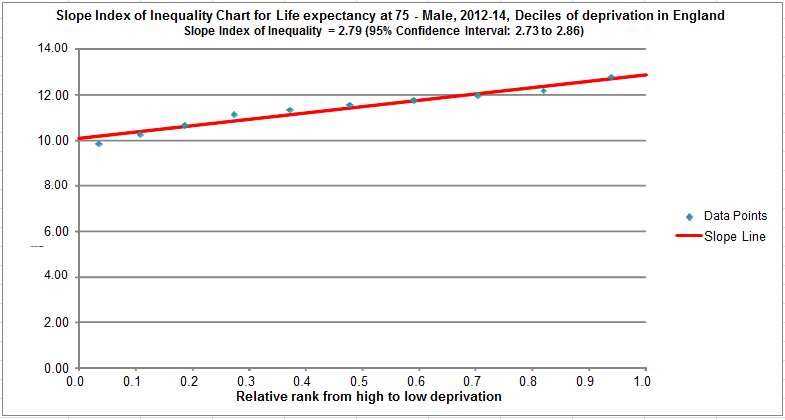
|  |  |
| --- | --- |
| **4.1 Numerator** | The gradient of the linear regression line of best fit for the values of the life expectancy at 75 plotted against the cumulative proportion of the population for each deprivation group in rank order (where a cumulative proportion of zero represents maximum deprivation and one represents minimum deprivation) |
| **4.2 Denominator** | N/A |
| **4.3 Computation** | Lower super output areas (LSOAs) are grouped into deprivation deciles according to the 2015 Index of Multiple Deprivation (IMD). Abridged life tables are then calculated for each deprivation decile. These values are supplied by the ONS and are presented as part of the underlying indicator, NHS OF indicator 1b – life expectancy at 75[[9]](#footnote-9)The x value is the cumulative proportion of the population at the mid-point of each deprivation decile.  Where Pi Indicates the population of the *i*th decile. |

The table below illustrates the calculation for the female aged 75+ population using England mid-year population estimates for 2012-14:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Deprivation | Female population (75+, summed over three years) | cumulative population to start of band | cumulative population to mid-point of band | x |
| 1 - Most deprived | 569,541 | - | 284,771 | 0.038 |
| 2 | 613,692 | 569,541 | 876,387 | 0.116 |
| 3 | 667,266 | 1,183,233 | 1,516,866 | 0.201 |
| 4 | 724,959 | 1,850,499 | 2,212,979 | 0.293 |
| 5 | 786,278 | 2,575,458 | 2,968,597 | 0.393 |
| 6 | 826,640 | 3,361,736 | 3,775,056 | 0.499 |
| 7 | 838,854 | 4,188,376 | 4,607,803 | 0.610 |
| 8 | 840,663 | 5,027,230 | 5,447,562 | 0.721 |
| 9 | 849,024 | 5,867,893 | 6,292,405 | 0.832 |
| 10 - Least deprived | 842,767 | 6,716,917 | 7,138,301 | 0.944 |

The graphs below shows the indicator value plotted against the cumulative population proportion for the years 2012-14 for both Females and Males.





The data points are the underlying indicator values plotted against the cumulative population proportion for each deprivation decile. The line of the graph is a weighted linear regression line of best fit for the data, calculated by the least squares method. The SII is the gradient of the line.

Where:

w is the percentage of the population in the deprivation group

x is the cumulative proportion of the population at the mid-point of the deprivation group

y is the indicator value

|  |  |
| --- | --- |
| **4.4 Risk adjustment or standardisation type and methodology** | **None** |
| **4.5 Justification of risk adjustment type and variables**  or why risk adjustment is not used |  |
| **4.6 Confidence interval / control limit use and methodology** | Confidence Intervals  Confidence intervals for the slope index values are calculated by a simulation method (please see the attached excel sheet for an example based on life expectancies at birth with test populations).  Document available on request by email to [indicators@nice.org.uk](mailto:indicators@nice.org.uk)  The slope index value is calculated many times, and the confidence intervals are selected from the resulting distribution of SII values. The life expectancies for each deprivation decile for each time period and gender are generated 1,000,000 times. SIIs are then calculated for each of these simulations giving 1,000,000 SII values for each time period and gender combination. These are ranked and the 25,000th and 975,000th values are selected as the 95% lower and upper confidence intervals for the SII respectively.  In order to generate the life expectancies on which the SII are based, the standard error of each life expectancy indicator value is calculated as follows:  Where  UCI and LCI are the 95% upper and lower confidence intervals of the life expectancy indicator value respectively  z is the 97.5 percentile point of the normal distributionA random number generator is then used to generate 1,000,000 random values from a normal distribution with mean 0 and standard deviation 1. These values *b* are then used to calculate 1,000,000 life expectancies *LEsim* for each deprivation decile as follows:  Where  LE is the life expectancy indicator value for the respective deprivation decile  SE is the standard error for the life expectancy value  An SII is then calculated for each life expectancy set using the method described in section 4.3 |
| **4.7 Justification of confidence intervals / control limits used** | The previous method for calculating SII confidence intervals involved multiplying the standard error of the SII by values from the t-distribution. This method produces relatively wide confidence intervals because the relationship between life expectancy and deprivation is only approximately linear. This means that the previous method produces a slight model mismatch as the residual between the regression line and the actual life expectancy values contributes to the confidence interval for each of the ten deprivation decile points. So the previous method for confidence intervals measured the variability of the SII and the degree of non-linearity of the model.  The new simulation method has been developed by Public Health England (PHE) as a solution to this. The method minimises the model mismatch as the confidence intervals are a function of the size of the pool of values drawn. A larger pool yields more precise confidence intervals. 1,000,000 simulations have been tested and this number gives consistent results across several runs. |

Section 5 Presentation and Interpretation

Presentation

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| **5.1 Presentation of indicator** | The health inequality measures will be presented alongside the England level indicator value for the year.  There will be columns for:  Slope index of inequality.  Lower CI.  Upper CI.  Relative index of inequality.  Lower CI  Upper CI |
| **5.2 Contextual information provided alongside indicator**  with justification | The inequality measures are themselves additional intelligence relating to the indicator values presented. The inequality measures summarise the extent of inequality, the individual indicator values for each deprivation decile are presented in the indicator files.  In addition to the SII describing the extent of health inequality in relation to deprivation, the Relative Index of Inequality (RII) will be presented as a contextual measure.  The RII provides a different perspective on the level of health inequality by considering how the level of health inequality compares with the overall level of the indicator.  The Marmot Review[[10]](#footnote-10) lists both the SII and RII as potential measures of health inequality, and advocates the use of more than one indicator. “Using only a relative and absolute index on its own tends to create perverse incentives for those tasked with implementation... Therefore, both need to be used in measuring progress, using separate metrics for each.” (section 3.7.3); and “To avoid misleading conclusions and creating perverse incentives, indicators need to reflect both absolute and relative reductions made to inequalities, based on the measures described in this report.” |

The table below shows the SII and RII for indicator 1b.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Period | 2009/11 | 2009/11 | 2010/12 | 2010/12 | 2011/13 | 2011/13 | 2012/14 |  | 2012/14 |
|  | Female | Male | Female | Male | Female | Male | Female |  | Male |
| Slope index of inequality | 2.39 | 2.62 | 2.47 | 2.65 | 2.60 | 2.74 | 2.68 |  | 3.07 |
| CI lower | 2.33 | 2.55 | 2.41 | 2.58 | 2.54 | 2.68 | 2.61 |  | 2.58 |
| CI upper | 2.46 | 2.69 | 2.54 | 2.72 | 2.67 | 2.81 | 2.74 |  | 3.55 |
| Relative index of inequality | 0.18 | 0.23 | 0.19 | 0.23 | 0.20 | 0.24 | 0.20 |  | 0.26 |
| CI lower | 0.18 | 0.23 | 0.18 | 0.23 | 0.19 | 0.23 | 0.20 |  | 0.22 |
| CI upper | 0.19 | 0.24 | 0.19 | 0.24 | 0.20 | 0.25 | 0.21 |  | 0.31 |

|  |  |  |  |
| --- | --- | --- | --- |
| Period | 2012/14 | 2013/15 | 2013/15 |
|  | Male | Female | Male |
| Slope index of inequality | 2.79 | 2.78 | 2.86 |
| CI lower | 2.73 | 2.72 | 2.80 |
| CI upper | 2.86 | 2.85 | 2.93 |
| Relative index of inequality | 0.24 | 0.21 | 0.25 |
| CI lower | 0.24 | 0.21 | 0.24 |
| CI upper | 0.25 | 0.22 | 0.26 |

Note: The change in the values from the previous version of this documentation is due to two factors. ONS changed the methodology of life expectancy estimates in November 2016 which had a substantial impact on life expectancies at deprivation level; this has been responsible for the majority of the change. NHS Digital is also proposing to update its methodology to use populations for ages 75+ instead of age 75 to 79 in its SII calculation. This is also responsible for some of the change although this never affects an SII value by more than 0.02.

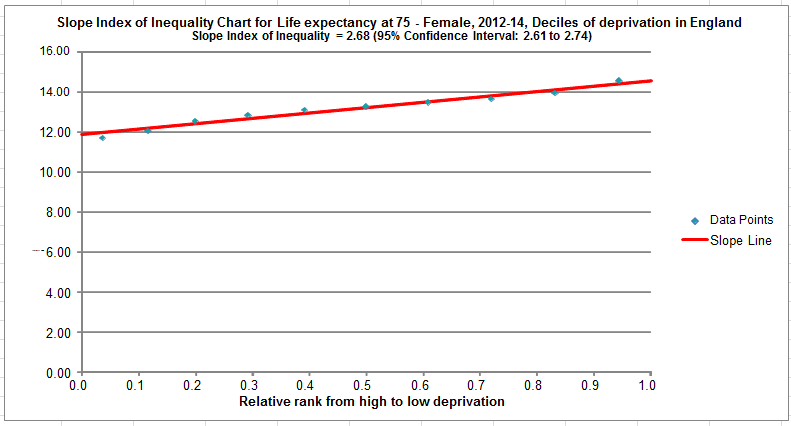
Both males and females have seen significant increases in the absolute level of inequality observed between 2009/11 and 2013/15. The relative stability of the RII in males indicates that the health inequality is changing in a way that is consistent with changes to the underlying indicator. The RII has shown a significant increase for females, however, suggesting a genuine increase in inequality.

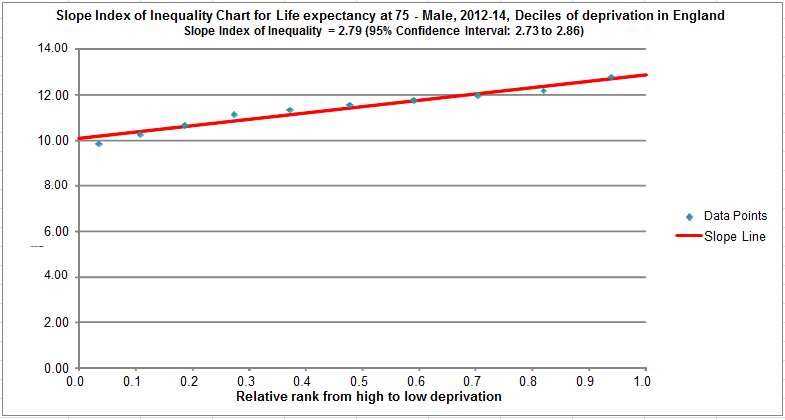
|  |  |
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| **5.3 Calculation and data source of contextual information** | RII calculation  The relative index is calculated as the slope index divided by the mean weighted indicator value ():  Where:  w is the percentage of the population in the deprivation group  y is the indicator value  The confidence intervals of the RII are calculated from the confidence intervals of the SII as:  RII data source – as indicator. |
| **5.4 Use of bandings, benchmarks or targets**  with justification | None |
| **5.5 Banding, benchmark or target methodology**  if appropriate | N/A |

Interpretation

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| **5.6 Interpretation guidelines** | The SII presents the absolute extent of health inequality, the RII presents the inequality as a proportion of the average life expectancy. The SII and RII are intended to provide a summary measure of the extent of inequality. They do not give a full picture of how health inequalities are changing, and should be read in conjunction with the indicator values presented by decile of area deprivation to obtain a fuller understanding.  A positive SII value indicates that those in the least deprived areas live longer than those in the most deprived areas. An increase in the SII value indicates that the absolute extent of inequality is increasing, therefore a reduction in the SII is desirable.  The RII contextualises the SII, for example, a 5% increase in every average life expectancy would lead to an increase in the SII, i.e. if every value increased by 5%, the gradient of the slope would increase by 5% and the average life expectancy would increase by 5%. However, since the RII is the SII divided by the average life expectancy, the RII would show that the inequality remains constant when compared to the average life expectancy. An increase in the RII value indicates that the extent of the inequality is increasing as a proportion of the overall indicator value. |
| **5.7 Limitations and potential bias** | The summary inequality measures themselves show whether inequality is growing or diminishing, and what the change is relative to the indicator average.  The inequality measure, in part, reflects the range of deprivation in the underlying population, i.e. if the range of deprivation was reduced we would expect the inequality measure in the context of this indicator to reduce.  The NHS can only be expected to be one of the several factors which influence life expectancy.  The user may want to refer to the indicator values presented by deprivation to further understand these changes. |
| **5.8 Improvement actions** | The NHS Outcomes Framework sets out the national outcome goals that the SofS will use to monitor the progress of NHS England and there is an expectation of continuous improvement. It does not set out how these outcomes should be delivered, it will be for NHS England to determine how best to deliver improvements by working with Clinical Commissioning Groups and Providers to make use of the tools at their disposal.  The Health and Social Care Act 2012 amendments to the NHS Act 2006 introduced specific legal duties on health inequalities for the Secretary of State for Health, NHS England and Clinical Commissioning Groups (CCGs) to have regard to the need to reduce health inequalities. These include:  • Duties on NHS England and each CCG to have regard to the need to reduce inequalities between patients in access to health services and the outcomes achieved.  The Health and Social Care Act 2012 also requires the Secretary of State to make an assessment of, and report on, his own fulfilment of his health inequalities duty, and to assess and report on how well NHS England have fulfilled theirs. He has set out a suite of indicators which he will take account of in making these assessments, and inequalities in life expectancy at 75 for men and women is part of that suite. This NHSOF indicator will be used for that.  Reducing inequalities is included in objective 1 within the mandate to NHS England, with an expectation that success will be measured on inequalities as well as overall improvement against the NHS Outcomes Framework. |
| **5.9 Evidence of variability** | These summary measures are presented at the England level.  The relationship between life expectancy at 75 and deprivation follows an approximately linear relationship. |

The charts below show the relationship between life expectancy at 75 and deprivation, 2012-14 for males and females.

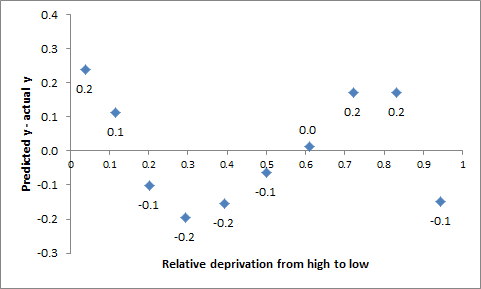


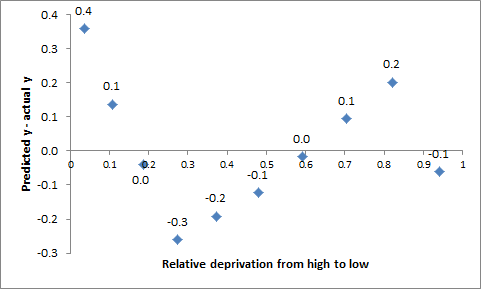


The table below shows the SII from 2009/11 to 2013/15, and the r2 value from the line of best fit through the data points.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | SII Female | SII Male | r2 Female | r2 Male |
| 2009/11 | 2.39 | 2.62 | 0.9582 | 0.9756 |
| 2010/12 | 2.47 | 2.65 | 0.9636 | 0.9701 |
| 2011/13 | 2.60 | 2.74 | 0.9594 | 0.9683 |
| 2012/14 | 2.68 | 2.79 | 0.9657 | 0.9569 |
| 2013/15 | 2.78 | 2.86 | 0.9627 | 0.9547 |

The charts below shows the residuals of the predicted y value from the linear regression minus the actual y value for 2012/14 for Females and Males respectively.





Section 6 Risks

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| **6.1 Similar existing indicators** | The underlying indicator (NHS OF 1b –Life expectancy at 75) presents the data required to compute the inequality measures. |
| **6.2 Coherence and comparability** | The inequality measures are summaries of the underlying indicator and can be read alongside one another. |
| **6.3 Undesired behaviours and/or gaming** | None identified. |
| **6.4 Approach to indicator review** | The NHS OF is refreshed annually, at which point indicators in development and placeholders are reviewed for updates.  The Indicator Assurance Service will be used to review the NHS Outcomes Framework indicators, a formal review of an indicator occurs every three years. User needs will form part of this process.  Comments can be made through various media:   * ‘Have your say’ on the NHS Outcomes Framework section of the NHS Digital website   NHS Digital general enquiries via email and/or telephone |
| **6.5 Disclosure control** | The Statistics Code of Practice is followed regarding security and release of information prior to publication.  Disclosure control is applied to the underlying indicator. Given that the health inequality measure is derived from summary data it is unlikely that any data point would be suppressed. If any source data point was subject to disclosure control it would not be used in the calculation of the health inequality to prevent calculation of the controlled value. |
| **6.6 Copyright** | Copyright © 2017 Health and Social Care Information Centre. |

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| Indicator and Methodology Assurance Report |
| **Health inequalities (area deprivation) - Life expectancy at 75** |
| **IAP00459** |

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**Final Assurance Rating from the Indicator Governance Board - 14/12/2016**

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| **Reason for assessment** | Initial assurance |
| **Iteration** | 1st IGB meeting |

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| **Ratings Against Assessment Criteria** |  |
| Clarity | **Fit for use** |
| Rationale | **Fit for use** |
| Data | **Fit for use** |
| Construction | **Fit for use** |
| Presentation and Interpretation | **Fit for use** |
| Risks and Usefulness | **Fit for use** |
| **Overall Rating** | **Fit for use** |

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| **Outcome** | **This indicator has been approved for inclusion in the National Library of Quality Assured Indicators** |

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| **Key findings from Assurance** |
| * IGB endorse the MRG’s recommendation that the indicator is rated ‘Fit for use’ and is suitable for inclusion in the Library. * A three year review period has been set, after which the indicator will be reconsidered by the assurance process. |

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| **Approval date** | 14/12/2016 |
| **Review date** | 14/12/2019 |

**Details of Methodology Appraisal – Click here to enter date**

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| **Methodology appraisal body** | Indicator & Methodology Assurance Service |
| **Reason for assessment** | Initial assurance |
| **Iteration** | 1st MRG meeting |

***Suggested Assurance Rating by Methodology Appraisal Body***

|  |  |
| --- | --- |
| **Ratings Against Assessment Criteria** |  |
| Clarity | **Fit for use** |
| Rationale | **Fit for use** |
| Data | **Fit for use** |
| Construction | **Fit for use** |
| Presentation and Interpretation | **Fit for use** |
| Risks and Usefulness | **Fit for use** |
| **Overall Rating** | **Fit for use** |

**Summary Recommendation to Applicant:**

The indicator is recommended to IGB as being fit for use against pending a response to the minor points of clarification discussed in the MRG meeting 8/9/16 (detailed in the appraisal log below)   
  
  
**Summary Recommendation to IGB:**

The indicator is recommended to IGB as being fit for use against the assessment criteria and therefore suitable for inclusion in the Library of Quality Assured Indicators.  
  
It is noted that MRG has undertaken separate assurance of the indicator on which this indicator is based as part of the same assessment. (application IAP00016). In addition MRG note that the plan to update the methodology for calculating confidence intervals during 2017.

**Please find a detailed description of recommendations and actions in the appraisal log at the end of the document.**

**What do the Assurance Ratings mean?**

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| --- | --- |
| **Rating** | **Description** |
| **Fit for use** | This indicator can be used with confidence that it is constructed in a sound manner that is fit for purpose. |
| **Fit for use with caveats** | The indicator is fit for use; however users should be aware of caveats and/or recommendations for improvement that have been identified during the assurance process. |
| **Use with caution – data quality issue** | The indicator is based on a sound methodology for which the assurance process endorse the use, however issues have been identified with the national data source which have implications for its use as an indicator. |
| **Not fit for use** | Issues have been identified with the indicator which have resulted in the assurance process currently not endorsing its use as a quality indicator. |
| **Not enough information provided** | There has not been enough information supplied to the assurance process to be able to accurately give the indicator a level of assurance. |

**Appraisal Log**

**Clarity**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
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**Rationale**

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| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
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**Data**

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| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
|  |  |  |  |  |  |  |

**Construction**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 4a | Further clarity is required around the way deprivation deciles are used in the construction. | MRG  08/09/16 | Section 3.1 and 4.3 updated. | 2016-09-26 |  | 17/10/16 – MRG Chair |
| 4b | There should be further clarity of the fact that this indicator is based on an underlying indicator, which could be achieved through ensuring the indicator is suitably referenced | MRG  08/09/16 | Section 4.3 updated. | 2016-09-26 |  | 17/10/16 – MRG Chair |
| 4c | The reference to the APHO method for confidence intervals (sections 4.3 and 4.7) should be updated to instead reference the Lowe and Lowe paper, which is the source used by APHO | MRG  08/09/16 | Section 4.7 updated. | 2016-09-26 |  | 17/10/16 – MRG Chair |
| 4d | It is noted that there is a plan to update the methodology for calculating the confidence interval in Feb 2017.  MRG determine that this does not affect the assessment provided at the meeting of the 8th Sept 2016, but that the group should be made aware of the change when it happens. | MRG  08/09/16 | Section 4.7 updated. | 2016-09-26 |  | 17/10/16 – MRG Chair |

**Presentation and Interpretation**

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| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
| 5a | It would be useful to make clear that “good” would be represented by the slope decreasing over time.  Additionally the labelling of the x axis in graph provided in section 5.9 should be checked. | MRG  08/09/16 | Section 5.6 updated. | 2016-09-26 |  | 17/10/16 – MRG Chair |

**Risks and Usefulness**

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| --- | --- | --- | --- | --- | --- | --- |
| ***Rec. no*** | ***Issue or recommendation*** | ***Raised by / Date*** | ***Response or Action taken by applicant*** | ***Response date*** | ***Resolved*** | ***Sign off by / Date*** |
|  |  |  |  |  |  |  |

**Any complaints or appeals against the decisions made during the assurance process should be made to the Indicator & Methodology Assurance Service (IMAS) Team at NHS Digital. Likewise, if you are unclear regarding any of the recommendations in this report, or have any queries about the assurance process in general, please contact the IMAS team.**

**Indicator and Methodology Assurance Service**

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1. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/417897/Indicators_acc.pdf> [↑](#footnote-ref-1)
2. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/385751/NHS_Outcomes_Tech_Appendix.pdf> [↑](#footnote-ref-2)
3. Comparison of fit between models is based on the root mean square deviation being higher (= worse fit), or lower (= better fit) [↑](#footnote-ref-3)
4. <https://www.gov.uk/government/publications/department-of-health-shared-delivery-plan-2015-to-2020> [↑](#footnote-ref-4)
5. <https://www.england.nhs.uk/publications/annual-report/> [↑](#footnote-ref-5)
6. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/494485/NHSE_mandate_16-17_22_Jan.pdf> [↑](#footnote-ref-6)
7. <https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/506771/SofS_letter_health_inequalities_acc.pdf> [↑](#footnote-ref-7)
8. <https://indicators.hscic.gov.uk/webview/index.jsp?v=2&submode=ddi&study=https%3A%2F%2F192.168.228.51%3A443%2Fobj%2FfStudy%2FP01728&mode=documentation&top=yes> [↑](#footnote-ref-8)
9. http://indicators.hscic.gov.uk/webview/index.jsp?v=2&submode=ddi&study=http%3A%2F%2F192.168.229.22%3A80%2Fobj%2FfStudy%2FP01728&mode=documentation&top=yes [↑](#footnote-ref-9)
10. <http://www.instituteofhealthequity.org/projects/fair-society-healthy-lives-the-marmot-review> [↑](#footnote-ref-10)